

# Description

This is my own preparation guide for the [MCSD - Exam 70-486: Developing ASP.NET MVC 4 Web Applications](#), I'm sharing this document because it can be useful for someone else.

Any Tips or Feedbacks are welcome.

If you haven't taken the [MCSD - Exam 70-487 - Developing Windows Azure and Web Services](#) exam yet, check out [my 70-487 guide](#).

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## Study Strategy

- Read MVC 4 Books such as: [Programming ASP.NET MVC 4 by ofps.oreilly](#) and [ASP.NET MVC 4 in Action](#) and the official Microsoft press book: [Exam Ref 70-486: Developing ASP.NET MVC 4 Web Applications](#)
- Watch Pluralsight Videos such as: [Building Applications with ASP.NET MVC 4](#), [ASP.NET MVC 4 Fundamentals](#), [ASP.NET MVC Advanced Topics](#), [Windows Azure: The Big Picture](#)
- Read MCPD\_70\_519\_Web\_Applications Using .NET Framework 4 Book, this book is for MCPD, however there are many topics in this book that match with the subjects of MCS D Certification.
- Study items from ["What's new from 70x515 to 70x516"](#) section of this guide, specially the azure links.
- Review items from ["Already Learned on 70-480"](#) section of this guide.
- Take a second shot token
- Set the appointment for the exam (Prometric), using the second shot voucher.
- Get the certification :)

## What's New from 70x515 to 70x486?

- [Design a distributed application \(AZURE\)](#)
- [Design and implement the Windows Azure role life cycle.](#)
- [Design and implement a Web Socket strategy.](#)
- [Compose the UI layout of an application.\(MVC 4\)](#)
- [Reduce network bandwidth](#)(bundle,Azure CDN etc..)
- [Test a web application \(TDD,Mocks\)](#)
- [Debug a Windows Azure application.](#)
- [Design and implement claims-based authentication across federated identity stores.](#)
- [Implement a secure site with ASP.NET.](#)

## Already Learned on 70-480 (HTML 5,CSS3, Javascript,Jquery, Ajax,DOM)

- [Apply the user interface design for a web application.](#)
- [Design and implement UI behavior.](#)
- [Enhance application behavior and style based on browser feature detection.](#)
- [Plan an adaptive UI layout.](#)
- [Plan for search engine optimization and accessibility.](#)

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## Skills Being Measured

### Design the Application Architecture

- **Plan the application layers.**
  - This objective may include but is not limited to: plan data access; plan for separation of concerns; appropriate use of models, views, and controllers; choose between client-side and server side processing; design for scalability

- [Understanding ASP.NET MVC \(Model View Controller\) Architecture for Beginners](#)
- [ASP.NET MVC Overview](#)

## ● Design a distributed application.

- This objective may include but is not limited to: design a hybrid application (on premise vs. off premise, including Windows Azure); plan for session management in a distributed environment; plan web farms
  - <http://www.windowsazure.com/en-us/develop/net/fundamentals/intro-to-windows-azure/>
  - <https://www.microsoftvirtualacademy.com/tracks/introduction-to-windows-azure>
  - [.NET On-Premises/Cloud Hybrid Application Using Service Bus Relay](#)

## ● Design and implement the Windows Azure role life cycle.

- This objective may include but is not limited to: identify and implement Start, Run, and Stop events; identify startup tasks (IIS configuration [app pool], registry configuration, third-party tools)
  - [Real World: Startup Lifecycle of a Windows Azure Role](#)
  - [MSDN – RoleEntryPoint Methods](#)
  - [Role Startup Life Cycle](#)
  - <http://brentdacodemonkey.wordpress.com/2011/09/24/leveraging-the-roleentrypoint-year-of-azure-week-12/>
  - <http://blogs.msdn.com/b/windowsazure/archive/2011/01/04/responding-to-role-topology-changes.aspx>

## ● Configure state management.

- This objective may include but is not limited to: choose a state management mechanism (in-process and out of process state management, ViewState); plan for scalability; use cookies or local storage to maintain state; apply configuration settings in web.config file; implement sessionless state (for example, QueryString)
  - [ASP.NET Session State](#)
  - [ASP.NET State Management Overview](#)
  - [SessionStateMode Enumeration](#)
  - [Session-State Modes](#)
  - [ASP.NET View State Overview](#)
  - [ASP.NET Cookies Overview](#)
  - [ASP.NET State Management Recommendations](#)

