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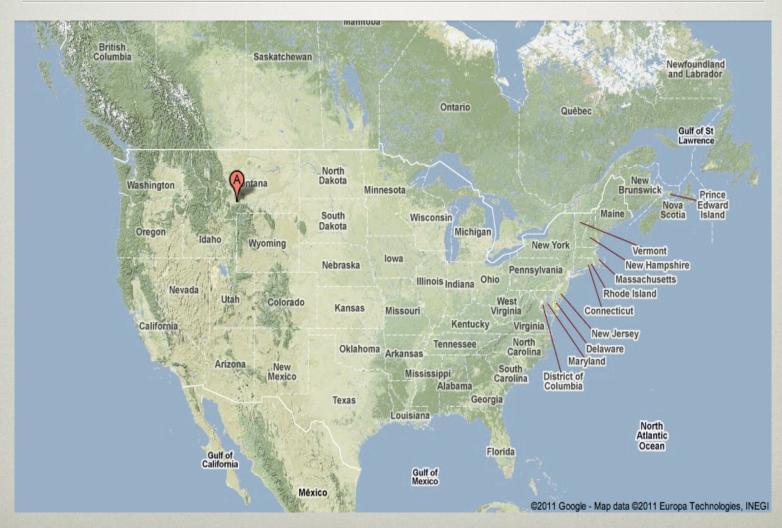
NY 3Rs ASSOCIATION, INC. www.ny3rs.org

Web Services Bootcamp

Course Overview

- Why Web Services?
- Demos
- Key Terms & Background
- Practice and Exercises
- Code Samples
- Questions

Jason Clark



www.jasonclark.info

What about You?

- HTML and CSS proficiency?
- Javascript or PHP (server-side) programming proficiency?
- Why interested in web services?

Course Portal

http://mycourses.amigos.org/course/view.php?id=371

- Course Outline
- Forum for Questions
- Assignments and Submissions

Pinboard.in #tag

pinboard.in/u:jasonclark/t:web-services-bootcamp

Web Services an Intro

Why Should You Care?

- Web Services are the backbone of mashups
- Web Services enable you to access and recombine data
- Move and share data across systems in real time

Web Services for Interoperability

- Lots of different ways in which people can access information
- Different devices
 - Mobile devices, computers, special purpose devices
- Machine access to data

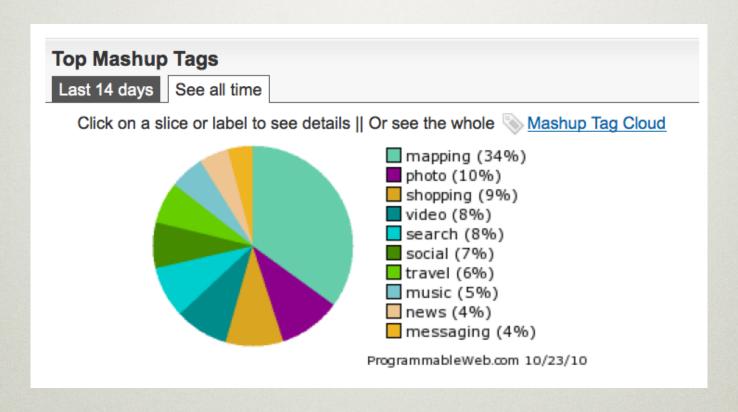
What Is A Mashup?

 a Web application that uses and/or combines data from multiple sources within a single tool

Why Create A Mashup

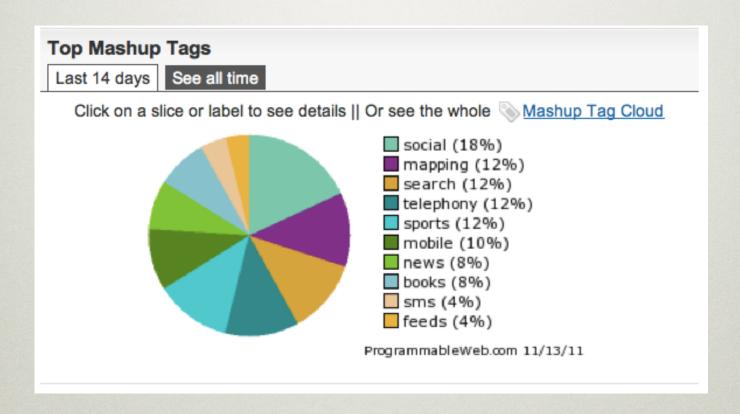
- Want to bring together disparate data sources
- Want to enhance a existing source of data
- Want to improve usability and user interfaces
- Want to make a web page more dynamic and engaging

