

AJAX: Cleaning up your Web Applications and Reducing User Clicks

AJAX?

• Asynchronous

• Javascript

• And

• XML

- On-the-fly information based on user input
- Update parts of a page without refreshing whole page
- Facilitate graphical effects based on user input

Who is using it??

- Google Maps
- Gmail
- Select sites in eXtension
- Netvibes
- ...

How???



Calendar Frequently Asked Questions News Room People CoP Wiki About Wiki

extension **FAQ**
more mind reach

Help Preferences Logout
athundie

Search

draft published inactive

Home
My Stuff
Incoming Questions

Browse Publish Status ?
Needs 1st review
Needs 2nd review
Needs copy-editing
Ready to publish

Browse FAQs
by keyword
by category
published
draft
unpublished
inactive

Preferences
[General Preferences](#) | [Areas of Expertise](#) | [Geographic Regions](#)

Sign-up to answer questions for a geographic region
By indicating your expertise for a geographic region, incoming questions matching your selection will be automatically assigned to you. Location is given priority over the [areas of expertise](#) when assigning incoming questions.

[View Your Locations](#) | [Add or Edit a Location](#)

Select a location
North Carolina

North Carolina
Wake [remove](#)
Watauga [remove](#)

Select counties
[Add all counties](#)
[Pick individual counties](#)
[I'm done](#)

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xmlhttp request



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html, javascript, db results

xmlhttp request

The screenshot shows the 'extension FAQ' website. The top navigation bar includes links for 'Calendar', 'Frequently Asked Questions', 'News Room', 'People', 'CoP Wiki', and 'About Wiki'. On the right, there are links for 'Help', 'Preferences', and 'Logout' (with the user 'athundie' logged in). A search bar is also present. The main content area is divided into a left sidebar and a main panel. The sidebar contains a 'Home' link, 'My Stuff', 'Incoming Questions', and a 'Browse Publish Status' section with options like 'Needs 1st review', 'Needs 2nd review', 'Needs copy-editing', and 'Ready to publish'. Below that is a 'Browse FAQs' section with filters for 'by keyword', 'by category', 'published', 'draft', 'unpublished', and 'inactive'. The main panel features a 'Preferences' section with sub-links for 'General Preferences', 'Areas of Expertise', and 'Geographic Regions'. A highlighted green box contains the text: 'Sign-up to answer questions for a geographic region. By indicating your expertise for a geographic region, incoming questions matching your selection will be automatically assigned to you. Location is given priority over the areas of expertise when assigning incoming questions.' Below this is a form titled 'View Your Locations | Add or Edit a Location' with a dropdown menu set to 'North Carolina'. A table below the dropdown shows 'North Carolina' with sub-entries 'Wake' and 'Watauga', each with a 'remove' link. To the right of the table are links for 'Select counties', 'Add all counties', 'Pick individual counties', and 'I'm done'. The footer contains a Creative Commons license notice and version information.

Asynchronous

- Non blocking
- Allows user to continue to perform actions on the page while the request is taking place

Javascript

- Uses Javascript's XMLHttpRequest object for communication between the client and server
- Javascript listeners may be implemented to kick off AJAX actions (eg. on-click, on-change events)

XML

- Not necessarily using XML
- Could be passing back html, javascript, XML

XML HTTP Request

- Asynchronous XML HTTP Request back to the server
- Returns javascript to execute, html, and data retrieved from the database back to the client
- Allows for http calls to be made from client to server

Code

Page Initialization

demo_controller.rb...

Page Initialization

demo_controller.rb...

```
def location
  location_objects = Location.find(:all, :order => 'entrytype, name')
  @locations =
    [["", ""]].concat(location_objects.collect { || [l.name, l.id] })
end
```

View

location.rhtml...

View

location.rhtml...

```
<%= select_tag(:location, options_for_select(@locations)) %>
```

View

location.rhtml...

```
<%= select_tag(:location, options_for_select(@locations)) %>
```

```
<%= observe_field(  
:location,  
:update => :county_select_box,  
:url =>  
{ :controller => :demo, :action => :get_counties },  
:with => "location="+value") %>
```

View

location.rhtml...

```
<%= select_tag(:location, options_for_select(@locations)) %>
```

```
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:update => :county_select_box,
:url =>
{ :controller => :demo, :action => :get_counties },
:with => "location="+value") %>
```

```
<div id="county_select_box"></div>
```

Query Logic

demo_controller.rb...

Query Logic

demo_controller.rb...

```
def get_counties
  county_objects = County.find(
    :all,
    :conditions => ["location_id = ? and countycode <> '0'",
    params[:location]])
  ...
  @counties = county_objects.collect { |c| [c.name, c.id] }
  render :layout => false
end
```

View to be sent back to client

get_counties.rhtml...

View to be sent back to client

get_counties.rhtml...

```
<%= select_tag(:county, options_for_select(@counties)) %>
```

Code Demo

More Advantages...

- No persisting the data in the form for page updates
- Save bandwidth (whole page need not be refreshed)
- Speed/Responsiveness

Caveats/Drawbacks

- Back button and refresh behavior
- Browser does not cache AJAX actions
- Must have Javascript enabled
- Bookmarking

Tips...

- Do not overuse AJAX
- Avoid data/processor intensive actions with AJAX
- Find out how much traffic your database/server can handle and AJAX accordingly

AJAX Support

Ruby on Rails

http://www.onlamp.com/pub/a/onlamp/2005/06/09/rails_ajax.html

<http://script.aculo.us/>

Java

<http://java.sun.com/developer/technicalArticles/J2EE/AJAX/>

Microsoft .NET

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

PHP

<http://www.webreference.com/programming/javascript/kh/>

Others...

Examples/Demo