### ○ Examples

#### ○ Web Storage / LocalStorage HTML5+JS



## ● Design a caching strategy.

- This objective may include but is not limited to: implement page output caching (performance oriented); implement data caching; implement HTTP caching
  - [http://ofps.oreilly.com/titles/9781449320317/ch\\_Caching.html](http://ofps.oreilly.com/titles/9781449320317/ch_Caching.html)
  - [How To Control Page Output Caching in ASP.NET by Using Visual C# .NET](#)
  - [ASP.NET Page Output Cache](#)
  - [Caching in ASP.Net](#)
  - [ASP.NET Caching: Techniques and Best Practices](#)
  - [OutputCacheAttribute Class \(System.Web.Mvc\)](#)
  - [Improving Performance with Output Caching \(C#\)](#)
  - <https://www.windowsazure.com/en-us/develop/net/how-to-guides/cache/>

## ● Design and implement a Web Socket strategy.

- This objective may include but is not limited to: read and write string and binary data asynchronously (long-running data transfers); choose a connection loss strategy; decide a strategy for when to use Web Sockets
  - [ASP.NET 4.5 - Support for WebSockets Protocol](#)
  - [The Web Sockets API](#)
  - [Web Socket.org](#)
  - [WebSockets in .NET 4.5: a simple game](#)
  - [Web Socket Interface](#)
  - <http://www.asp.net/mvc/tutorials/mvc-4/using-asynchronous-methods-in-aspnet-mvc-4>

## ● Design HTTP modules and handlers.

- This objective may include but is not limited to: implement synchronous and asynchronous modules and handlers; choose between modules and handlers in IIS
  - [Support for await and Task-Based Asynchronous Modules and Handlers](#)
  - [HTTP Handlers and HTTP Modules Overview](#)
  - [Code Guru: HTTP Handlers and HTTP Modules in ASP.NET](#)
  - [Custom HttpModule Example](#)

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## Design the User Experience

### ● Apply the user interface design for a web application.

- This objective may include but is not limited to: create and apply styles by using CSS; structure and layout the user interface by using HTML; implement dynamic page content based on a design
  - <http://www.w3schools.com/css/default.asp>
  - <http://www.w3schools.com/html/default.asp>
  - <http://slides.html5rocks.com/#landing-slide>
  - <http://www.html5rocks.com/en/>
  - <http://html5doctor.com/>
  - [MSDN - HTML5](#)

### ● Design and implement UI behavior.

- This objective may include but is not limited to: implement client validation; use JavaScript and the DOM to control application behavior; extend objects by using prototypal inheritance; use AJAX to make partial page updates; implement the UI by using JQuery
  - [Client-Side Development](#)
  - <http://ofps.oreilly.com/titles/9781449320317/ch AJAX.html>
  - <http://docs.jquery.com/Plugins/Validation>
  - <http://www.the-art-of-web.com/html/html5-form-validation/>
  - [http://www.w3schools.com/html/html5\\_form\\_attributes.asp](http://www.w3schools.com/html/html5_form_attributes.asp)
  - <http://www.w3schools.com/js/default.asp>
  - <http://jquery.com/>
  - <http://www.w3schools.com/jquery/default.asp>
  - <http://phrogz.net/JS/classes/OOPinJS.html>
  - <http://phrogz.net/JS/classes/OOPinJS2.html>

- *Examples*

- JQuery Ajax

```

$.ajax(
{
  type: "GET",
  url: '@Url.Content("~/Home/GetCars")',
  //data: "{}",
  contentType: "application/json; charset=utf-8",
  dataType: "json",
  success: function (data) {
    $.each(data, function (i, theItem) {
      var combo = document.getElementById("ComboCars");
      var option = document.createElement("option");
      option.text = theItem.Name;
      option.value = theItem.Vin;
      try {
        combo.add(option, null); // Other browsers
      }
      catch (error) {
        alert('error found');
        combo.add(option); // really old browser
      }
    });
  },
  error: function (msg, url, line) {
    alert('msg = ' + msg + ', url = ' + url + ', line = ' + line);
  }
});

```

- JQuery Get

**Example:** Request the `test.php` page, but ignore the return results.

```
$.get("test.php");
```

**Example:** Request the `test.php` page and send some additional data along (while still ignoring the return results).

```
$.get("test.php", { name: "John", time: "2pm" });
```

