

## jQuery: Ajax Made Easy

Nathaniel T. Schutta

Not using one?

### Who am I?

- Nathaniel T. Schutta  
<http://www.ntschutta.com/jat/>
- @ntschutta
- Foundations of Ajax & Pro Ajax and Java Frameworks
- UI guy
- Author, speaker, teacher
- More than a couple of web apps

Probably doing it wrong.

### The Plan

- Why a library?
- Pros and cons.
- JavaScript helpers.
- Ajax made easy.
- CSS selectors.
- Events.
- Animations and effects.
- Widgets.

Ajax isn't rocket surgery.

Use a library.

But...doesn't mean we should go it alone.

Several high quality  
libraries to pick from.

We still have browser  
issues to deal with.

Paradox of choice.

<cough>IE 6.</cough>

Most server side agnostic.

IE 6...on the way out?

Things have improved  
since the 90s!

SharePoint 2010 - no IE 6.

<http://blogs.msdn.com/sharepoint/archive/2009/05/07/announcing-sharepoint-server-2010-preliminary-system-requirements.aspx>

Google Apps...sorry IE 6.

<http://googledocs.blogspot.com/2010/01/web-browser-support-for-docs-and-sites.html>

Most have:

Libraries abstract some  
of that away.

XHR wrapper.

VM as it were.

CSS selectors.

Libraries = leverage.

Event handling.

Widgets, effects, animations.

Ask yourself...

JavaScript utilities.

What do you want?

How do you choose?

Widgets? Complete  
environment? Utilities?

Many work well together.

Can you read the code?

May need to from  
time to time.

When was the last update?

How's the docu?

Can you get help?

What does Google return?

Have to play with them.

What is the community like?

Libraries have “flavors.”

Do you like the  
library's style?

Readable code.

Does it solve  
YOUR problems?

Feature packed: XHR,  
CSS selectors, etc.

Why jQuery?

Excellent documentation.

Small.

Active mailing list.

Widely used.

Better, each has improved the other.

jQuery - bit of a reaction to Prototype.

Pros and Cons.

Each uses \$ differently!

Focussed on HTML elements.

Each has influenced the other though...

Doesn't pollute global namespace.

DOM manipulation a snap.

Parameter ordering in APIs not always intuitive.

Extensive plugins.

Plugins required for a variety of functionality.

Widely used in a variety of projects.

Some functions reassign 'this.'

Not perfect though ;)

This is a bit nit-picky!

Making JavaScript suck less!

jQuery helps out!

JavaScript is a great language.

```
$(<document>).ready(function(){
    //do something cool
});

$(<ul>).addClass('class1 class2');

$(<ul>).removeClass('class1 class2');

$(<ul>).addClass('class1').removeClass('class2');

$(<#img>).is('.class1')
```

But it has...quirks.

And much, much more.

Missing some things.

Ajax made easier.

XHR isn't complicated.

URI to call, parameters,  
HTTP method, callback.

But abstractions help.

jQuery's approach.

ActiveX vs. JS native...

Variety of methods.

All the wrappers  
are pretty similar.

`$.ajax(options)`

Also more specific calls.

JavaScript lacks  
namespaces - thus \$.

`$.getJSON(url,  
[data], [callback])`

Readable?



Easy?

```
$.get("/DesigningForAjax/validate",
{
  zip: $("#zip").val(),
  city: $("#city").val(),
  state: $("#state").val()
},
function(message) {
  $("#messages").html(message);
});
```

CSS selectors.

Want everything  
with a given style?

jQuery excels at  
CSS selectors.

CSS selectors are  
very powerful.

Top notch support.

Browser support  
can be lacking...

Outstanding performance.

Libraries come in and  
smooth things out!

Browsers do the heavy  
lifting when possible.

