

**REVIEW LESSON**

MTA Course: Web Development Fundamentals  
Lesson name: Web Development Fundamentals 4.2  
Topic: Understand AJAX concepts  
File name: WebDevFund\_RL\_4.2

**Lesson Objective:**

**4.2:** Understand AJAX concepts. *This objective may include but is not limited to:* ASP.NET AJAX implementation, working with client-side libraries, *EnablePartialRendering*, triggers, *ChildrenAsTriggers*, scripts, services, *UpdateProgress*, *Timer*, *ScriptManagerProxy*, extender controls.

**Preparation Details****Prerequisite student experiences and knowledge**

This MTA Certification Exam Review lesson is written for students who have learned about Web design and Web application programming. Students who do not have the prerequisite knowledge and experiences cited in the objective will find additional learning opportunities using resources such as those listed in the Microsoft® resources and Web links at the end of this review lesson.

Students should have a basic understanding of AJAX and the role of AJAX in Web application development. *Note:* AJAX is a platform-agnostic concept, and Microsoft's ASP.NET AJAX is just one of many different implementations. Most of the content written for this lesson was written specifically for ASP.NET AJAX.

**Instructor preparation activities**

For this lesson, you will need a computer with Microsoft Office 2007®, and Microsoft Visual Studio 2008® attached to a liquid crystal display (LCD) projector to display and review the attached Microsoft PowerPoint® document.

Prepare a set of notecards for the vocabulary activity—one card for each word and one card for each definition.

**Resources, software, and additional files needed for this lesson:**

- WebDevFund\_PPT\_4.2
- WebDevFund\_SA\_4.2
- A Windows®-based PC with installed Web development software. Examples include Visual Studio 2008, or
  - Microsoft Visual Basic 2008®, Express Edition  
(<http://www.microsoft.com/express/downloads/#2008-Visual-Basic>)
  - Microsoft Visual C# 2008®, Express Edition  
(<http://www.microsoft.com/express/downloads/#2008-Visual-CS>)
  - Microsoft Visual Web Developer 2008, Express Edition  
(<http://www.microsoft.com/express/downloads/#2008-Visual-Web-Developer>)

**Teaching Guide****Essential vocabulary:**

**AJAX**—a broad group of interrelated Web development technologies that can be used to augment a Web application so that it may communicate with a server asynchronously in the background, without interfering with the current state of the page.

**ASP.NET AJAX Library**—a JavaScript library that enables a developer to build database-driven Web applications that execute entirely within a Web browser. The ASP.NET AJAX Library is compatible with most modern Web browsers.

***EnablePartialRendering***—a feature of the ASP.NET AJAX library that gets or sets a value that enables partial rendering of a page, which in turn enables you to update regions of the page individually by using *UpdatePanel* controls.

**trigger**—specifies the controls on the page (or the user control, if you are using one) that will cause a partial render of the *UpdatePanel* control in which the element resides. Triggers for a given *UpdatePanel*, by default, automatically include any child controls that invoke a postback, including (for example) *TextBox* controls that have their *AutoPostBack* property set to True. However, triggers can also be included declaratively using markup; this is done within the *<triggers>* section of the *UpdatePanel* control declaration.

***UpdatePanel***—an ASP.NET control that enables sections of a page to be partially rendered without a postback.

***ChildrenAsTriggers***—a property of the *UpdatePanel* control that gets or sets a value that indicates whether postbacks from immediate child controls of an *UpdatePanel* control update the panel's content.

**Scripts Loader**—in the ASP.NET AJAX Library, it provides a flexible way to load scripts required by a page, as well as any dependencies that may be needed. Because it

loads scripts in parallel, the page's load time is minimized and the amount of code needed to load scripts, their dependencies, and their components is significantly reduced.

**Services**—the `System.Web.Script.Services` namespace provides attributes to customize Web service support for using Microsoft ASP.NET 2.0 AJAX Extensions.

***UpdateProgress***—a control that provides status information about partial page updates in *UpdatePanel* controls. You can customize the default content and the layout of the *UpdateProgress* control. To prevent flashing when a partial-page update is very fast, you can specify a delay before the *UpdateProgress* control is displayed.

**timer**—an ASP.NET control that performs asynchronous or synchronous Web page postbacks at a defined interval.

***ScriptManagerProxy***—an ASP.NET control that enables a content page to pass references to the *ScriptManager* placed on its ASP.NET master page, allowing each content page to define its own AJAX behavior.

**extender control**—enables you to add AJAX functionality programmatically to an ASP.NET server control.

### **Lesson Sequence**

#### **Activating prior knowledge/lesson staging (10 minutes)**

##### **Warm-up Activity—“AJAX Matching”**

1. Divide the class into two groups.
2. Give a notecard containing a vocabulary word to each student in one group.
3. Give a notecard with a vocabulary definition to each student in the other group.
4. Randomly select a student in either group to read his or her card.
5. The student who believes he or she has the correct match for the card that was read speaks up.
6. Continue until all the cards are matched.

#### **Lesson activity (30 minutes)**

1. Use the WebDevFund\_PPT\_4.2 PowerPoint presentation to review the concepts for this lesson.
2. Distribute the WebDevFund\_SA\_4.2 Student Activity .  
Students will complete the tutorial at <http://www.asp.net/learn/Ajax/tutorial-01-cs.aspx> using Microsoft Visual Web Developer to complete the tutorial activity.
3. Discuss the key objectives of the review assignment.

**Assessment/lesson reflection (10 minutes)**

1. Ask students to summarize how the activity met this lesson objective.
2. If time permits, students can display their solutions to portions of the activity to the class.
3. Wrap up and provide homework/enrichment opportunities.

**Microsoft resources and Web links**

Students who wish to explore this lesson topic further may visit the following links:

**Video lessons and references on using AJAX:**

<http://www.asp.net/learn/ajax/>

<http://www.asp.net/learn/ajax-videos/video-95.aspx>

**Microsoft ASP.NET:**

<http://www.asp.net>

**Suggested best practices:**

- It may be beneficial to display code examples using the LCD projector for each for the major concepts, particularly when the vocabulary is being reviewed. Randomly choose students to come up to demonstrate the concepts to the class.