**Example:** pass arrays of data to the server (while still ignoring the return results).

```
$.get("test.php", { 'choices[]': ["Jon", "Susan"] });
```

**Example:** Alert out the results from requesting `test.php` (HTML or XML, depending on what was returned).

```
$.get("test.php", function(data){
    alert("Data Loaded: " + data);
});
```

**Example:** Alert out the results from requesting `test.cgi` with an additional payload of data (HTML or XML, depending on what was returned).

```
$.get("test.cgi", { name: "John", time: "2pm" },
    function(data){
        alert("Data Loaded: " + data);
    });
```

**Example:** Gets the `test.php` page contents, which has been returned in json format (`<?php echo json_encode(array("name"=>"John","time"=>"2pm")); ?>`), and adds it to the page.

```
$.get("test.php",
    function(data){
        $('body').append( "Name: " + data.name ) // John
        .append( "Time: " + data.time ); // 2pm
    }, "json");
```

○ JQuery Post



**Example:** Post a form using ajax and put results in a div

```
<!DOCTYPE html>
<html>
<head>
  <script src="http://code.jquery.com/jquery-latest.js"></script>
</head>
<body>
  <form action="/" id="searchForm">
    <input type="text" name="s" placeholder="Search..." />
    <input type="submit" value="Search" />
  </form>
  <!-- the result of the search will be rendered inside this div -->
  <div id="result"></div>

<script>
  /* attach a submit handler to the form */
  $( "#searchForm" ).submit(function(event) {

    /* stop form from submitting normally */
    event.preventDefault();

    /* get some values from elements on the page: */
    var $form = $( this ),
        term = $form.find( 'input[name="s"]' ).val(),
        url = $form.attr( 'action' );

    /* Send the data using post and put the results in a div */
    $.post( url, { s: term },
      function( data ) {
        var content = $( data ).find( '#content' );
        $( "#result" ).empty().append( content );
      }
    );
  });
</script>

</body>
</html>
```

- Extend objects by using prototypal inheritance

```
//Define a functional object to hold persons in javascript
var Person = function (name) {
    this.name = name;
};

//Add dynamically to the already defined object a new getter
Person.prototype.getName = function () {
    return this.name;
};

//Create a new object of type Person
var john = new Person("John");

//Try the getter
alert(john.getName());

//If now I modify person, also John gets the updates
Person.prototype.sayMyName = function () {
    alert('Hello, my name is ' + this.getName());
};

//Call the new method on john
john.sayMyName();
```



Until now I've been extending the base object, now I create another object and then inheriting from Person.

```
//Create a new object of type Customer by defining its constructor. It's not
//related to Person for now.
var Customer = function (name) {
    this.name = name;
};

//Now I link the objects and to do so, we link the prototype of Customer to
//a new instance of Person. The prototype is the base that will be used to
//construct all new instances and also, will modify dynamically all already
//constructed objects because in Javascript objects retain a pointer to the
//prototype
Customer.prototype = new Person();

//Now I can call the methods of Person on the Customer, let's try, first
//I need to create a Customer.
var myCustomer = new Customer('Dream Inc. ');
myCustomer.sayMyName();

//If I add new methods to Person, they will be added to Customer, but if I
//add new methods to Customer they won't be added to Person. Example:
Customer.prototype.setAmountDue = function (amountDue) {
    this.amountDue = amountDue;
};
Customer.prototype.getAmountDue = function () {
    return this.amountDue;
};

//Let's try:
myCustomer.setAmountDue(2000);
alert(myCustomer.getAmountDue());
```

While as said I can't call setAmountDue(), getAmountDue() on a Person.

```
//The following statement generates an error.
john.setAmountDue(1000);
```

- Parse a JSON String

*Parse a JSON string.*

```
var obj = jQuery.parseJSON('{ "name": "John" }');
alert( obj.name === "John" );
```

- Compose the UI layout of an application.

