Creating Library Web Services

Course Overview

- Who we are
- Demos
- Key Terms & Background
- Code Samples
- Questions

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- jaclark@montana.edu

What about You?

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

Web Services an Intro

Jason Clark - Montana State University

Pinboard.in #tag

pinboard.in/u:jasonclark/t:lita-class-api-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

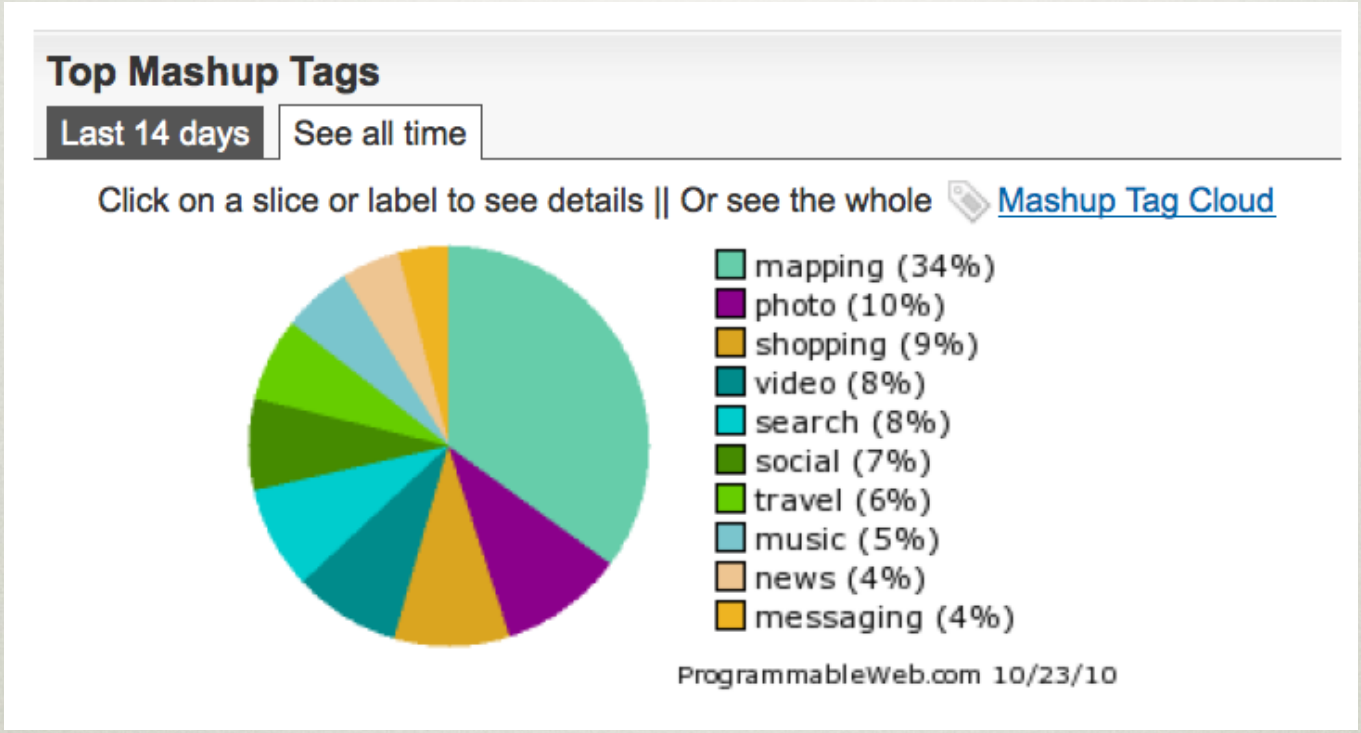
What Is A Mashup?

- 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



- http://www.programmableweb.com/mashups

Some Library Mashups

- Repository 66
- Terrapod Project
- Texas A&M Geologic Atlas of the US
- VuFind

terraPOD BETA

Search

Create & Participate

- How to Upload (.pdf)
- Upload a Video
- View Voting Results

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For more information, contact PD Bean.

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Now Playing:

Frog, Chemical, Water, You

17:14mins | 2008-10-28 | Produced by: Grace, Jennifer

Amphibians are indicator species. Because of their sensitive permeable skin, scientists use amphibians to gauge the overall health of the worldwide ecosystem that we all share. So with nearly half of the world's amphibian populations in decline, we're all potentially in big trouble. But there are simple things you can start doing today to help.

