

Beyond The Web

Drupal Meets The Desktop (And Mobile)

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<http://codesorcery.net/dcdc>

Introduction

- ✦ Personal introduction
- ✦ Format & conventions for this talk
 - ✦ Assume familiarity with core/contrib, modules, hooks
 - ✦ Functions & other code `like_this()`
 - ✦ Modules represented `{like_so}`
 - ✦ <http://drupal.org/project/{foo}>
 - ✦ Twitter hashtag **#drupalbeyond**
 - ✦ Q&A at the end



Who are you?

- ✦ A Drupal developer
 - ✦ What's out there? Does it work?
- ✦ A desktop or mobile developer
 - ✦ Can I use Drupal as a backend? How? Why?
- ✦ A non-developer
 - ✦ Will Drupal play nice with my existing systems?

Focus Of This Talk

- ✦ Direct concerns for desktop & mobile
 - ✦ Standards-based exchange
 - ✦ Authentication & security
 - ✦ Building on what is available



Today's Roadmap



- ✦ Putting Data In
- ✦ Getting Data Out
- ✦ Authentication
- ✦ Advanced Interop (XML-RPC, Services)

Putting Data In



- ✦ Desktop Publishing
- ✦ File Uploads & Attachments
- ✦ Files: The Next Level (File Framework)
- ✦ WebDAV For Fun & Profit

Desktop Publishing

- ✦ Basic support made available by Blog API
 - ✦ Optional core module {blogapi}
 - ✦ Implementation of `hook_xmlrpc()` (more later)
 - ✦ Blogger, MetaWeblog, & Movable Type
- ✦ Google Docs can publish to this!
- ✦ Clients available for every platform

File Uploads & Attachments

- Core support with {upload}
- Files go into a folder on the server
- Basic metadata is stored in the DB
 - Name, path, type, size
- Can limit upload types accepted by extension
- Can enable private download method
 - Store files out of site root
 - Drupal becomes the gatekeeper for file permissions

File Framework

- Contrib module suite called {fileframework}
- Provides a 'file' content type to Drupal
 - Remember: normally, files are not nodes
- Advanced feature set
 - Virus scanning on upload
 - Automatic conversion
 - Example: MPEG to FLV or HTML to TXT
 - Metadata extraction (EXIF, ID3, PDF properties, etc.)
 - AJAX-enabled inline previews

[Home](#)

UsingDrupalch09.pdf

[View](#)

[Dev load](#)

[Dev render](#)

[Edit](#)

[Properties](#)

[Relations](#)

Wed, 01/28/2009 - 16:49 — Justin Miller



UsingDrupalch09.pdf

[Add new comment](#)

[Download](#)

1.82 MB

PDF document

0 views

0

downloads

File references

This file is attached to:

- [group story](#)

File properties

MIME type: application/pdf

Size: 1.82 MB

Home > Groups > Group A

roses.jpg

View

Dev load

Dev render

Edit

Properties

Revisions

Relations

Tue, 10/07/2008 - 20:56 — Justin Miller

Home

Preview: Image | Preview | Medium | Thumbnail | hide



Other available formats:  Preview  Medium  Thumbnail

 roses.jpg

Groups: Group A

[Add new comment](#) [Download](#) 166.82 KB JPEG image 1 view 8 downloads 600x800 pixels

File references

This file is attached to:

- [unaffiliated story](#)

File properties

MIME type:	image/jpeg
Size:	166.82 KB
Latitude:	45.5195
Longitude:	-122.706
Make:	Apple
Model:	iPhone
X resolution:	72/1
Y resolution:	72/1

File Framework

- ✦ Efficient
 - ✦ File nodes can be reused
 - ✦ Re-attached again and again
 - ✦ Autocomplete search field
 - ✦ Backend is distributed & content-addressable
 - ✦ Repositories on Memcached, SFTP, Amazon S3
 - ✦ See {bitcache} for more on the specifics

File attachments

Attach existing file:

Put a file node id in square brackets, like [123], or type in a file name for the selection. You can also click on "Browse..." to choose a file.

ros

 roses.jpg (166.82 KB) 10/07/2008 - 20:56 - Justin Miller

Attach new file:

no file selected

The maximum upload size is 2 MB.