- This objective may include but is not limited to: implement partials for reuse in different areas of the application; design and implement pages by using Razor templates (Razor view engine); design layouts to provide visual structure; implement master/application pages

- [The Razor View Engine Basics](#)
- [Oreilly - Chapter 15. Reusable UI Components](#)
- [Templates with razor - HTML HELPERS](#)
- [Master page in MVC 4 web application using VS11](#)

- [Render Action X Render Partial](#)
- [Html Partial vs Html RenderPartial](#)

## ○ Examples

### ○ Master Page/Layout.cshtml

```
<!DOCTYPE html>

<html lang="en">
  <head>
    <meta charset="utf-8" />
    <title>@View.Title</title>
  </head>
  <body>
    <div class="header">
      @RenderSection("Header")
    </div>

    @RenderBody()

    <div class="footer">
      @RenderSection("Footer")
    </div>
  </body>
</html>
```

## ● Enhance application behavior and style based on browser feature detection.

- This objective may include but is not limited to: detect browser features and capabilities; create a web application that runs across multiple browsers and mobile devices; enhance application behavior and style by using vendor-specific extensions, for example, CSS
  - [Detect HTML5 & CSS 3 features in your ASP.NET Web Forms, MVC, or Razor Pages with Modernizr](#)
  - [Browser and feature detection: Make your website look great everywhere](#)
  - <http://msdn.microsoft.com/en-us/magazine/hh475813.aspx>
  - [Detecting devices and their features](#)
  - <http://modernizr.com/>
  - [https://developer.mozilla.org/en-US/docs/CSS/Media\\_queries](https://developer.mozilla.org/en-US/docs/CSS/Media_queries)
  - <http://css-tricks.com/css-media-queries/>

## ● Plan an adaptive UI layout.

- This objective may include but is not limited to: plan for running applications in browsers on multiple devices (screen resolution, CSS, HTML); plan for mobile web applications
  - <http://www.asp.net/mvc/tutorials/mvc-4/aspnet-mvc-4-mobile-features>
  - [http://ofps.oreilly.com/titles/9781449320317/ch\\_Mobile.html](http://ofps.oreilly.com/titles/9781449320317/ch_Mobile.html)
  - <http://www.codeproject.com/Articles/472005/Techniques-for-Mobile-friendly-ASP-NET-MVC-4-0-web>
  - [Develop Hybrid Native and Mobile Web Apps](#)

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## Develop the User Experience

### ● Plan for search engine optimization and accessibility.

- This objective may include but is not limited to: use analytical tools to parse HTML; view and evaluate conceptual structure by using plugs-in for browsers; write semantic markup (HTML5 and ARIA) for accessibility, for example, screen readers
  - [Introduction to WAI ARIA](#)
  - [Using HTML5's New Semantic Tags Today](#)

- <http://www.deliveron.com/blog/post/SEO-Friendly-Routes-with-ASPnet-MVC.aspx>

## ● Plan and implement globalization and localization.

- This objective may include but is not limited to: plan a localization strategy; create and apply resources to UI including JavaScript resources; set cultures; create satellite resource assemblies
  - <http://www.hanselman.com/blog/GlobalizationInternationalizationAndLocalizationInASPNETMVC3JavaScriptAndjQueryPart1.aspx>
  - <http://stackoverflow.com/questions/1560796/set-culture-in-an-asp-net-mvc-app>
  - <http://afana.me/post/aspnet-mvc-internationalization.aspx>
  - <http://afana.me/post/aspnet-mvc-internationalization-part-2.aspx>
  - <http://odetocode.com/blogs/scott/archive/2009/07/16/resource-files-and-asp-net-mvc-projects.aspx>

## ● Design and implement MVC controllers and actions.

- This objective may include but is not limited to: apply authorization attributes and global filters; implement action behaviors; implement action results; implement model binding
  - [Filtering in ASP.NET MVC](#)
  - [The Features and Foibles of ASP.NET MVC Model Binding](#)
  - [ASP.NET MVC Custom Model Binding](#)
  - [ASP.NET MVC ActionResult explained](#)
  - [http://ofps.oreilly.com/titles/9781449320317/ch\\_Intro.html](http://ofps.oreilly.com/titles/9781449320317/ch_Intro.html)
  - [Action Filtering in ASP.NET MVC Applications](#)
  - [ActionResult Class \(System.Web.Mvc\)](#)
  - <http://brendan.enrick.com/post/Types-of-ASPNET-MVC-3-Action-Results.aspx>
  - <http://www.codeproject.com/Articles/161963/ASP-NET-MVC-Model-Binding-Part-2>
  - [Use ViewModels to manage data & organize code in ASP.NET MVC applications](#)