- Learn More
- (0) comments

terrapod

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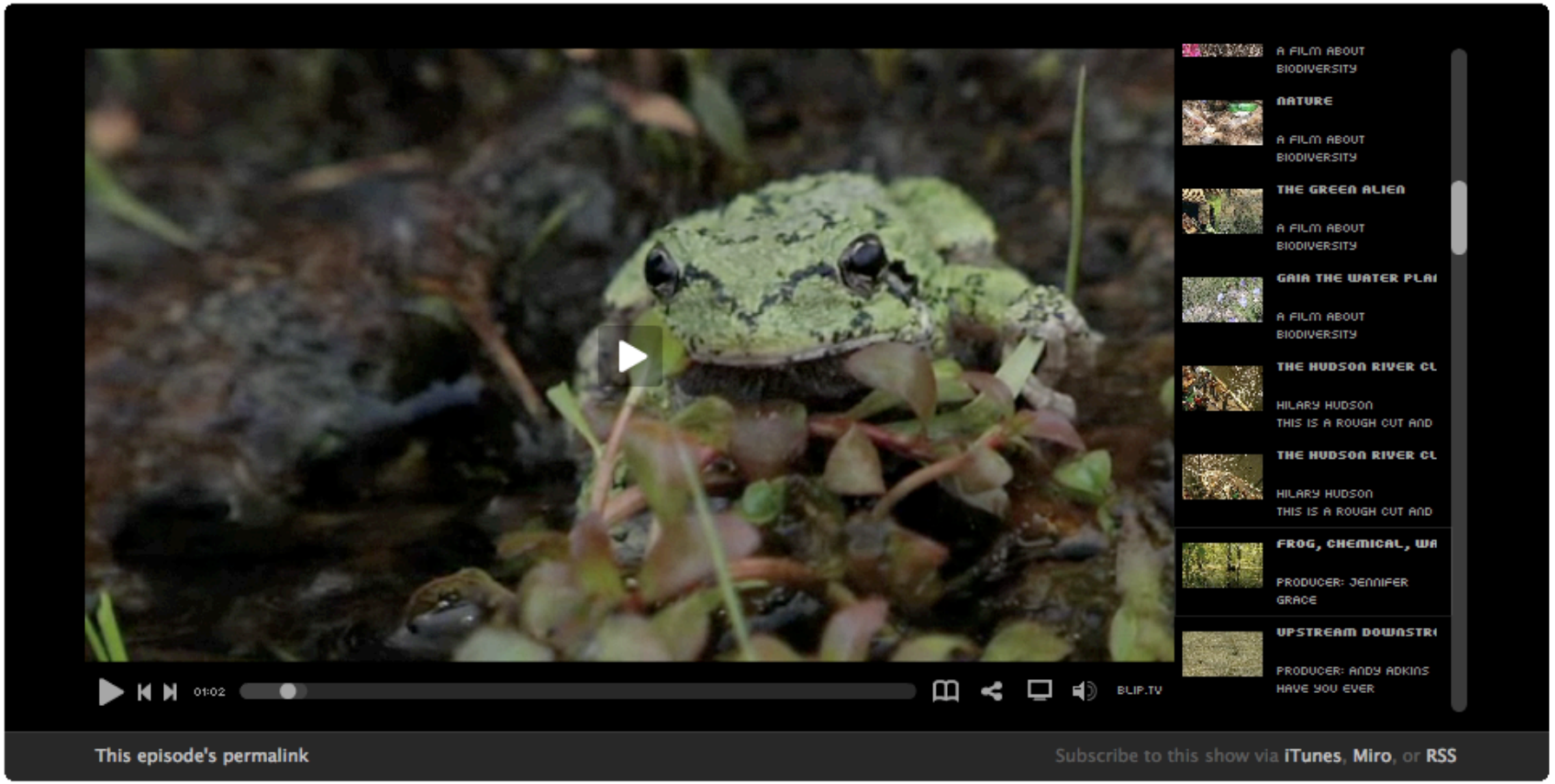

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Voss /
Patrick White.

NO IMAGE AVAILABLE
Amazon

Main Author:	White, Patrick,
Language:	English
Published:	Harmondsworth : Penguin, 1960, c1957
Tags:	No Tags, Be the first to tag this record! Add

Holdings | Description | Comments | Reviews | Staff View

★★★★★ **Into the wilderness**, February 6, 2009

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.

Similar Items

Voss
By: White, Patrick, 1912-
Published: (1991)

Voss, a novel
By: White, Patrick, 1912-
Published: (1957)

The Twyborn affair
By: White, Patrick, 1912-
Published: (1980)

The eye of the storm
By: White, Patrick, 1912-
Published: (1974)

The cockatoos
By: White, Patrick, 1912-
Published: (1975)

« Back to Search results

<< Previous record / Next record >>
Record 4 of 59

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Voss / Patrick White

Availability

Bib ID	4315510
Format	Book
Author	White, Patrick, 1912-1990
Publisher	New York, N.Y. : Avon Books, 1975.
Description	445 p. ; 18 cm.
ISBN	0380002515
Notes	"Co-published by Avon Books and the Viking Press"--T.p. verso.

Holdings | Comments | Librarian's View

Details	Collect From	
N A 823.3 W587vo *Copy: N pbk*	Main Reading Room (Australian Collection)	Get this Copies Direct