Top Mashup Types (2010)



http://www.programmableweb.com/mashups

Top Mashup Types (2011)



http://www.programmableweb.com/mashups

Some Library Mashups

- Repository 66
- MSU Theses Research Locations
- Texas A&M Geologic Atlas of the US
- VuFind

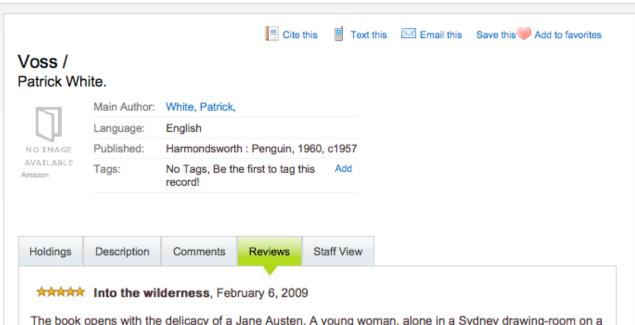


MasonCat

University Libraries





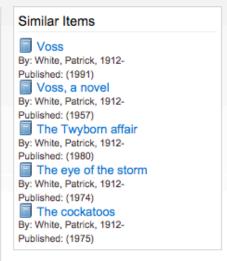


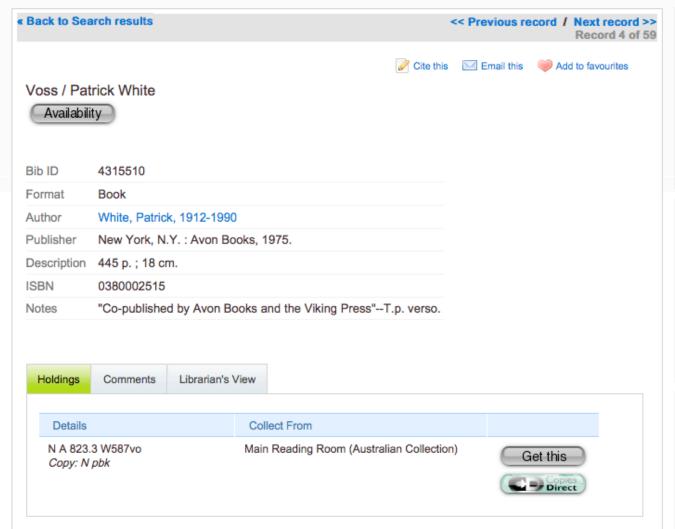
Find Advanced

All Fields

The book opens with the delicacy of a Jane Austen. A young woman, alone in a Sydney drawing-room on a quiet Sunday morning around 1845, reluctantly receives a visitor from abroad. "That strange, foreign men should come on a Sunday when she herself had ventured on a headache was quite exasperating." The headache on which Laura Trevelyan, the heroine, has so deliciously ventured is a cover for her recent loss of faith in conventional Christianity, yet the vast novel that follows will soon plunge into mysticism and madness, a magnificent wrestling match between man and God.

For the foreign visitor is Johann Ulrich Voss, a German explorer who is to lead an expedition to traverse the unexplored Australian interior. Awkward and antisocial, he is nonetheless a secular messiah with an almost divine sense of his own destiny. Funded by Laura's uncle, he gathers together a motley collection of misfits and visionaries: a secret poet, a sensitive ornithologist, a simple-minded boy, a rich dilettante, and a former convict whose practical know-how rivals Voss's own. [White's fondness for visionary loners will get even greater play in his next book, RIDERS IN THE CHARIOT.] Accompanied by two aborigines, Voss leads the party into the bush and through the desert, encountering both beauty and hardship, but ultimately tested less by the physical world than by the terrible discovery of their own inner natures.





Have a question?

For reference enquiries and general questions on items in the collection, ask a librarian.