## ● Design and implement routes.

- This objective may include but is not limited to: define a route to handle a URL pattern; apply route constraints; ignore URL patterns; add custom route parameters; define areas
  - [ASP.NET Routing](#)
  - [Understanding Routing in ASP.NET MVC](#)
  - [ASP.NET MVC Areas—A Better Way To Structure The Application](#)
  - [Using Areas in ASP.NET MVC Application](#)
  - [Custom Controller Factory in ASP.NET MVC](#)
  - [http://ofps.oreilly.com/titles/9781449320317/ch\\_Routing.html](http://ofps.oreilly.com/titles/9781449320317/ch_Routing.html)
  - [Creating a Route Constraint \(C#\)](#)

## ● Control application behavior by using MVC extensibility points.

- This objective may include but is not limited to: implement MVC filters and controller factories; control application behavior by using action results, viewengines, model binders, and route handlers
  - <http://haacked.com/archive/2011/01/06/razor-syntax-quick-reference.aspx>
  - <http://weblogs.asp.net/scottgu/archive/2010/07/02/introducing-razor.aspx>
  - <http://stackoverflow.com/questions/6569809/mvc-3-asp-vs-razor-view-engine>
  - [See: Design and implement MVC controllers and actions](#)
  - [MvcRouteHandler Class \(System.Web.Mvc\)](#)
  - [Custom Controller Factory in ASP.NET MVC develop.net](#)

## ● Reduce network bandwidth.

- This objective may include but is not limited to: bundle and minify scripts (CSS and JavaScript); compress and decompress data (using gzip/deflate; storage); plan a content delivery network (CDN) strategy, for example, Windows Azure CDN
  - [Bundling and Minification](#)
  - [New Bundling and Minification Support \(ASP.NET 4.5 Series\)](#)
  - [Using CDN for Windows Azure](#)
  - [Introducing the Windows Azure Content Delivery Network](#)
  - [http://ofps.oreilly.com/titles/9781449320317/ch\\_ClientOptimization.html](http://ofps.oreilly.com/titles/9781449320317/ch_ClientOptimization.html)
  - <http://www.yetanotherchris.me/home/2009/7/13/gzip-and-deflate-page-compression-in-aspnet.html>
  - [Visual Studio 2012 RC is released – The Big Web Rollup \(Web Optimization\)](#)

## Troubleshoot and Debug Web Applications

### ● Prevent and troubleshoot runtime issues.

- This objective may include but is not limited to: troubleshoot performance, security, and errors; implement tracing, logging (including using attributes for logging), and debugging (including IntelliTrace); enforce conditions by using code contracts; enable and configure health monitoring (including Performance Monitor)

- [MSDN - ASP.NET Tracing Overview](#)
- [MSDN - ASP.NET Health Monitoring Overview](#)
- [.NET Diagnostics and Logging In ASP.NET - Scott Allen - OdeToCode](#)
- <http://knucklebones.blogspot.com/2010/11/enable-tracing-in-aspnet-mvc.html>
- [Exercise 1: Logging Actions](#)
- [NuGet Package of the Week #5 - Debugging ASP.NET MVC applications with Glimpse](#)
- [Code Contracts](#)
- [Code Contracts in C#](#)
- [Code Contracts and Controllers](#)
- [Chapter 10 - Performance Tuning and Monitoring](#)

### ● Design an exception handling strategy.

- This objective may include but is not limited to: handle exceptions across multiple layers; display custom error pages using global.asax or creating your own HTTPHandler or set web.config attributes; handle first chance exceptions

- <http://www.codeproject.com/Articles/422572/Exception-Handling-in-ASP-NET-MVC>
- [http://www.prideparrot.com/blog/archive/2012/5/exception\\_handling\\_in\\_asp\\_net\\_mvc](http://www.prideparrot.com/blog/archive/2012/5/exception_handling_in_asp_net_mvc)
- <http://perspectivespace.com/error-handling-in-aspnet-mvc-3-part-3-handlee>

### ● Test a web application.

- This objective may include but is not limited to: create and run unit tests, for example, use the Assert class, create mocks; create and run web tests

- [Ofps.oreilly - Automated Testing](#)
- [Building Testable ASP.NET MVC Applications](#)
- [MSDN - Walkthrough: Using TDD with ASP.NET MVC](#)
- <http://www.codemerlin.com/2011/07/mocking-httpcontext-httpresponse-httprequest-httpsessionstate-etc-in-asp-net/>
- <http://code.google.com/p/moq/>
- <http://nunit.org/>
- <http://stackoverflow.com/questions/494083/making-sure-a-view-exists>
- <http://haacked.com/archive/2007/12/16/testing-routes-in-asp-net-mvc.aspx>
- <http://stackoverflow.com/questions/366388/how-can-i-unit-test-my-asp-net-mvc-controller-that-uses-formsauthentication>
- <http://stackoverflow.com/questions/1057776/how-to-test-action-filters-in-asp-net-mvc>
- <http://martinfowler.com/articles/mocksArentStubs.html>
- [C# Unit Testing Basics – C# Tutorials | Dream.In.Code](#)