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

411 entries, 4 reviews at LibraryThing ★★★★

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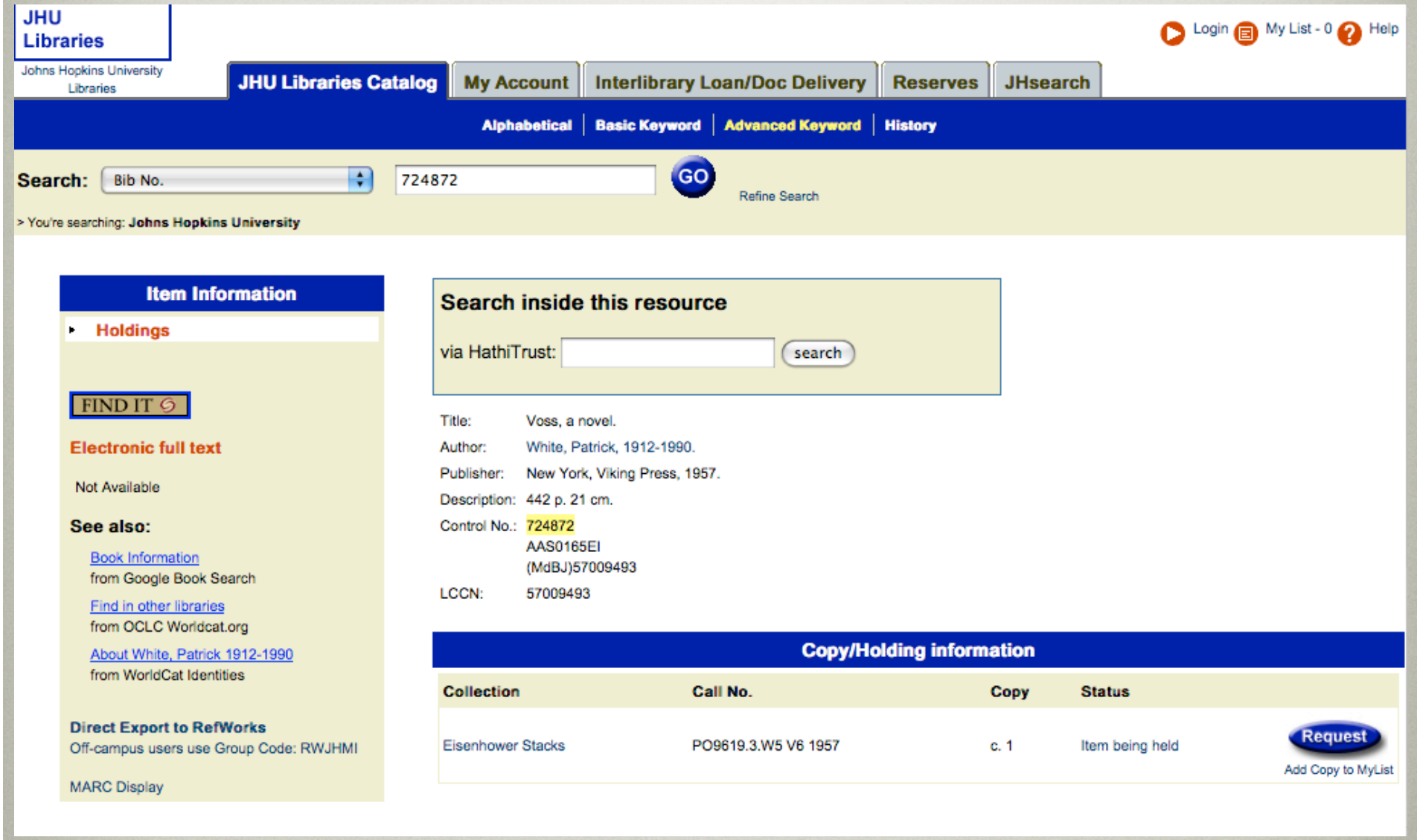
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Item Information
Holdings
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See also:
Book Information
from Google Book Search
Find in other libraries
from OCLC Worldcat.org
About White, Patrick 1912-1990
from WorldCat Identities
Direct Export to RefWorks
Off-campus users use Group Code: RWJHMI
MARC Display
Search inside this resource
via HathiTrust:
search
Title: Voss, a novel.
Author: White, Patrick, 1912-1990.
Publisher: New York, Viking Press, 1957.
Description: 442 p. 21 cm.
Control No.: 724872
AAS0165EI
(MdBJ)57009493
LCCN: 57009493
Copy/Holding information
Collection
Call No.
Copy
Status
Eisenhower Stacks
PO9619.3.W5 V6 1957
c. 1
Item being held
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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

- HousingMaps.com
- McMaster University Mashup of Air Photos
- go2collegeMT

For Rent [For Sale](#) [Rooms](#) [Sublets](#)

