



Web-Oriented Software Development

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What is Dojo?

- Dojo is the Open Source JavaScript Toolkit
- It is tool for constructing dynamic web user interfaces
- Dojo offers widgets, utilities, higher IO (AJAX) abstraction etc.
- BSD or AFL licensed

What is the point?

- Dojo bases on the HTML and JavaScript
- Developer has not to use any strange programming language
- Dojo ups abstraction layer in a higher level
- Developer has not to reinvent wheel when starting programming project

How can one use Dojo?

1. Include package
2. use widget/utility/...

History

- Development was started by Alex Russell and Dylan Schiemann in 2004
- The first Dojo code was written in September 2004
- Nowadays 40 000 downloads and over 40 developers and companies

Dojo's structure



Package System

- Dojo consists of JavaScript files
- Package system takes care that only needed files are included
- Each JavaScript file can be named as package
`dojo.provide(doj.string);`
- By that name the package can be taken in use
`dojo.require(doj.string);`

Package System (2)

- One has not to remember any file or directory names
- Only `dojo.js` has to be included into HTML document
- That file takes care of initialization of Dojo
- There is a couple of pre packaged builds that consist of different kinds of packages
e.g. Widget, event or IO builds.

Language Libraries

- dojo.lang.*
- Wrappers for common idioms
- Functional programming APIs
- For Example
 - dojo.lang.forEach
 - dojo.lang.map
 - dojo.lang.assert

Event System

- "Like crack for web developers"
- Any function can be notified when other function fires
- Any DOM object can be connected to any function

```
dojo.event.connect("id", "onClick",  
  listenerObj, "handleOnClick");
```

Environment-Specific Libraries

- Libraries provides routines for handling the environment
- Consist of svg, html, style and dom packages
- Provides some methods for arrange HTML document
- There is also methods for handling DOM trees and SVG models
- Those routines extend existing routines

Application Support Libraries

- Consist of the most interesting routines
- IO package provides routines e.g. for AJAX binding
- DND package provides routines for drag-and-drop operations
- There is also some useful routines in logging, storage and animation packages

AJAX and Dojo

- Dojo is sometimes advertised as AJAX framework
- It is able to make AJAX requests with Dojo
- But the technique of binding is under the abstraction layer that Dojo has

Widget Toolkit

- Widget toolkit is also a very noticeable part of Dojo toolkit
- Widget is a user interface object that has a layout and some properties
- In Dojo widgets are HTML+CSS bound by JavaScript
- Dojo has lots of useful widgets
e.g. Tabs, sorting table, dialogs

Using widgets

```
<script>
  dojo.require("dojo.widget.Editor2");
</script>

<!-- ... -->

<textarea dojoType="Editor2">
  ...
</textarea>
```

Using Widgets with Parameters

```
<textarea dojoType="Editor2"
  minHeight="40em"
  relativeImageUrls="true"
  toolbarAlwaysVisible="true"
  htmlEditing="true">
  ...
</textarea>
```


Using Widgets

One interesting feature of the editor is that the size adjusts based on how much text there is, so the only scrollbar ever shown is the browser's scrollbar. (Or the scrollbar for whatever container is holding the editor.)

Normal | B / U S

This *is the* text inside the editor. Go ahead and edit it.

Note that the toolbar items (above) are configurable. Look at the source of this page to see how.

And now for some latin...

- Sed congue.
- Aenean blandit sollicitudin mi.
- Maecenas pellentesque.
- Vivamus ac urna.

Nunc consequat nisi vitae quam. Suspendisse sed nunc. Proin suscipit porta magna. Duis accumsan nunc in velit. Nam et nibh. Nulla facilisi. Cras venenatis urna et magna. Aenean magna mauris, bibendum sit amet, semper quis, aliquet nec, sapien. Aliquam aliquam odio quis erat. Etiam est nisi, condimentum non, lacinia eu, vehicula lectus, elit. Sed interdum euismod.