### ● Debug a Windows Azure application.

- This objective may include but is not limited to: collect diagnostic information by using Windows Azure Diagnostics API Implement on demand vs. scheduled; choose log types, for example, event logs, performance counters, and crash dumps; debug a Windows Azure application by using IntelliTrace and Remote Desktop Protocol (RDP)

- [MSDN - Collecting Logging Data by Using Windows Azure Diagnostics](#)
- <http://www.codeproject.com/Articles/303686/Windows-Azure-Diagnostics-Performance-Counters-In>
- <http://www.windowsazure.com/en-us/manage/windows/best-practices/troubleshooting/>
- [MSDN - Debug Your App by Recording Code Execution with IntelliTrace](#)
- [Using IntelliTrace to debug Windows Azure Cloud Services](#)
- <http://blog.elastacloud.com/2011/06/29/tips-and-tools-for-a-better-azure-deployment-lifecycle-2>

## Design and Implement Security

### ● Configure authentication.

- This objective may include but is not limited to: authenticate users; enforce authentication settings; choose between Windows, Forms, and custom authentication; manage user session by using cookies; configure membership providers; create custom membership providers

- [MSDN - Membership Providers](#)

- [Introduction to Membership](#)
- [Examining ASP.NET's Membership, Roles, and Profile](#)
- [Membership and Role Providers in ASP.NET 2.0 Part I](#)
- [Membership and Role Providers in ASP.NET 2.0 Part II](#)
- <http://www.hanselman.com/blog/IntroducingSystemWebProvidersASPNETUniversalProvidersForSessionMembershipRolesAndUserProfileOnSQLCompactAndSQLAzure.aspx>
- <http://www.codeproject.com/Articles/165159/Custom-Membership-Providers>
- <http://www.danharman.net/2011/06/23/asp-net-mvc-3-custom-membership-provider-with-repository-injection/>
- <http://www.codeproject.com/Articles/98950/ASP-NET-authentication-and-authorization>
- [ASP.NET Cookies Overview](#)
- [Configuring an ASP.NET Application to Use Membership](#)

## ● **Configure and apply authorization.**

- This objective may include but is not limited to: create roles; authorize roles by using configuration; authorize roles programmatically; create custom role providers; implement WCF service authorization
  - <http://www.davidhayden.me/blog/asp-net-mvc-4-allowanonymous-attribute-and-authorize-attribute>
  - [ASP.NET MVC Authentication - Global Authentication and Allow Anonymous](#)
  - [Authorization In WCF-Based Services](#)
  - [Implementing a Role Provider](#)
  - <http://www.asp.net/web-forms/tutorials/security/roles/creating-and-managing-roles-cs>
  - [Authentication and Authorization in WCF Services - Part 1](#)

## ● **Design and implement claims-based authentication across federated identity stores.**

- This objective may include but is not limited to: implement federated authentication by using Windows Azure Access Control Service; create a custom security token by using Windows Identity Foundation; handle token formats (for example, OAuth, OpenID, LiveID, and Facebook) for SAML and SWT tokens
  - [MSDN - Federated Identity for Web Applications](#)
  - [MSDN - Federated Identity with Windows Azure Access Control Service](#)
  - [Write a custom security token and handler in Windows Identity Foundation](#)
  - [OAuth/OpenID Support for WebForms, MVC and WebPages](#)
  - [Access Control Tutorial](#)
  - [Implementing federated security with Azure Access Control Service](#)
  - [How to: Add a Custom Token Handler](#)

## ● **Manage data integrity.**

- This objective may include but is not limited to: apply encryption to application data; apply encryption to the configuration sections of an application; sign application data to prevent tampering
  - [MSDN - How To: Encrypt Configuration Sections in ASP.NET 2.0 Using DPAPI](#)
  - [Encrypting Data in .NET Applications](#)
  - [Encrypting and Decrypting Configuration Sections](#)
  - [Setting up SSL correctly with IIS and ASP.NET](#)