Powered by craigslist and Google Maps
(this site is in no way affiliated with craigslist or Google)
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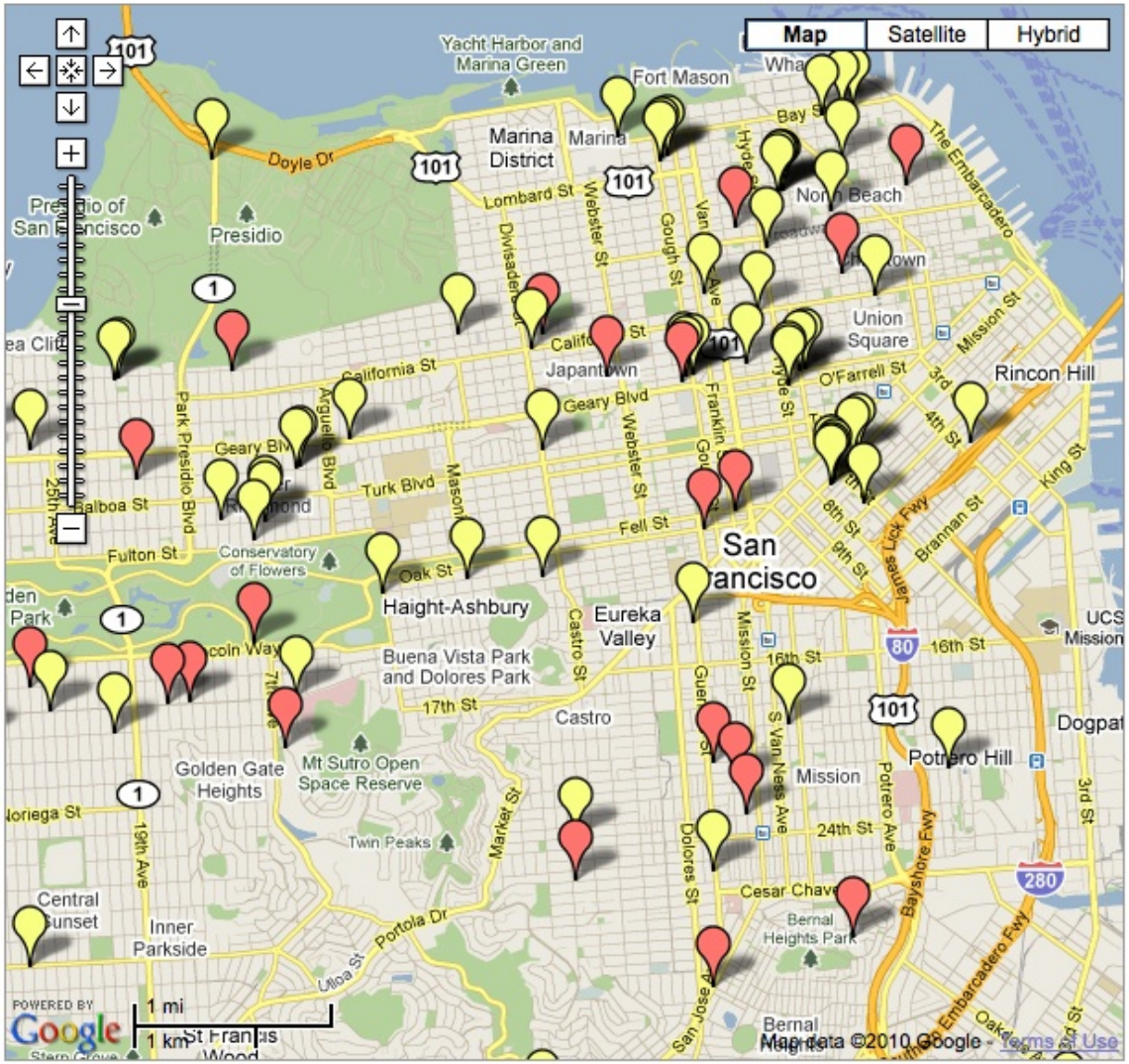
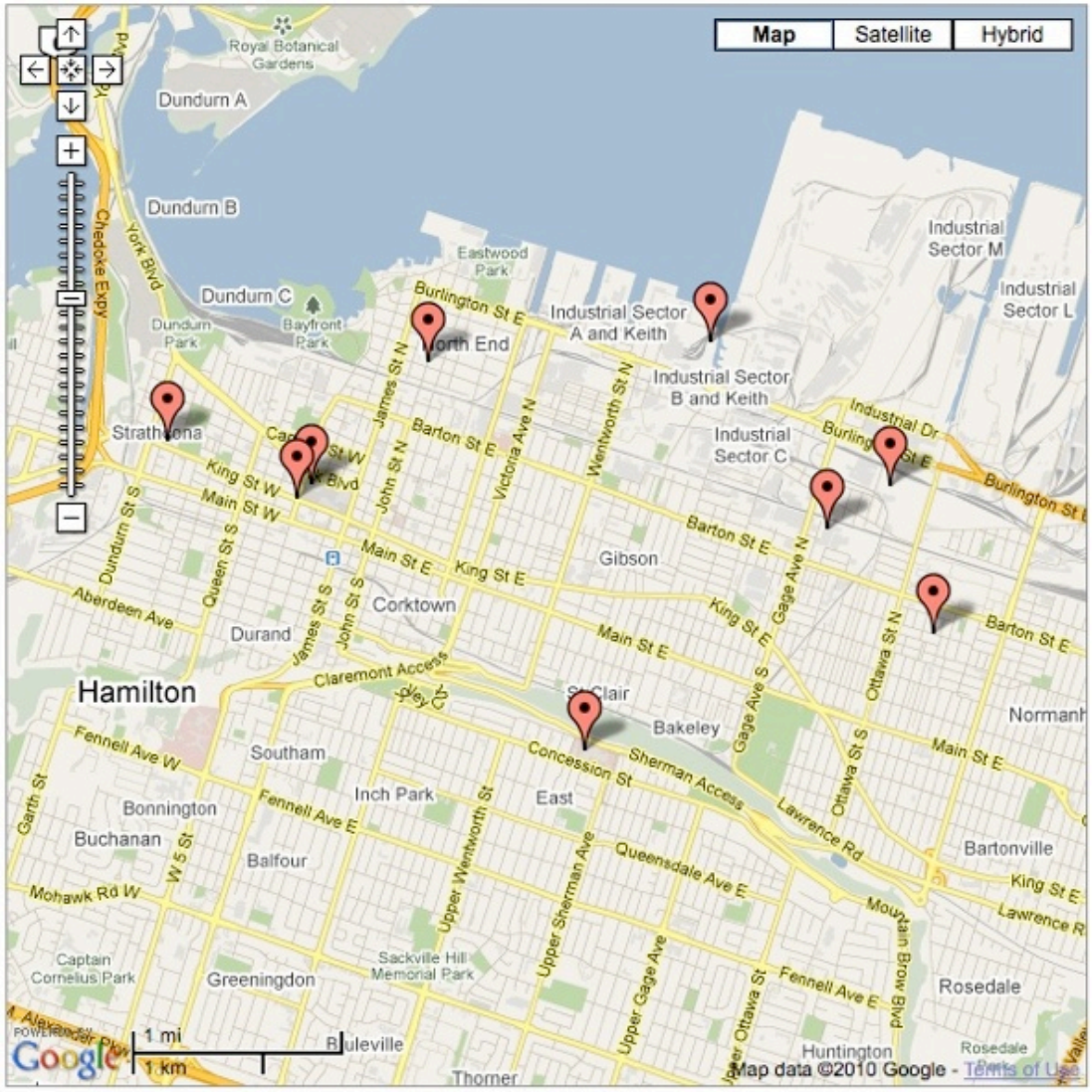
City: San Francisco **Price:** $1500 - $2000 [Show Filters](#) New [Refresh](#) [Link](#)



