

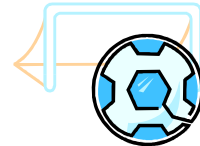
AJAX and PHP

Christian Wenz, <chw@hauser-wenz.de>

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AJAX

- A Dutch soccer team
- A cleaner
- Two characters from Iliad
- A city in Canada
- A mountain in Colorado
- ...



„Asynchronous JavaScript + XML“

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What is AJAX?

- „Asynchronous JavaScript + XML“
- *Ajax isn't a technology. It's really several technologies, each flourishing in its own right, coming together in powerful new ways.*
 - XHTML/CSS
 - DOM
 - XML/XSLT
 - JavaScript
- <http://www.adaptivepath.com/publications/essays/archives/000385.php>

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What *really* is AJAX?

- A concept, no technology
- JavaScript can do things in the background!
 - Contact a server
 - Retrieve data
 - Integrate them in the page (thanks to "DHTML")
- Main advantage: no page refresh!

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How come?

- Circa 1998: Microsoft integrates the ActiveX object *XMLHttpRequest* in Internet Explorer 5.0
 - Request from the team responsible for Outlook Web Access
- After a couple of years, Mozilla project ported object (without ActiveX, but almost identical API)
- Integrated in Safari
 - Backported to Konqueror
- Integrated in Opera
- Native object (no ActiveX) in Internet Explorer 7

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Who/what is „Adaptive Path“?

- Jesse James Garrett invented the term „AJAX“ (not the technology)
 - Tipping point
- However the technology has been made popular by Google
 - Used AJAX in a **browser-agnostic** fashion before the term was coined at all

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AJAX Examples in the Web

- Google Suggest
- Various webmail providers
 - Gmail
 - Hotmail (Beta)
 - Yahoo! Mail (Beta)

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Step 1: Create object

```
var xmlHttp = false;

if (window.ActiveXObject) {
  try {
    XMLHTTP = new ActiveXObject("Msxml2.XMLHTTP");
  } catch (e) {
    try {
      XMLHTTP = new
ActiveXObject("Microsoft.XMLHTTP");
    } catch (e) {
    }
  }
}
```



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Step 1a: Create object

```
else if (window.XMLHttpRequest) {  
  try {  
    XMLHttpRequest = new XMLHttpRequest();  
  } catch (e) {  
  }  
}
```



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Step 2: Send request

```
if (xmlHttp) {  
  xmlHttp.open('GET', 'http://...', true);  
  xmlHttp.onreadystatechange = FUNCTIONNAME;  
  xmlHttp.send(null);  
}
```



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Step 3: Evaluate response

```
function FUNCTIONNAME() {  
    if (xmlHttp.readyState == 4) {  
        alert("Return value: " +  
            xmlHttp.responseText);  
    }  
};
```



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The next steps

- Server-side
 - Communication with server-side technology
 - Serializing objects and data
 - JSON (<http://json.org/> comes in very handy)
- Client-side
 - Working with Text
 - Working with XML
 - Working with XPath and XSL



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Issues

- No bookmarks possible
 - You have to implement your own persistence mechanism
 - Using the querystring (JavaScript: `location.search`) does not work, causes reload
 - Using the hash (JavaScript: `location.hash`) does work, no reload
 - However, some Safari/Konqueror issues



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More Issues

- The browser's back button does not work as expected
 - Some browsers write new URLs that do not generate HTTP requests (e.g. adding something to the hash) to the history, some don't
 - Can work nicely in combination with bookmark hacks
 - But greatly increases the effort needed for the site

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Frameworks vs. DIY Code

- AJAX itself is just a few of lines of code
- However extensions or frameworks can help integrate this in the whole project
- Nice-to-have features
 - Extension encapsulates the `XMLHttpRequest` call
 - Extension facilitates binding the data returned from the server to client elements
 - Extension takes care of bookmark/back button issues

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AJAX Frameworks for PHP

- Sajax
- PEAR::HTML_AJAX
- JPSpan
- Xajax
- phAtJAX
- MyBIC
- ...

