Tag Helpers

.NET

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

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

There are two types of 'Helpers'.

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-5.0

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

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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

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- 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 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

https://docs.microsoft.com/en-us/aspnet/core/mvc/views/working-with-forms?view=aspnetcore-5.0#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 the source code
- ***Strong typing*** with the ***Model Properties***.

```
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-5.0#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-5.0#the-validation-message-tag-helper

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- Used for client-side validation and displays the results of server-side validation when a 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-5.0#the-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().
- also displays server-side ***ModelState*** errors.
- used to display a summary of validation messages.

Model Class

```
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; }
    }
}
```

.cshtml file

```
@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-5.0#the-select-tag-helper

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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***.

```
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-5.0#anchor-tag-helper-attributes

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- 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

https://docs.microsoft.com/en-us/aspnet/core/mvc/views/tag-helpers/built-in/anchor-tag-helper?view=aspnetcore-5.0#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>
```