pics	price	bd	description	date
	$1600	2bd	2 BR/1 BA Apartment With A In-Law Unit Available For Rent	10/23
	$1950	1bd	Marina -1 bedroom-showing today 11-12 noon-pets ok!	10/23
	$1595	1bd	Sunny In-Law Unit	10/23
	$1600	1bd	Spotless Apt. Good Location, open Sat. & Sun. 1:00-2:30	10/22
	$1900	2bd	Two Bedrooms & Garage	10/22
	$1790	2bd	Bungalo Apartment, Quiet, Private	10/22
	$1750	2bd	Showing Sun 10/24: Charming 2bdrm/1bath Unit with Washer!	10/22
	$1550	1bd	Charming Jr. 1 BR In Great Location (laurel hts / presidio)	10/22
	$1845	2bd	2 bedrm apt. in nice area (18th ave.)	10/22
	$1895		massive, Huge Closets. Great Floor Plan! Call Now	10/22
	$1550	1bd	Spacious 1 BR: Open living room- kitchen: Hardwoods: Walk to Downtown	10/22
	$1800	2bd	8th/Fulton; next to Gg Park, near Usf; Parking included	10/22
	$1500	1bd	1 Bedroom 1 Bath	10/22
	$1800		2 Bed, 2 BA Ingleside near Bart	10/22
	$1950	2bd	Open Sat 11-1pm. New Remodeled Kitchen,	10/22
	$1800	2bd	2Bd/1BR, newly renovated	10/22
	$1700	1bd	Beautiful Total Remodel New Kitchen, bath, hardwood floors, garage.	10/22
	$1800		ground floor office, warehouse, art studio or ?	10/22
	$1600	1bd	Large Sunny 11 Win, 3 Clos Cath Hill*Open Sun 3:30-4*	10/22
	$1750	1bd	Stylish! New! Remodeled! View! *Excellent Location!*Near Bart*	10/22
	$2000		Studio, Doorman, Garage, Pool, Healthclub, Nob Hill	10/22



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.