WebDAV

- File Server {fileserver}
 - Based on {dav}
 - Browse file nodes by taxonomy
- File Relations Server {filerelationsserver}
 - Also based on {dav}
 - Browse file nodes by:
 - MIME type
 - Attached-to node type (page, story, etc.)
 - Group (via Organic Groups)
- WebDAV {webdav}
 - Access to textual nodes (pages, stories, etc.)



Index of /

http://localhost/~incanus/FileServerModule6/dav/ Google

Index of /

Size	Last modified	Name
1 KB	03/02/2009 - 18:49	 Files by group/
1 KB	03/02/2009 - 18:49	 Files by node type/
1 KB	03/02/2009 - 18:49	 Files by file type/

Powered by [Drupal](#).

http:Justin Miller@localhost

~/incanus/FileServerModule6/dav

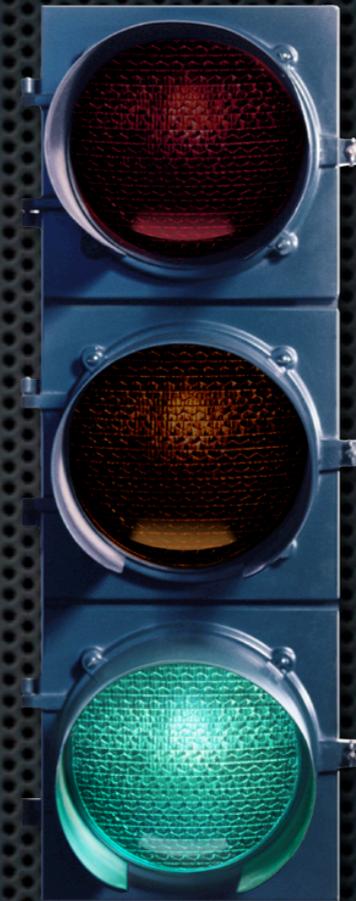
	Size	Modified	Kind
Files by file type	1.0 KB	9/19/08 6:49 PM	Folder
MPEG-audio Layer 3 file	1.0 KB	9/19/08 6:50 PM	Folder
PDF document	1.0 KB	9/19/08 6:50 PM	Folder
M2_Charter.pdf	190.2 KB	9/18/08 5:49 PM	Preview Document
ps04-2.pdf	128.1 KB	9/18/08 5:49 PM	Preview Document
PNG image	1.0 KB	9/19/08 6:50 PM	Folder
c42schedule.png	54.8 KB	9/18/08 5:21 PM	Preview Document
Files by group	1.0 KB	9/19/08 6:49 PM	Folder
Group A	1.0 KB	9/18/08 5:14 PM	Folder
story in a group	1.0 KB	9/18/08 5:38 PM	Folder
story in two groups	1.0 KB	9/18/08 5:49 PM	Folder
Group B	1.0 KB	9/18/08 5:15 PM	Folder
story in two groups	1.0 KB	9/18/08 5:49 PM	Folder
M2_Charter.pdf	190.2 KB	9/18/08 5:49 PM	Preview Document
ps04-2.pdf	128.1 KB	9/18/08 5:49 PM	Preview Document
Files by node type	1.0 KB	9/19/08 6:49 PM	Folder
Page nodes	1.0 KB	9/19/08 6:50 PM	Folder
Story nodes	1.0 KB	9/19/08 6:50 PM	Folder
story in a group	1.0 KB	9/18/08 5:38 PM	Folder
story in two groups	1.0 KB	9/18/08 5:49 PM	Folder
M2_Charter.pdf	190.2 KB	9/18/08 5:49 PM	Preview Document
ps04-2.pdf	128.1 KB	9/18/08 5:49 PM	Preview Document
unaffiliated story	1.0 KB	9/19/08 6:49 PM	Folder
Reading Rainbow Theme Song.mp3	1.1 MB	9/19/08 6:49 PM	MP3 Audio File

24 Files

Putting Data In → WebDAV

Getting Data Out

- ✦ Feeds
- ✦ Email
- ✦ Popular Formats
- ✦ Other Projects of Note



General Feed Needs



- ✦ Core
 - ✦ Automatic node aggregation (e.g., blog)
- ✦ Create *views* with {views}
 - ✦ Create *displays* for pages, blocks
 - ✦ Also create *displays* for feeds
 - ✦ “List, in table form, all comments on a node, then provide an RSS feed of those comments.”