General

- Even if Dojo is nice, beautiful etc, it is quite heavy
- The documentation is still quite narrow
- The next example program shows how much network Dojo needs

Example code

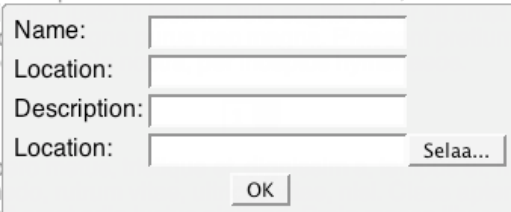
```
<script type="text/javascript" src="../../dojo.js">
</script>
<script type="text/javascript">
    dojo.require("dojo.widget.Dialog");
</script>
...
<div dojoType="dialog" id="DialogContent"
    bgColor="white" bgOpacity="0.5" toggle="fade"
    toggleDuration="250">
...
</div>
```

Example widget

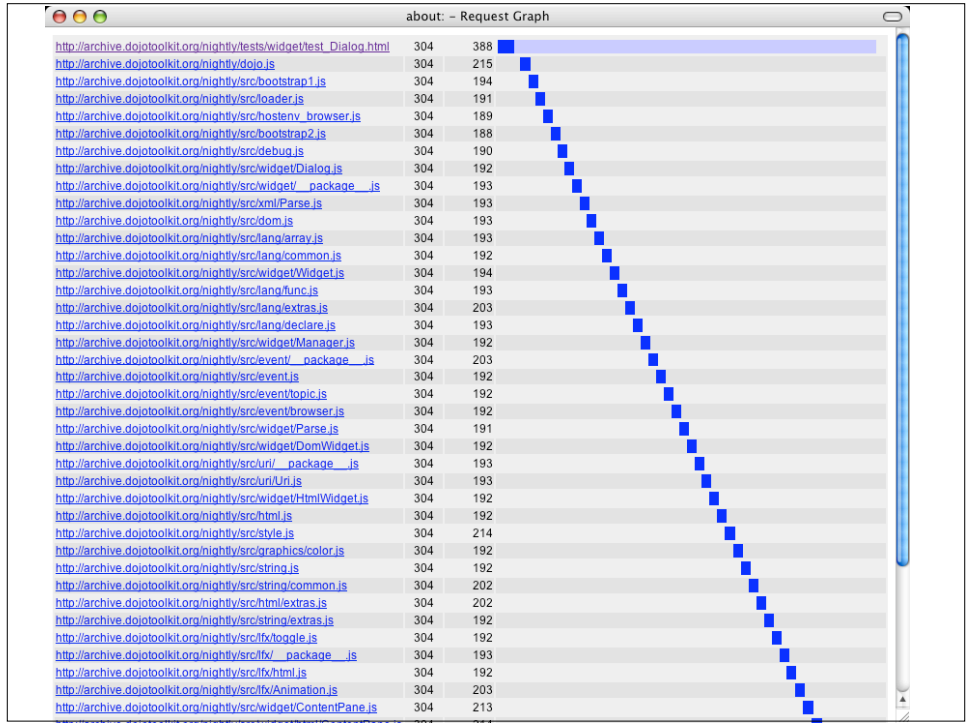
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portitor dignissim. Vestibulum sed velit vel metus tincidunt tempus.
is sed odio. Curabitur in est id nibh tempus ultrices. Aliquam consec
er adipiscing elit. Aenean semper sagittis velit. Cras in mi. Duis por



The screenshot shows a dialog box with a light gray background and a white border. It contains four input fields with labels: "Name:", "Location:", "Description:", and "Location:". The first "Location:" label is positioned to the left of the first input field, and the second "Location:" label is positioned to the left of the second input field. To the right of the second input field is a button labeled "Selaa...". At the bottom center of the dialog is a button labeled "OK". The dialog is overlaid on a background of faint, light gray text.



www.dojotoolkit.org