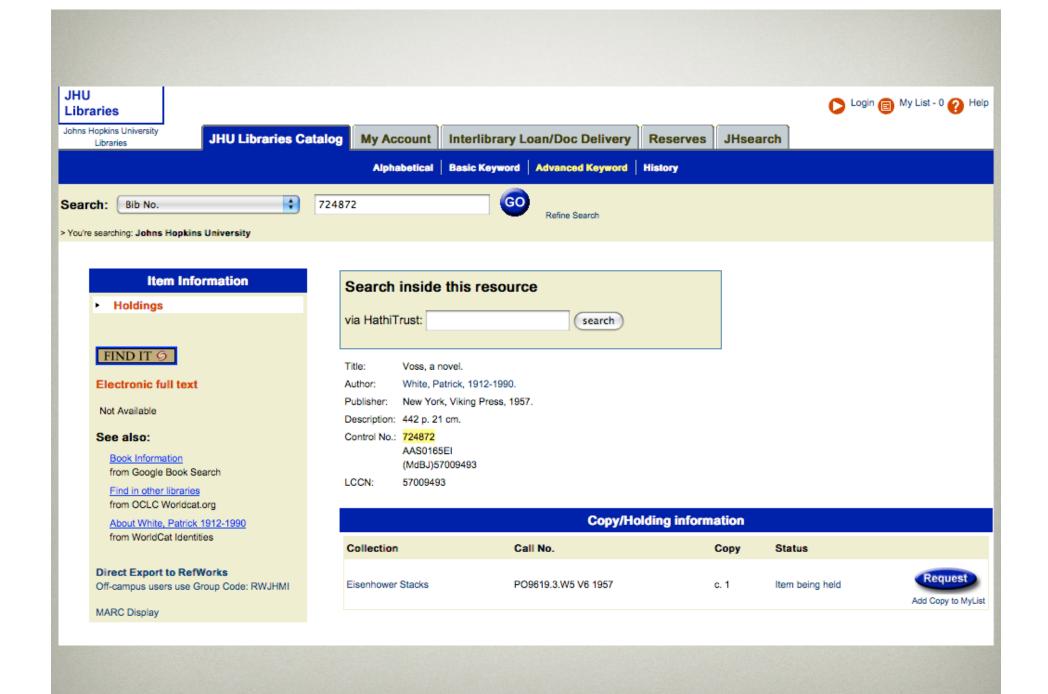
For comments and suggestions on the catalogue site, please let us know.

Similar Items

- Patrick White
- Patrick White
- Patrick White
- The aunt's story / Patrick White
- Voss / Patrick White

Explore

- L 411 entries, 4 reviews at LibraryThing ★★★★
- Add to delicious





Nacets Are Faster...

Related Subjects

White, Patrick 1912-Authors, Australian Australian literature Feature films Novelists, Australian Smith, Alice R. Suburban life

« Back to Search Results

Patrick White

Patrick Victor Martindale White (1912 – 1990) was an Australian author who was widely regarded as a major English-language novelist of the 20th century. From 1935 until his death, he published 12 novels, two short-story collections and eight plays. His fiction freely employs shifting narrative vantage points and a stream of consciousness technique. In 1973, he was awarded the Nobel Prize in Literature.

Provided by Wikipedia

Showing 1 - 20 of 34 Library items by Patrick White:

Big toys

by White, Patrick 1912-

Call Number: PR9619.3 W55 B5 (LC)

Located: LSF- click "Place Requests" for delivery to

any Yale library

Not Checked Out

Book

The Twyborn affair by White, Patrick 1912-

Call Number: PR9619.3 W55 T8

Located: LSF- click "Place Requests" for delivery to

any Yale library

Not Checked Out

Book

A fringe of leaves by White, Patrick 1912-

Call Number: PR9619.3 W55 F7

Located: LSF- click "Place Requests" for delivery to

any Yale library

Not Checked Out

Book

Mashup Examples

- Wildlifenearyou.com
- HousingMaps.com
- McMaster University Mashup of Air Photos
- BookMeUp



LOOK FOR search

Yellowstone Park

General information

United States

Animals you might see

American Badger American Beaver American Bison

American black bear Brown Bear Coyote

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Tell us wh	hich animals you saw.		
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Average rating

Based on ratings of 1 trip by 1 spotter.