Hide Show Example

http://localhost:8080/DevgangForJava/addressBookShowAjaxQuery.htm

Google

Really Simple Address Book

Contact Info

Name:

Email:

Phone:

**Address**

Street:

City:

State:

Zip:

**Web Info**

URL:

(more)

And we add a nice effect!

```
$(function(){
  $('header').click(function() {
    $(this).next().toggle('blind', { direction: "vertical" }, 500);
  });
});
```

OK, how about something fancier?

Not bad for a few lines of code!



Readable?

Hide Show Example

http://localhost:8080/DevgangForJava/addressBookShowAjaxQueryAccord.htm

Google

Really Simple Address Book

Contact Info

Name:

Email:

Phone:

Address

Web Info

Save

```
link type="text/css" href="./themes/ui-lightness/jquery.ui.all.css" rel="stylesheet" />
<script src='./js/jquery/jquery.js' type="text/javascript"></script>
<script src='./js/jquery/jquery.core.js' type="text/javascript"></script>
<script src='./js/jquery/jquery.widget.js' type="text/javascript"></script>
<script src='./js/jquery/jquery.ui.widget.js' type="text/javascript"></script>
<script src='./js/jquery/jquery.ui.accordion.js' type="text/javascript"></script>
<script>
$(function() {
  $('#accordion').accordion({collapsible: true});
})
</script>
</head>
<body>
  <div id="accordion">
    <div href="#">Contact Info</a></div>
    <div>
      <span>Name: <input type="text" name="name"/></span><br/>
      <span>Email: <input type="text" name="email"/></span><br/>
      <span>Phone: <input type="text" name="phone"/></span><br/>
    </div>
    <div href="#">Address</a></div>
    <div>
      <span>Street: <input type="text" name="street"/></span><br/>
      <span>City: <input type="text" name="city"/></span><br/>
      <span>State: <input type="text" id="state" size="2" maxlength="2"/></span><br/>
      <span>Zip: <input type="text" name="zip" size="5" maxlength="5"/></span><br/>
    </div>
  </div>
</body>
```

Little bit of code  
= big return.

jQuery adds filters.

even, odd, first, first-child, parent, last, etc.

<http://api.jquery.com/category/selectors/>

That's not all!

Dig the CSS selectors?

What about  
alternating rows?

Want to use it  
outside of jQuery?

Sizzle.

<http://github.com/jeresig/sizzle>

Unobtrusive JavaScript.

<http://www.alistapart.com/articles/behavioralseparation>

Event handling.

Library designers help us!

Coding to events gives  
us cleaner markup.

jQuery includes a  
variety of APIs.

But browsers get in  
the way...again.

Including some great  
helper methods.

Click, focus, hover,  
keys, mice, scroll...

Ever update the DOM?

```
$(function() {  
  $('header').click(function() {  
    $(this).next().toggle('blind', { direction: "vertical" }, 500);  
  });  
});
```

live()

<http://api.jquery.com/live/>

Attaching events  
works great...

Attach to elements that  
haven't been added yet!

Until you update the DOM!

How cool is that?

Animations and effects.

jQuery relies on plugins.

Extensive add ons!

jQuery UI.

Want animations  
and widgets?

Gives us widgets,  
effects, draggable etc.

jQuery has you covered.

Let's add an effect!

```
$(function(){
    $('.header').click(function() {
        $(this).next().toggle("blind", { direction: "vertical" }, 500);
    });
});
```

**Very** easy to  
add a little flash.

`slideDown, slideToggle,  
fadeIn, fadeOut...`

Clip, drop, fold,  
highlight, puff, shake...

Very easy to create complex animations.

<http://api.jquery.com/animate/>



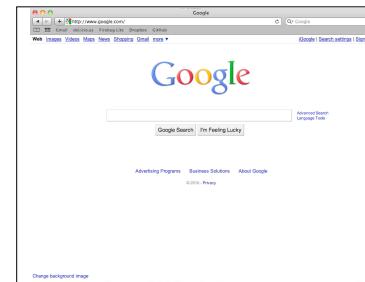
Easy to go too far.

Seasoning, not the entree.

Blink tag anyone?

Google Suggest.