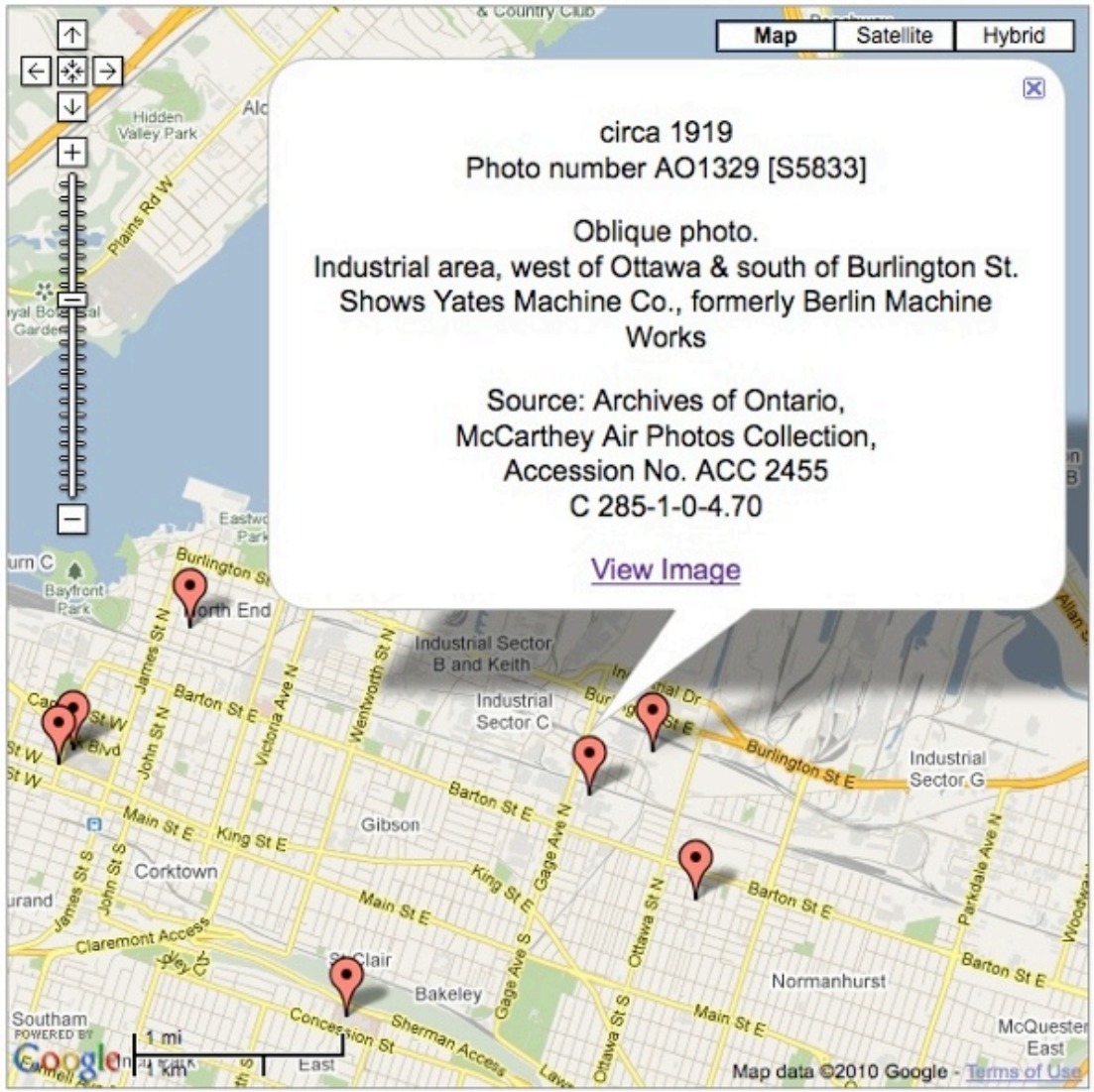
Click here for information about viewing the airphotos at McMaster University Library.

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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go2collegeMT

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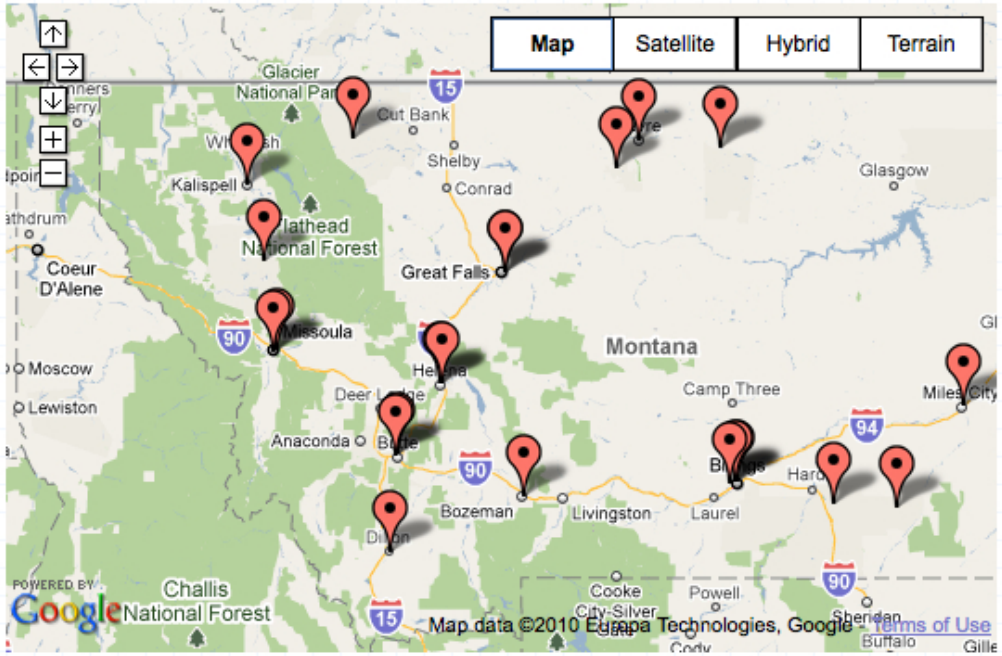
Montana Education Maps

Map for colleges-all



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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://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=gfg13CM_kU8C&source=gbs_ViewAPI",
"preview_url":"http://books.google.com/books?id=gfg13CM_kU8C&printsec=frontcover&sig=jIrSb_SkcQRhy_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

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

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Infrastructure

- DjangoStack
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- WAPPStack

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- Roller
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Bug-Tracking

- Mantis
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- Trac

Business Intelligence

MAMPStack

Subscribe to this project

Categories: Infrastructure
Technologies: Apache HTTP Server MySQL PHP
Licenses: Apache