Have you been here? Why not add your trip?



Photos



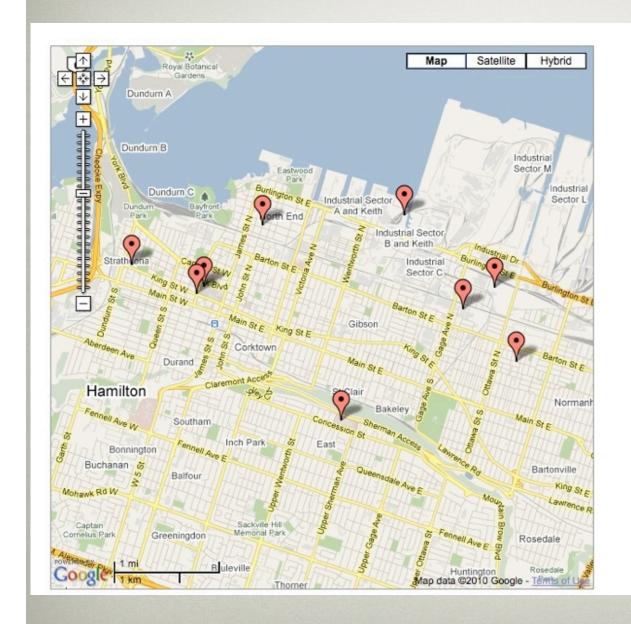
Powered by <u>craigslist</u> and <u>Google Maps</u> (this site is in no way affiliated with craigslist or Google)

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For Rent For Sale Rooms Sublets

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0	\$1800	2bd	8th/Fulton; next to Gg Park, near Usf; Parking included	10/22	ı
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Click here to select years

Select any date from the dropdown menu to see an index of McMaster's air photo holdings for that year.

Click on any marker on the map to see information about that photo.

Each marker represents the approximate centre of one air photo. Air photos often overlap, so a site may appear on 2 or 3 adjacent photos.

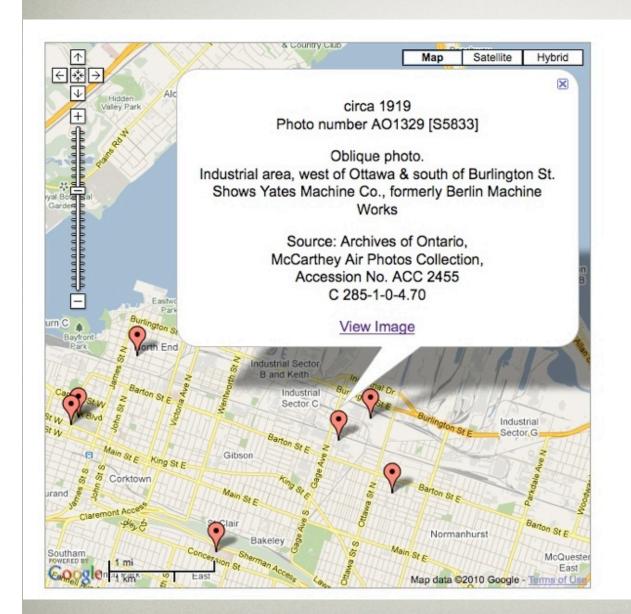
<u>Click here for information about viewing</u> the airphotos at McMaster University Library.

circa 1919

Taken at an oblique angle

9 black & white air photos, 21x26 cm.

Source: Archives of Ontario, McCarthey Air Photos Collection, Accession Number ACC 2455