Used right, adds that extra bit of polish.



Autosuggest.

Looks like a drop down...

The missing widget!

High volume drop down.

Very handy!

Easy?

The screenshot shows a web browser window titled "Really Simple Address Book". The page contains a form with the following fields:

- Name: [input field]
- Email: [input field]
- Phone: [input field]
- Street: [input field]
- City: [input field]
- State: [input field]
- Zip: [input field]
- Website: [input field]
- IM: [input field]
- Favorite Ice Cream: [input field]

Date picker.

The screenshot shows the raw HTML and JavaScript code for the "Really Simple Address Book" page. The code includes:

- Links to external CSS and JS files.
- jQuery library inclusion.
- jQuery UI CSS and JS files.
- A script block containing a function that initializes an autocomplete dropdown for the "Ice Cream" input field, listing various ice cream flavors like Vanilla, Chocolate, and Strawberry.
- The HTML structure of the address book form.

```
<link type="text/css" href="/css/ui-lightness/jquery-ui.css" rel="stylesheet" />
<script src="http://ajax.googleapis.com/ajax/libs/jquery/1.7.1/jquery.min.js" type="text/javascript"></script>
<script src="http://ajax.googleapis.com/ajax/libs/jqueryui/1.8.10/jquery-ui.min.js" type="text/javascript"></script>
<script src="http://ajax.googleapis.com/ajax/libs/jqueryui/1.8.10/jquery-ui.autocomplete.js" type="text/javascript"></script>
<script src="http://ajax.googleapis.com/ajax/libs/jqueryui/1.8.10/jquery-ui.datepicker.js" type="text/javascript"></script>
<script type="text/javascript">
$(function() {
    $('#IceCream').autocomplete({
        source: availableFlavors
    });
});
</script>
<body>
<h1>Really Simple Address Book</h1>
<form>
<table>
<tr>
<td>Name:</td><td><input type="text" name="name"/></td>
</tr>
<tr>
<td>Email:</td><td><input type="text" name="email"/></td>
</tr>
<tr>
<td>Phone:</td><td><input type="text" name="phone"/></td>
</tr>
<tr>
<td>Street:</td><td><input type="text" name="street"/></td>
</tr>
<tr>
<td>City:</td><td><input type="text" name="city"/></td>
</tr>

</form>
</body>
```

HTML lacks widgets.

How's that?

Bit depressing actually.

Text box, text area, drop down, radio button...

Pretty limited.

## We have options!

```
<?xml version="1.0" encoding="UTF-8"?>
<script type="text/javascript">
<!--#include file="ui_form.js" -->
<script src="js/jscript/jquery/v1.4.3/jquery.js" type="text/javascript"></script>
<script src="js/jscript/jquery/v1.4.3/ui.datepicker.js" type="text/javascript"></script>
<?/script?>
<?function() {
    var $form = $("#simpleAddressBookForm");
    $form.datepicker();
}();?>
```



Can you say easy button?

Date Example - Ajax (Query)

Really Simple Address Book

Name:

Email:

Phone:

Street:

City:  State:  Zip:

Website:

Re:

Birthday:   
(mm)

But I want options!

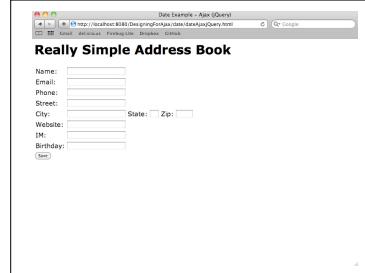
No worries.

For example...

Defaults are usually good.

What about month and  
year selection?

But plenty of options.



Constructors take  
optional configuration.

No problem!



<http://www.flickr.com/photos/camdac/373881476/>

by Jason Gulledge

## How about that easy button?

Supports localization.

Date range restrictions,  
multi months, date formats

## Dialog.

Not the only options...