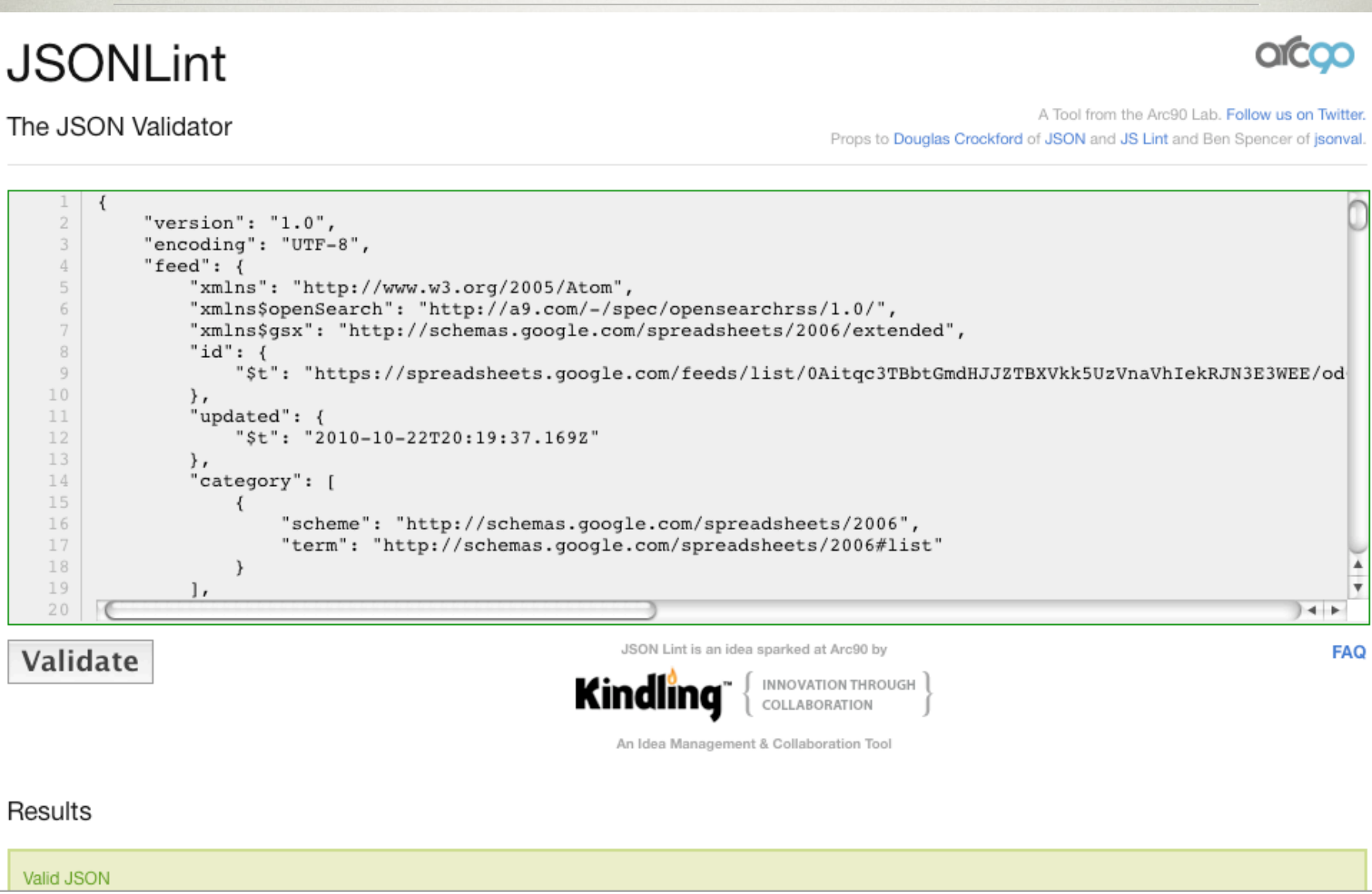
BitNami MAMPStack greatly simplifies the development and deployment of PHP applications. It includes ready-to-run versions of Apache, MySQL, PHP and phpMyAdmin and required dependencies. It can be deployed using a native installer. BitNami MAMPStack is distributed for free under the Apache 2.0 license.

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.
{
"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": {
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},
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},
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"scheme": "http://schemas.google.com/spreadsheets/2006",
"term": "http://schemas.google.com/spreadsheets/2006#list"
}
],
Validate
JSON Lint is an idea sparked at Arc90 by
Kindling
INNOVATION THROUGH COLLABORATION
An Idea Management & Collaboration Tool
FAQ
Results
Valid JSON