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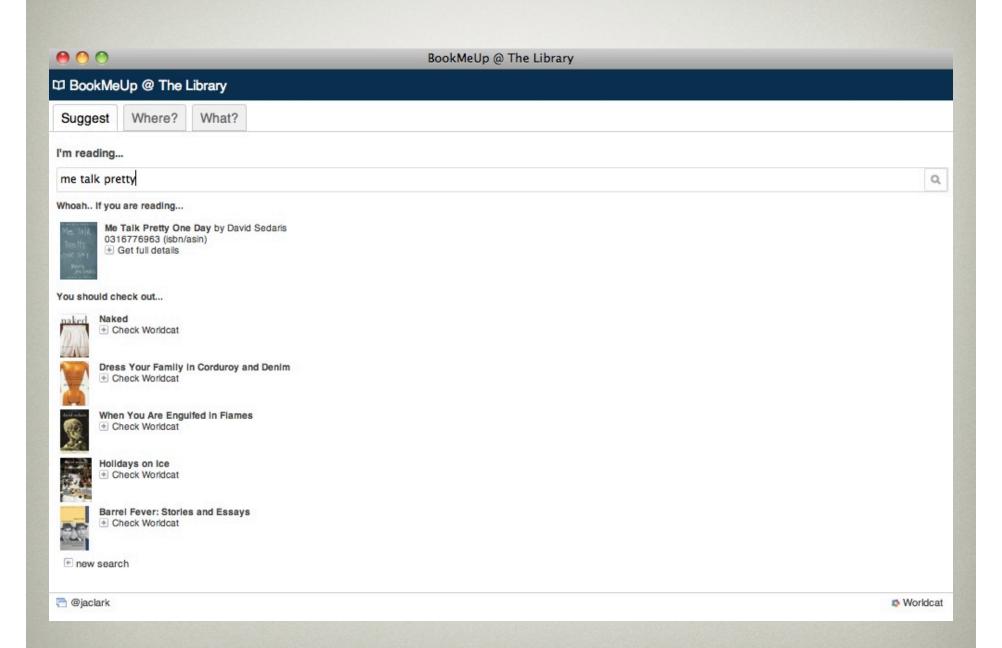
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circa 1919

Taken at an oblique angle

9 black & white air photos, 21x26 cm.

Source: Archives of Ontario, McCarthey Air Photos Collection, Accession Number ACC 2455



How Do Mashups Work?

- Retrieve data from another source(s) typically via a web service
- Mix these datasets together and integrate them into your website

BASIC CONCEPTS

- API
- Web Service
- Structured Data

Terms: API

 An application programming interface (or API) is a way for developers to access parts of a remote web site and integrate it with their own site.

MSU Libraries "lofiAPI" Example

Terms: Web Service

- Provides access to data and/or procedures (API)
- On a remote/external system (usually)
- Use structured data for data exchange (often XML)
- Come in 3 flavors: RPC, SOAP, REST

Terms: Structured Data

- Structured data = XML and JSON
 - Extensible Mark-up Language and Javascript Object Notation
 - Flexible mark-up languages
 - Lightweight and easy to parse
 - Allow communication between disparate systems

Putting it all together

- Data access = Web Services (REST, SOAP, XML-RPC)
- Data typically formatted in XML or JSON
- Data display = 1 or more scripting languages (javascript, PHP, python, etc)

What is XML-RPC

- XML Remote Procedure Call
- Provides a means to call methods/ procedures on a remote server and make changes and/or retrieve data
- Most common implementation of XML-RPC used today is that of blog ping services: Technorati, Flickr, FeedBurner, others

What is SOAP?

- "Simple Object Access Protocol"
- Specification maintained at w3.org
- XML based
- There's nothing simple about SOAP!

SOAP Example

EBAY wsdl

```
http://api.google.com/GoogleSearch.wsdl
<?xml version="1.0" encoding="UTF-8"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://</pre>
schemas.xmlsoap.org/soap/envelope/"
xmlns:ns1="urn:ebay:apis:eBLBaseComponents">
<SOAP-ENV: Header>
</SOAP-ENV:Header>
<SOAP-ENV:Body>
<ns1:GetSearchResultsRequest>
<ns1:Version>425</ns1:Version>
<ns1:Query>*</ns1:Query>
<ns1:TotalOnly>true</ns1:TotalOnly>
</ns1:GetSearchResultsRequest>
</soap-ENV:Body>
</SOAP-ENV:Envelope>
```

What is REST?