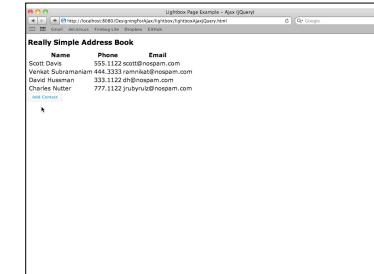
Web isn't very  
conducive to wizards...

“Looks” like a  
popup...but it's not.

Do you like pop-ups?

Can actually be modal.

Do your users?



We have options now!

```
html>
<head>
  <title>Lightbox Page Example - Ajax (jQuery)</title>
  <link type="text/css" href="css/lightbox.css" rel="stylesheet" />
  <script type="text/javascript" src="js/jquery.js"></script>
  <script src="./js/cookies/jquery.cookie.js" type="text/javascript"></script>
  <script src="./js/cookies/jquery.cookie.set.js" type="text/javascript"></script>
  <script src="./js/cookies/jquery.cookie.get.js" type="text/javascript"></script>
  <script src="./js/cookies/jquery.cookie.remove.js" type="text/javascript"></script>
  <script src="./js/cookies/jquery.cookie.set.js" type="text/javascript"></script>
  <script src="./js/cookies/jquery.cookie.get.js" type="text/javascript"></script>
  <script src="./js/cookies/jquery.cookie.remove.js" type="text/javascript"></script>
</head>
<body>
  <div style="text-align: center; margin-top: 100px;">
    <label>Name:</label>
    <input type="text" value="John Doe" style="width: 150px; height: 25px; border: 1px solid #ccc; padding: 2px; margin-bottom: 10px;" />
    <label>Email:</label>
    <input type="text" value="johndoe@example.com" style="width: 150px; height: 25px; border: 1px solid #ccc; padding: 2px; margin-bottom: 10px;" />
    <label>Phone:</label>
    <input type="text" value="555-1234" style="width: 150px; height: 25px; border: 1px solid #ccc; padding: 2px; margin-bottom: 10px;" />
    <input type="button" value="Submit" style="width: 100px; height: 30px; background-color: #4CAF50; color: white; border: none; font-size: 1em; font-weight: bold; border-radius: 5px; cursor: pointer; position: relative; text-align: center;" />
    <span style="position: absolute; left: 50%; top: 50%; transform: translate(-50%, -50%); font-size: 0.8em; color: #ccc; opacity: 0.5; font-weight: normal; font-style: italic; font-family: sans-serif; font-variant: small-caps; z-index: 1; background-color: #fff; padding: 2px 5px; border-radius: 5px; border: 1px solid #ccc; text-decoration: none; text-align: center; transition: all 0.3s ease-in-out; ">Cancel</span>
  </div>
</body>
</html>
```

```
<html>
  <head>
    <title>Lightbox Page Example - Ajax (jQuery)</title>
    <link type="text/css" href=".../ui-lightbox/lightbox.css" rel="stylesheet" />
    <script src=".../ui-lightbox/jquery.js" type="text/javascript"></script>
    <script src=".../ui-lightbox/jquery.effects.core.js" type="text/javascript"></script>
    <script src=".../ui-lightbox/jquery.effects.dialog.js" type="text/javascript"></script>
    <script src=".../ui-lightbox/jquery.effects.fade.js" type="text/javascript"></script>
    <script src=".../ui-lightbox/jquery.effects.grow.js" type="text/javascript"></script>
  </head>
  <body>
    <div id="ui-lightbox" style="display:none; position: absolute; top: 0; left: 0; width: 100%; height: 100%; background-color: black; opacity: 0.8; z-index: 10000;*>
      <div style="width: 200px; margin: auto; border: 1px solid #ccc; padding: 10px; text-align: center; font-size: 12px; color: #333; background-color: #fff; border-radius: 10px; transition: all 0.5s ease-in-out;*>
        <div style="margin-bottom: 10px; border: 1px solid #ccc; border-radius: 5px; padding: 5px; width: fit-content; height: fit-content; display: inline-block; vertical-align: middle;*>
          <img alt="Placeholder image" style="width: 100%; height: 100%; object-fit: cover; border-radius: 5px; border: none;*>
        </div>
        <div style="font-size: 1.2em; font-weight: bold; margin-bottom: 5px;*>
          <span>Name:</span>
        </div>
        <div style="margin-bottom: 10px; border: 1px solid #ccc; border-radius: 5px; padding: 5px; width: fit-content; height: fit-content; display: inline-block; vertical-align: middle;*>
          <input type="text" value="John Doe" style="width: 100%; height: 100%; border: none; border-radius: 5px; font-size: 1em; font-weight: bold;*>
        </div>
        <div style="margin-bottom: 10px; border: 1px solid #ccc; border-radius: 5px; padding: 5px; width: fit-content; height: fit-content; display: inline-block; vertical-align: middle;*>
          <input type="text" value="johndoe@example.com" style="width: 100%; height: 100%; border: none; border-radius: 5px; font-size: 1em; font-weight: bold;*>
        </div>
        <div style="margin-bottom: 10px; border: 1px solid #ccc; border-radius: 5px; padding: 5px; width: fit-content; height: fit-content; display: inline-block; vertical-align: middle;*>
          <input type="text" value="555-1234" style="width: 100%; height: 100%; border: none; border-radius: 5px; font-size: 1em; font-weight: bold;*>
        </div>
        <div style="border: 1px solid #ccc; border-radius: 5px; padding: 5px; width: fit-content; height: fit-content; display: inline-block; vertical-align: middle;*>
          <button style="border: none; background-color: #0072bc; color: white; font-weight: bold; font-size: 1em; padding: 5px 10px; border-radius: 5px;*>
            Save
          </button>
        </div>
      </div>
    </div>
  </body>
</html>
```

