Tag Helpers

.NET

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

There are two types of 'Helpers'.

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. 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() and more.	ASP.NET Core *Tag Helpers* enable server-side code to participate in creating and rendering HTML elements in Razor files (.cshtml). There are *Tag Helpers* for creating forms and 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. *HTML Helpers* provide an alternative approach to a specific *Tag Helper* and *Tag Helpers* don't replace all *HTML Helpers*.

Tag Helpers vs HTML Helpers

https://docs.microsoft.com/en-us/aspnet/core/mvc/views/tag-helpers/intro?view=aspnetcore-5.0#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 familiar to front-end designers.
- provide *IntelliSense*.
- target standard HTML *elements*
- provide *attributes* created server-side on the model to the *element*.

HTML Helpers can be used when a specific *Tag Helper* is unavailable.

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-5.0#the-form-tag-helper

- Must be used in conjunction with the asp-controller and asp-action Tag Helpers and the [ValidateAntiForgeryToken] attribute placed on the corresponding *Action* method.

- Automatically generates a hidden Request Verification Token to prevent *cross-site request forgery (CSRF)*.

- The Alternative, Html.BeginForm, doesn't automatically include an 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

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 the source code

- *Strong typing* with the *Model Properties*.

```csharp
using System.ComponentModel.DataAnnotations;

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

```cshtml
@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

- 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.

```csharp
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; }
    }
}
```

```html
@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

- Used for <u>client-side validation</u> and displays the results of server-side validation when a form is rejected.

- <span asp-validation-for=""> is equal to html helper Html.ValidationMessageFor()

- Leverages *model data attributes* and jQuery to display validation error messages in the body of the <span> 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

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

- **asp-validation-summary** is equivalent to html helper **Html.ValidationSummary()**.
- 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 Class

```
@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>
```

.cshtml file

<select> Tag Helper

https://docs.microsoft.com/en-us/aspnet/core/mvc/views/working-with-forms?view=aspnetcore-5.0#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 an IEnumerable<SelectListItem> (e.g. *SelectList*) property on the *model*.

```csharp
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"   },
        };
    }
}
```

```cshtml
@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

- 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 will be 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

- 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>
```