- The greatest thing since sliced...
- Representational State Transfer
- Unique data resources with addresses

Theory of REST

- Focus on diversity of resources (nouns), not actions (verbs)
- Every resource is uniquely addressable
- All resources share the same constrained interface for transfer of state (actions)
- Must be stateless, cacheable, and layered

REST = Web Protocol

- Web As Prime Example
 - URLs uniquely address resources
 - HTTP methods (GET, POST, HEAD, etc.) and content types provide a constrained interface
 - All transactions are atomic
 - HTTP provides cache control

REST Verbs

- Create, Read, Update Delete
- POST, GET, PUT, DELETE

REST in Practice

- REST
- Google APIs
 - Google Calendar
 - Google Spreadsheet
- RESTful
- Flickr

REST: Final Thoughts

- Similarity to web easy to understand
- URL is the method
- Most popular type of web service

Formats for Data from Web Services

- XML
 - Can use a particular standard, such as: MARC XML, Dublin Core, RSS, Atom
 - May be a proprietary format
- JSON (Javascript Object Notation)
 - very popular
 - easy to use with Javascript
 - can be simpler to work with
- HTML

What is JSON?

- Javascript Object Notation
- Text file used to pass information from one system to another
- Javascript treats it as an object
 - which makes it easily navigated and specific pieces cherry-picked

```
ProcessGBSBookInfo({ "ISBN0765304368":
         "bib key":"ISBN0765304368",
"info url":"
http://books.google.com/books?
id=qfq13CM kU8C&source=qbs ViewAPI",
"preview url": "http://books.google.com/books?
id=qfq13CM kU8C&printsec=frontcover&siq=jIrSb SkcQ
Rhy VvtnKbTXjmvos&source=gbs ViewAPI",
"t
humbnail url": "http://books.google.com/books?
id=gfg13CM kU8C&pg=PP1&img=1&zoom=5&sig=LsTwGVAsy
qWYMPM6HVDTPAMokg",
"preview": "full"
            });
```

Cross Server Scripting Issues

- AJAX doesn't allow you to access "scripts" across servers
 - XML, PHP or other scripting languages
- Can access JSON across servers
 - Reason why JSON popular
- Workaround

Cross Server Scripting Workarounds

- Proxy the script via the webserver
 - Apache mod_proxy
- Use an intermediary to transform content into JSON
 - Use PHP to convert XML to JSON

Some Skills you'll Need

- XML
- XPath
- Basic understanding of namespaces
- JSON
- Javascript, preferably a library like JQuery
- Some server side scripting language
- PHP, Ruby on Rails, Python, Perl, etc

Practice and Exercises

- XML and JSON Parsing
- Yahoo Pipes
- Code Preview

Getting Started

Practice & Exercises

www.lib.montana.edu/~jason/files/web-services/

Handouts & Code

http://www.lib.montana.edu/~jason/talks/amigos-web-services-handout.pdf

Jason Clark, Demos

www.lib.montana.edu/~jason/files.php

Assignment 1

- 1. Complete the XPATH or Javascript expressions that will allow you to traverse the examples at http://www.lib.montana.edu/~jason/files/web-services/exercises.txt
- Directions for Question 1:
 - 1. Pick 1 XML file and answer the 3 parsing expressions.
 - 2. Pick 1 JSON file and answer the 3 parsing expressions.
 - 3. Click on 'Edit my submission' below, enter the name of the file you picked, the parsing expressions you are solving, and your answers in the online text editor.
- 2. Build a Yahoo Pipe that aggregates 3 feeds and searches for a common term from the aggregated feeds.
- Directions for Question 2:
 - 1. Provide the link to your Yahoo Pipe in the online text editor.

Some Tools For Development

- Bitnami
- Text editor or some other IDE (Eclipse)
- oXygen XML Editor
- JSONLint
- Firefox Extensions
 - Firebug, JSONovich, Web
 Developer's Toolbar

Bitnami





Infrastructure

DjangoStack

JRubyStack

LAMPStack

LAPPStack

MAMPStack

MAPPStack

RubyStack

SAMPStack

OMI'II DEGER

WAMPStack

WAPPStack

Blog

Roller

Typo

WordPress

Bug-Tracking

<u>Mantis</u>

<u>Redmine</u>

Trac

Business Intelligence





f Like < 593



Sign Up



Log In





MAMPStack

Categories: Infrastructure

Technologies: Apache HTTP Server MySQL PHP

Licenses: Apache

Subscribe to this project

BitNami MAMPStack greatly simplifies the development and deployment of PHP applications. It includes ready-to-run versions of Apache, MySQL, PHP and phpMyAdmin and required dependencies. It can be deployed using a <u>native installer</u>. BitNami MAMPStack is distributed for free under the Apache 2.0 license.