Download builder!

```
function updateName(e) {
  $(e.target).effect("highlight", {duration: 1500});
}

function checkEmail(name, email, max) {
  if (name.length > max || email.length < min) {
    e.addClass("ui-state-error");
    var msg = "Email length of " + e + " must be between " + min + " and " + max + ".";
    return false;
  } else {
    return true;
  }
}

$( "#edit" ).dialog({
  title: "Edit User",
  resizable: false,
  autoOpen: false,
  width: 300,
  modal: true,
  buttons: [
    {
      add: "Content": function() {
        var valid = true;
        $(this).removeClass("ui-state-error");
        valid = valid & checkLength(name, "username", 3, 16);
        valid = valid & checkLength(email, "email", 6, 80);
        valid = valid & checkLength(phone, "phone", 7, 12);
        if (!valid) {
          $(this).find("input").append("<br>" +
            "-----" + name.valid + "<br>" +
            "-----" + email.valid + "<br>" +
            "-----" + phone.valid + "<br>");
        }
      }
    },
    {
      cancel: function() {
        $(this).dialog("close");
      }
    },
    {
      close: function() {
        $(this).val("") > removeClass("ui-state-error");
      }
    }
  ]
});

$( "#create-user" ).click(function() {
  $( "#edit" ).dialog( "open" );
});

$( "#edit" ).hover(
  function(){
    $(this).addClass("ui-state-hover");
  },
  function(){
    $(this).removeClass("ui-state-hover");
  }
).mousedown(function(){
  $(this).addClass("ui-state-active");
}).mouseup(function(){
  $(this).removeClass("ui-state-active");
});

$( "#edit" ).click(function() {
  alert("Hello!");
});
```

Pick your components.

```
$( "#create-user" ).click(function() {
  $( "#edit" ).dialog("open");
});

$( "#edit" ).hover(
  function(){
    $(this).addClass("ui-state-hover");
  },
  function(){
    $(this).removeClass("ui-state-hover");
  }
).mousedown(function(){
  $(this).addClass("ui-state-active");
}).mouseup(function(){
  $(this).removeClass("ui-state-active");
});

$( "#edit" ).click(function() {
  alert("Hello!");
});
```

Handles dependencies.

What about a minified file?