Firebug

What is Firebug?
Introduction and Features

Documentation
FAQ and Wiki

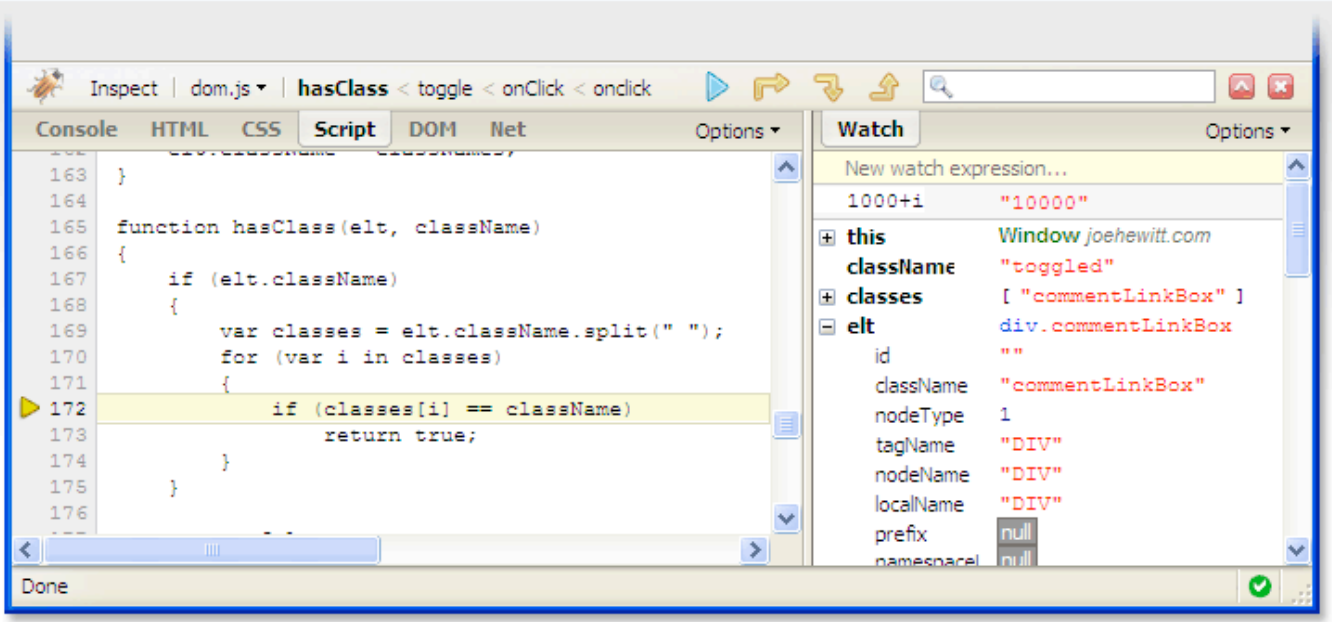
Community
Discussion forums and lists

Get Involved
Hack the code, create extensions

Firebug
Web Development Evolved.

Install Firebug For Firefox
100% free and open source

Other Versions Firebug Lite Extensions



JSONovitch


```
{
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  "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": {
      "$t": "https://spreadsheets.google.com/feeds/list/0Aitqc3TBbtGmdHJJZTBXVkk5UzVnaVhIekRJN3E3WEE/od6/public/values"
    },
    "updated": {
      "$t": "2010-10-22T20:19:37.169Z"
    },
    "category": [
      {
        "scheme": "http://schemas.google.com/spreadsheets/2006",
        "term": "http://schemas.google.com/spreadsheets/2006#list"
      }
    ],
    "title": {
      "type": "text",
      "$t": "Sheet1"
    },
    "link": [
      {
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        "type": "text/html",
        "href": "https://spreadsheets.google.com/pub?key=0Aitqc3TBbtGmdHJJZTBXVkk5UzVnaVhIekRJN3E3WEE"
      },
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        "rel": "http://schemas.google.com/g/2005#feed",
        "type": "application/atom+xml",
        "href": "https://spreadsheets.google.com/feeds/list/0Aitqc3TBbtGmdHJJZTBXVkk5UzVnaVhIekRJN3E3WEE/od6/public/values"
      },
      {
        "rel": "self",
        "type": "application/atom+xml",
        "href": "https://spreadsheets.google.com/feeds/list/0Aitqc3TBbtGmdHJJZTBXVkk5UzVnaVhIekRJN3E3WEE/od6/public/values?
      }
    ],
    "author": [
      {
```

Demo Files

- Developer Network Subversion repository http://www.worldcat.org/devnet/code/devnetDemos/
- Jason Clark Demos http://www.lib.montana.edu/~jason/files.php

DEMO_CONFIG.INC

```php
<?php
// Set the server address that you are loading the demos on
$server_address ='';

//Set WorldCat API WSKey
$WorldCatAPIKey = ''; // replace with your WorldCat Search API Key

//Set your WorldCat Affiliate ID
$worldcat_affiliate_id = ''; // replace with your WorldCat affiliate ID

//Set your Serial Solutions ID
$serial_solutions_id = '';

$librarything_key = ''; // replace with your LibraryThing Key

//Set New York Times API Key
$NYT_API = ''; // replace with your New York Times Search API Key

//Set New York Times Movie Reviews API Key
$NYT_Movies_API = ''; // replace with your New York Times Movie API Key

// Set your Last.fm API Key
$lastfm_developer_key = ''; // replace with your Last.fm API Key

$isbndb_key = '';
```

Our Contact Info

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  twitter - jaclark
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  twitter - librarywebchic

Karen A. Coombs

- Product Manager OCLC Developer Network
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- twitter.com/librarywebchic
- librarywebchic@gmail.com