## ● **Implement a secure site with ASP.NET.**

- This objective may include but is not limited to: secure communication by applying SSL certificates; salt and hash passwords for storage; use HTML encoding to prevent cross-site scripting attacks (ANTI-XSS Library); implement deferred validation and handle unvalidated requests, for example, form, querystring, and URL; prevent SQL injection attacks by parameterizing queries; prevent cross-site request forgeries (XSRF)
  - <http://www.codeproject.com/Articles/358993/Examining-Request-Validation-with-ASP-NET-4-5>
  - [http://ofps.oreilly.com/titles/9781449320317/ch\\_Security.html](http://ofps.oreilly.com/titles/9781449320317/ch_Security.html)
  - <http://haacked.com/archive/2010/04/06/using-antixss-as-the-default-encoder-for-asp-net.aspx>
  - [MSDN - Microsoft Anti-Cross Site Scripting Library V1.5: Protecting the Contoso Bookmark Page](#)
  - <http://stackoverflow.com/questions/2138429/hash-and-salt-passwords-in-c-sharp>
  - <http://haacked.com/archive/2010/04/28/replacing-html-encode.aspx>
  - <http://www.dotnetperls.com/sqlparameter>
  - [https://www.owasp.org/index.php/Cross-Site\\_Request\\_Forgery\\_\(CSRF\)\\_Prevention\\_Cheat\\_Sheet](https://www.owasp.org/index.php/Cross-Site_Request_Forgery_(CSRF)_Prevention_Cheat_Sheet)
  - <http://www.codinghorror.com/blog/2008/10/preventing-csrf-and-xsrif-attacks.html>

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## Sources/References

### ● **Must READ**

- [MSDN - ASP.NET MVC 4](#)
- [Programming ASP.NET MVC 4 - EBOOK](#)
- <https://github.com/ProgrammingAspNetMvcBook/CodeExamples>
- [What's New in ASP.NET 4.5 and Visual Web Developer 11 Developer Preview](#)

## ● Guides from Others

- <http://www.bloggedbychris.com/2012/11/06/microsoft-exam-70-486-study-guide/>
- [go.mellbourn.net/70\\_486](http://go.mellbourn.net/70_486)
- [http://www.delicious.com/mellbourn/70\\_486](http://www.delicious.com/mellbourn/70_486)

## ● ASP.NET blogs - MVC

- [Scott Guthrie on ASP.NET MVC](#)
- [Phil Haack on ASP.NET MVC](#)
- [Steve Sanderson on ASP.NET MVC](#)
- [Scott Hanselman on ASP.NET MVC](#)
- [Rachel Appel on ASP.NET MVC](#)
- [Rick Anderson on ASP.NET MVC](#)
- [Stuart Leeks on ASP.NET MVC](#)
- [David Hayden \(\[David Hayden\]\(#\)\)](#)
- [Imran Baloch on ASP.NET MVC](#)
- [Andrei Ignat on ASP.NET MVC](#)
- [Radu Enuca on ASP.NET MVC](#)
- [Kazi Manzur Rashid on ASP.NET MVC](#)
- [Simon Ince's Blog on MVC](#)

## ● Others

- [Web Camps Training Kit](#)
- [ASP.NET 4.5 and Visual Studio 2012](#)
- [Intro to ASP.NET MVC 4](#)
- <http://www.asp.net/mvc/tutorials/mvc-4/aspnet-mvc-4-mobile-features>
- <http://www.asp.net/mvc/mvc4>
- [http://www.w3schools.com/aspnet/mvc\\_intro.asp](http://www.w3schools.com/aspnet/mvc_intro.asp)
- <http://www.microsoft.com/learning/en/us/Exam.aspx?ID=70-486>
- <http://www.windowsazure.com>
- <http://www.windowsazure.com/en-us/develop/net/tutorials/web-site-with-sql-database/>
- <http://stackoverflow.com/questions/1560796/set-culture-in-an-asp-net-mvc-app>
- <http://www.windowsazure.com/en-us/develop/net/fundamentals/intro-to-windows-azure/>
- <https://www.microsoftvirtualacademy.com/tracks/introduction-to-windows-azure/>
- <http://www.meetwindowsazure.com/Azure101>
- <http://channel9.msdn.com/shows/Cloud+Cover/>
- [Deploying an ASP.NET Web Application to a Windows Azure Web Site and SQL Database](#)

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