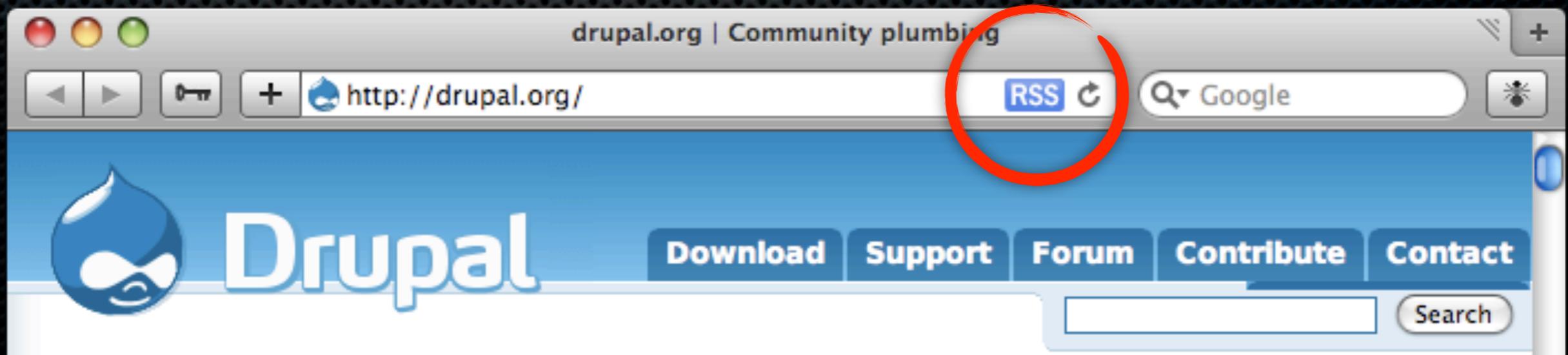
Feed Needs: Authentication

- ✦ Token authentication {tokenauth}
 - ✦ Checks for token present in URL
 - ✦ User is automatically logged in as token owner
- ✦ Server-based authentication
 - ✦ .htaccess, database-backed, LDAP
 - ✦ Applies to non-feed URLs too
 - ✦ Covered in more general terms later



Other Feed Needs

- ✦ Atom in addition to RSS using {atom}
 - ✦ Provides node, blog, user blog, & taxonomy feeds
- ✦ Feed Path Publisher {feed_path_publisher}
 - ✦ Adds <link> tags to pages based on path



Email

- ✦ Core includes `drupal_mail()`
 - ✦ Important since it abstracts sending
 - ✦ Uses PHP `mail()` by default
 - ✦ Allows swapping the backend
 - ✦ Example: development site holding email
- ✦ More robust emailing with `{smtp}`
 - ✦ Centralize your outgoing mail
 - ✦ Send mail over SSL
 - ✦ Identify mailing sites by username (via SMTP auth)



Popular Formats

- ✦ CSV, Word, TXT with {views_bonus}
- ✦ Simple read-only JSON with {views_json}
- ✦ KML map data with {kml}

Other Projects of Note

- ✦ Print & PDF with {print}
- ✦ Force file downloads with {file_force}
- ✦ Backup & migrate with {backup_migrate}