Cancel | Ick | Next >

PHP is an HTML-embedded scripting language. Much of its syntax is borrowed from C, Java and Perl with a couple of unique PHP-specific features thrown in. The goal of the language is to allow web developers to write dynamically generated pages quickly.

The MySQL software delivers a very fast, multi-threaded, multi-user, and robust SQL (Structured Query Language) database server. MySQL Server is intended for mission-critical, heavy-load production systems as well as for embedding into mass-deployed software. MySQL is aregistered trademark of Sun Microsystems, Inc.

The BitNami MAMPStack native installers were packaged using BitRock's cross platform installer tool.

Readme Changelog Quick Start Guide

JSONLint

JSONLint



The JSON Validator

A Tool from the Arc90 Lab. Follow us on Twitter.

Props to Douglas Crockford of JSON and JS Lint and Ben Spencer of jsonval.

Validate

JSON Lint is an idea sparked at Arc90 by



An Idea Management & Collaboration Tool

Results

Valid JSON

FAQ

Firebug

What is Firebug? Introduction and Features

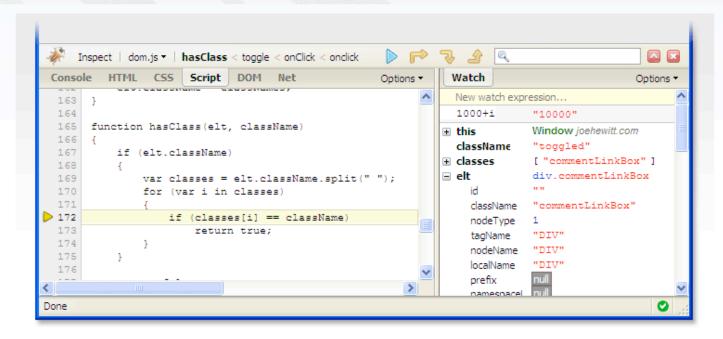
Documentation FAQ and Wiki

Community Discussion forums and lists Get Involved Hack the code, create extensions



Install Firebug For Firefox 100% free and open source

Other Versions Firebug Lite Extensions



JSONovitch

```
"version": "1.0",
     "encoding": "UTF-8",
     "feed":
       "xmlns": "http://www.w3.org/2005/Atom",
       "xmlns$openSearch": "http://a9.com/-/spec/opensearchrss/1.0/",
       "xmlns$gsx": "http://schemas.google.com/spreadsheets/2006/extended",
       "id": {
         "$t": "https://spreadsheets.google.com/feeds/list/0Aitqc3TBbtGmdHJJZTBXVkk5UzVnaVhIekRJN3E3WEE/od6/public/values"
10
11
       "updated": {
12
         "$t": "2010-10-22T20:19:37.169Z"
13
14
       "category": [
15
16
           "scheme": "http://schemas.google.com/spreadsheets/2006",
            "term": "http://schemas.google.com/spreadsheets/2006#list"
17
18
19
20
       "title": {
21
         "type": "text",
22
         "$t": "Sheet1"
23
24
       "link": [
25
           "rel": "alternate",
26
27
           "type": "text/html",
28
            "href": "https://spreadsheets.google.com/pub?key=0Aitqc3TBbtGmdHJJZTBXVkk5UzVnaVhIekRJN3E3WEE"
29
30
            "rel": "http://schemas.google.com/g/2005#feed",
31
32
           "type": "application/atom+xml",
33
            "href": "https://spreadsheets.google.com/feeds/list/0Aitgc3TBbtGmdHJJZTBXVkk5UzVnaVhIekRJN3E3WEE/od6/public/values
34
35
           "rel": "self",
36
37
           "type": "application/atom+xml",
38
            "href": "https://spreadsheets.google.com/feeds/list/0Aitgc3TBbtGmdHJJZTBXVkk5UzVnaVhIekRJN3E3WEE/od6/public/values"
39
40
41
        "author": [
42
```

Contact Info

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 @jaclark