Gives you a custom  
minified file.

Can also pick and tweak themes.

ThemeRoller.

<http://jqueryui.com/themeroller/>

Themes.

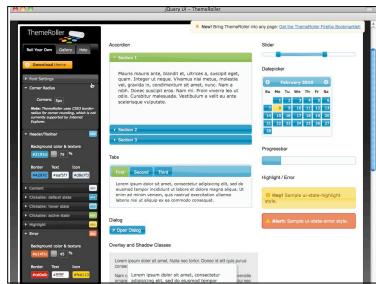
Pick a prebuilt theme.

Default theme is fine.

But it's not your only option.



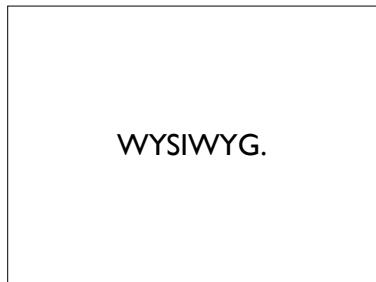
Don't like those options?



Tweak away!



Better than hand  
rolled CSS?



WYSIWYG.

You can also modify  
the CSS directly.



Or write it all yourself!

Plugins.

Divided into categories.

We've looked at a couple of widgets.

Ajax, animation, events, menus, navigation, etc.

But you've got other options.

Searchable.

Hundreds of extensions.

User ratings.

Paradox of choice?

Not all bad ;)

Variable quality...

Want to build an iPhone app?

Compatibility issues.

But don't want to deal with the app store?

"playing the "which JQuery version" will make all of these different plugins work! Arrggghhh!  
#jquery"

Brian Sam-Bodden

<http://twitter.com/bsboden/status/9155328185>

Or Objective-C?

HTML5 and JavaScript!

Touch optimized for phones and tablets.

jQTouch.

<http://www.jqtouch.com/>

Cross platform... and device.

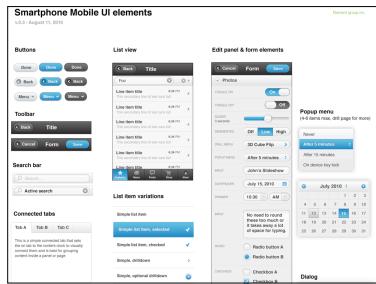
Speaking of mobile...

Graded browser support.

jQuery Mobile.

<http://jquerymobile.com/>

Common look and feel.



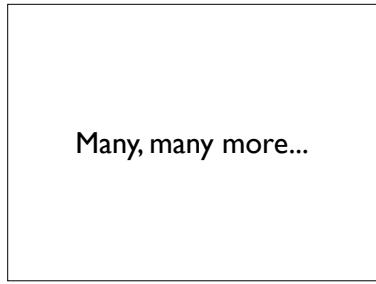
Very extensible.



Help!



[http://docs.jquery.com/Main\\_Page](http://docs.jquery.com/Main_Page)



Good tutorials.

Plenty of books.

Easy to read.

Some are online!

<http://jqfundamentals.com/book/book.html>

Mailing list is vibrant.

Google friendly ;)

<http://docs.jquery.com/Discussion>

Code is well written.

Using jQuery and Firefox?

**FireQuery.**

<http://firequery.binaryage.com/>  
<https://addons.mozilla.org/en-US/firefox/addon/12632/>

**Great library.**

Want to experiment  
with jQuery?

Which one is better?

jQuerify bookmarklet.

It depends!

What about Prototype?

Honestly, both are great.

Can't go wrong either way.

Play with them.



Which one solves  
your problems?

Passion on both sides...

Don't like either?

Pros and cons.

Luckily, you've got  
plenty of choices!

[http://blog.thinkrelevance.com/2009/1/12/  
why-i-still-prefer-prototype-to-jquery](http://blog.thinkrelevance.com/2009/1/12/why-i-still-prefer-prototype-to-jquery)

**Questions??**

**Thanks!**

Please complete your surveys.