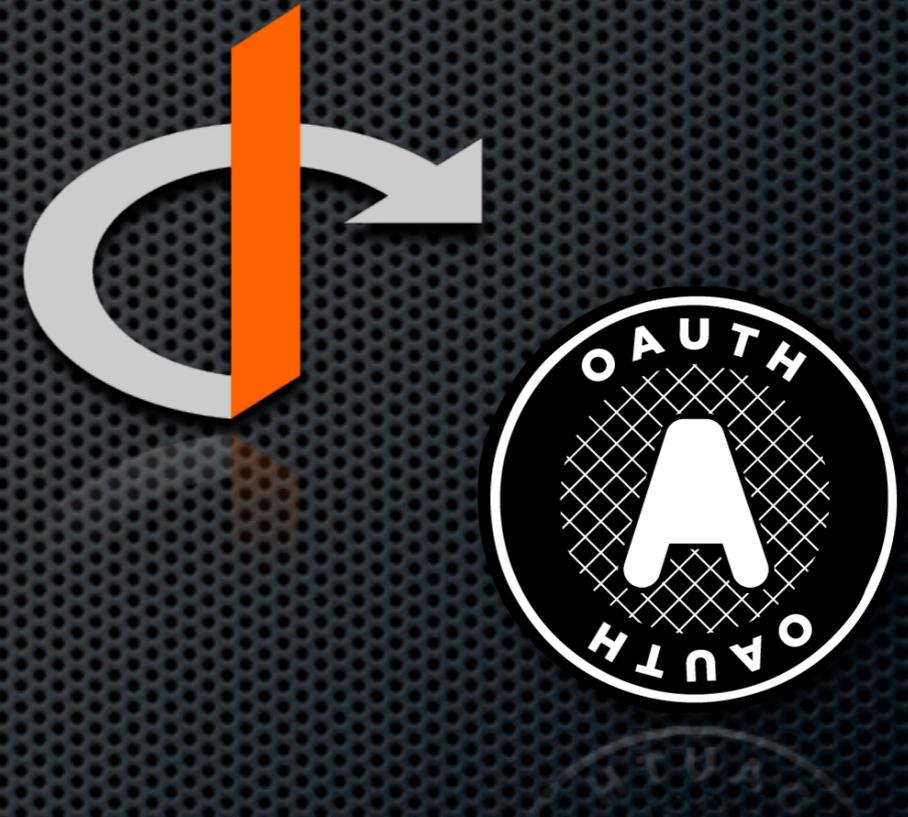
Authentication

- ✦ OpenID & OAuth
- ✦ LDAP
- ✦ HTTP



Auth: OpenID & OAuth

- Login and a “valet key” for many websites
- OpenID login support
 - Included in core as of D6 {openid}
 - Allows one or more identities
- OpenID provider support
 - Contrib module {openid_provider}
 - See James Walker’s talk happening right now!
 - Don’t hate me for not telling you earlier
- OAuth support with {oauth}
 - Gives users control over apps that use their data
 - Can use this in your own services (including with {services})



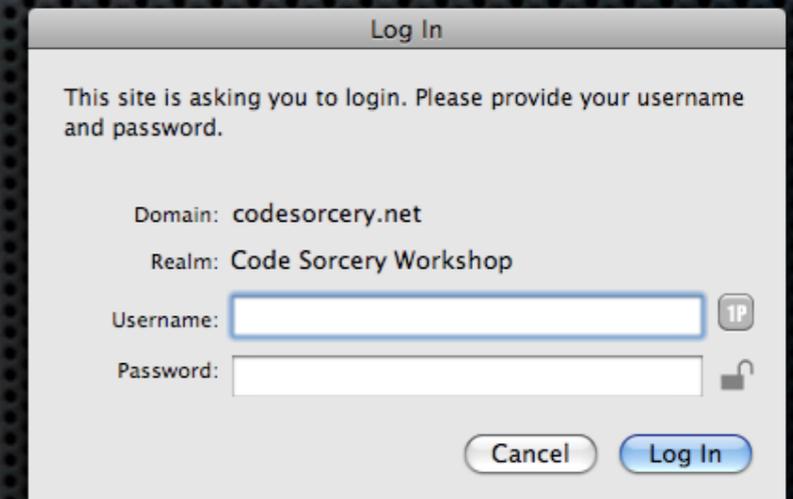
Auth: LDAP

- Lightweight Directory Access Protocol
 - Enterprise-level solution (client integration, replication)
- Integration with {ldap_integration}
 - Authentication into a Drupal site
 - Roles based on group
 - Some support for working with LDAP data
- Provisioning with {ldap_provisioning}
 - Integrates Drupal's user registration process with LDAP
 - Optional approval queue
 - Does the LDAP account creation dirty work



Auth: HTTP

- {seuresite} & {webserver_auth}
 - Both protect resources at the HTTP level
 - Both integrate with Drupal user database
 - Differ in scope: Drupal vs. Apache
- IP-based login {ip_login}
 - Associate single or ranges of IPs to users
- Certificates with {certificatelogin}
 - Assumes web server is handling cert auth
 - Looks for environment variable(s) to figure out who you are



Log In

This site is asking you to login. Please provide your username and password.

