**AJAX - Asynchronous JavaScript and XML**

1. It allows us to send request OR Post data to a server without submitting the whole page so it's called Asynchronous
2. The language we use for it is JavaScript
3. The format of the data to be exchanged between the server and client is XML

That's why its called Asynchronous JavaScript and XML.  
  
**Advantages**  
  
The amount of data to be transferred between the client and server is reduced.  
  
**Limitations**

1. Implementing such concepts directly into the application requires a good knowledge of both JavaScript and XML.
2. JavaScript doesn't support classes and other Object Oriented features like inheritance so code management is sometimes difficult.

**Update Panel**

1. ASP.Net provides a rich UpdatePanel control, which helps us to build such AJAX enabled websites without writing any custom JavaScript.
2. By using the Update Panel we can refresh only a part of the page instead of the entire page and that is referred to as Partial Page Update.

ScriptManager.png  
  
It has a property called EnablePartialRendering which is by default set to true, which gets or sets the value indicating support of Partial Page Updates.

If EnablePartialRendering="true" then all partial update panel control works on updatepanel conditions.

If EnablePartialRendering="false" then not work partial updatepanel control. all control will be updated.

<asp:UpdatePanel ID="UpdatePanel4" UpdateMode="Always" ChildrenAsTriggers="false"

runat="server">

<ContentTemplate>

<fieldset title="Panel2">

<legend>Panel 3</legend>

<asp:Label ID="**LabelNested**" runat="server" />

<asp:Button CssClass="button" ID="btnPanelBoth" OnClick="btnPanelBoth\_Click" Text="Update both Panels(Panel 1 & 2)"

runat="server" />

</fieldset>

<asp:UpdatePanel ID="UpdatePanel15" runat="server">

<ContentTemplate>

<asp:Label ID="**lblexternal**" runat="server"></asp:Label>

</ContentTemplate>

</asp:UpdatePanel>

</ContentTemplate>

<%-- <Triggers>

<asp:AsyncPostBackTrigger ControlID="btnPanelBoth" />

</Triggers>--%>

</asp:UpdatePanel>

If Update mode = ‘always’ then update in all postback condition changes and click event.

1. **UpdateMode Always** and **ChildrenAsTrigger True**: Contents will be refreshed on every full and partial Postback.
2. **UpdateMode Always** and **ChildrenAsTrigger false**: Exception: ChildrenAsTriggers cannot be set to false when UpdateMode is set to Always on UpdatePanel.
3. **UpdateMode Conditional** and **ChildrenAsTrigger True** : Contents will be refreshed:

LabelNested and lblexternal both are refreshed on postback

1. **UpdateMode Conditional** and **ChildrenAsTrigger false** : Contents will be refreshed:

lblexternal child panels control is refreshed on postback

**1. AsyncPostBackTrigger**

it is the one which enforces Asynchonous post back of the Page.., i.e. the AJAX way. The data will be transacted without full post back. When you are using functionalities like login, you may use this.

Ex. You are having two dropDowns Viz., Countries and States. the states should be loaded when a country is selected and it should be changed on Countries change.

You may use AsyncPostBackTrigger in this scinario., which will populate the states ddl without full post back.

**2. PostBackTrigger**

It is the one which does not follow the AJAX functioalities., but the full post back as usually(as Without using UpdatePanel). Situtions are there where you would not like to enforce Partial Post back (as explained in Point 1. above). Like you are having FileUpload Control withing the UpdatePanel and when you do it by AsyncPostBack, you will not get any values to the server. It requires Full PostBack. in such a case you should use this trigger.