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Sajax

- Simple Ajax Toolkit
- <http://www.modernmethod.com/sajax/>
- Also available for other technologies

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Demo

- User registration: When a user enters a name, the application checks in the background whether it already exists or not
- Note: This could be abused to brute-force a list of user names on your site

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Sajax Basics (1)

```
<?php
    include 'user.inc.php';
    include 'Sajax.php';

    sajax_init();
    sajax_export('searchUser');
    sajax_handle_client_request();
?>
```

- Sajax creates `x_FunctionName()` for every exported function `FunctionName()`.

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Sajax Basics (2)

```
<script language="JavaScript"
    type="text/javascript"><!--
<?php    sajax_show_javascript();
?>
...
//--></script>
```

- This loads the basic JavaScript code for Sajax

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Using Sajax Functions

```
Name: <input type="text" name="username"
      onchange="x_searchUser(this.value,
                           searchUser_callback);" />
```

- **Callback function:**

```
function searchUser_callback(result) {
  if (result == 1) {
    alert("Username already exists!");
    document.forms[0].elements["username"]
      .value = "";
    document.forms[0].elements["username"]
      .focus();
  }
}
```

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PEAR::HTML_AJAX

- AJAX package in PEAR
- http://pear.php.net/package/HTML_AJAX
- Currently in alpha state
- Documentation could require some help
- A lot of interesting, advanced features

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Differences to Sajax

- Registers JavaScript function in a class
- A specific file contains the class information

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Simple Example (1)

- Client

```
<html>
<script type="text/javascript"
  src="pear_server.php?client=all">
  </script>
<div id="output">Hello</div>
<script type="text/javascript">
HTML_AJAX.replace('output',
  'pear_output.php');
</script>
</html>
```

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Simple Example (2)

- Server

```
<?php
    include
    'HTML/AJAX/Server.php';
    $server = new
    HTML_AJAX_Server();
    $server->handleRequest();
?>
```

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Simple Example (3)

- PHP Server

```
<?php
    echo 'AJAX';
?>
```

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JPSpan

- JavaScript PHP Span
- <http://sourceforge.net/projects/jpspan>
- Other projects base on JPSpan, e.g. JPWM, a window manager
 - <http://sourceforge.net/projects/jpwm>
- Very mighty and quite convenient to use

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Xajax

- Very easy to use library
- <http://xajax.sourceforge.net/>
- Quite similar to Sajax

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phAtJAX

- Yet another AJAX project
- <http://www.fudnik.com/main/tiki-index.php?page=phAtJAX+Client>
- Includes debugging - i.e. shows the transmitted data

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MyBIC

- Yet another framework
- "MyBic AJAX/PHP framework in top 1% of SourceForge projects in 4 days!"
- <http://sourceforge.net/projects/mybic>
- Offers visual debugging

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Further Examples and Sources

- AJAX Shopping Cart
<http://www.thaxtertewksbury.com/2005/11/29/ajax-shopping-cart/>
- AJAX Blog: <http://blog.joshuaeichorn.com/>
- AJAX Reports: <http://ajax.phpmagazine.net/>
- AJAX without AJAX
 - <http://www.phpit.net/article/ajax-php-without-xmlhttprequest/>
 - <http://www.phpied.com/javascript-include/>

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Caveats

- It just won't work without JavaScript
 - 10% of users do not support JavaScript
 - Old, deprecated browsers are a problem
 - Accessibility issues (screenreader, ...)
- Some effects are also possible without „AJAX“ (but with JavaScript of course), for instance using hidden (i)frames

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Thank You!

Questions?

<http://www.hauser-wenz.de/>

<http://www.hauser-wenz.de/blog/>

<http://javascript.phrasebook.org/>

<http://php.phrasebook.org/>