Domain: codesorcery.net

Realm: Code Sorcery Workshop

Username: IP

Password: 🔒

Cancel Log In

Advanced Interop

- ✦ XML-RPC
- ✦ Services



XML-RPC

- ✦ Remote Procedure Calls
- ✦ In core now (and always has been)
- ✦ Start here for basic custom APIs

XML-RPC: Status

- ✦ Has been in Drupal since the beginning
- ✦ Effectively a subset of SOAP
- ✦ Security fears? Not so fast
- ✦ Widely accessible
 - ✦ PHP, Perl, Python, C, C++, Objective-C, Ruby, Java, JavaScript, Flash, .NET, Erlang
 - ✦ You get the idea

XML-RPC: Basics

- ✦ XML encoding
- ✦ HTTP transport
 - ✦ Can use HTTPS for security
 - ✦ Authentication options at HTTP layer
 - ✦ Custom authentication in the method layer
 - ✦ Send credentials as argument(s)
 - ✦ Custom API key solution

XML-RPC: Format

```
<methodCall>  
  <methodName>  
    sandwich.makeMeOne  
  </methodName>  
  <params>  
    <param>  
      <value>  
        <string>ham and swiss</string>  
      </value>  
    </param>  
  </params>  
</methodCall>
```

XML-RPC: Customizing

- ✦ `hook_xmlrpc()`
 - ✦ Map exposed methods & parameters
 - ✦ Write those methods in straight Drupal
 - ✦ Encoding is taken care of for you

XML-RPC: The Work

```
function sandwich_make($type) {  
    switch ($type) {  
        case 'ham and swiss':  
            /**  
             * sandwich making code goes here  
            */  
            break;  
        }  
    return TRUE;  
}
```

XML-RPC: Mapping

```
function sandwich_xmlrpc() {  
    return array(  
        array(  
            'sandwich.makeMeOne',  
            'sandwich_make',  
            array(  
                'boolean',  
                'string',  
            ),  
            t('Drupal sandwich factory'),  
        ),  
    );  
};  
}
```

RPC method name

Module function name

Module function return type

Module function argument type(s)

Services

- Works similarly to core's XML-RPC
- Extends the basic concept in several key ways
 - Pluggable server backends
 - Comes with XML-RPC using `hook_xmlrpc()`
 - Modules exist for SOAP, REST, JSON
 - Pluggable data libraries
 - Introspection tool (web service browser/tester)
 - API key support

Services: Libraries

- Get **file** info or by node
- Get **menu** trees
- Get/save/delete **nodes**
- **Search** nodes & users
- Get **system** variables & modules; send email
- Get **taxonomy** trees & nodes
- Get/delete/login/logout/save **user**
- Get/import/export **views**

Services: Example

- ✦ Send HTTP POST to `/services/json`
 - ✦ method: `search.nodes`
 - ✦ search keys: `foo bar`
- ✦ Get back JSON data
 - ✦ Array of node objects matching search

Other Talks This Week

- ✦ Using SMS For Data Collection
- ✦ The Future of Files and Media in Drupal 7
- ✦ Media Mover: File Processing and Storage
- ✦ Mailing Strategies For Drupal
- ✦ Communicating Data Online: Data Visualizations and Opening Data
- ✦ Flash CMS: Drupal as an Adobe Flex Backend
- ✦ Promiscuous Drupal: Building Your Site With Web APIs

Conclusions



- ✦ Drupal is ready for integration now
- ✦ Rich toolset for social sites + remote clients
- ✦ There are many ways to extend existing integration

Resources



- ✦ <http://codesorcery.net/dcdc>
 - ✦ Will contain these slides
 - ✦ Will have full list of modules mentioned today
- ✦ How to reach me
 - ✦ Twitter: incanus77
- ✦ Q&A