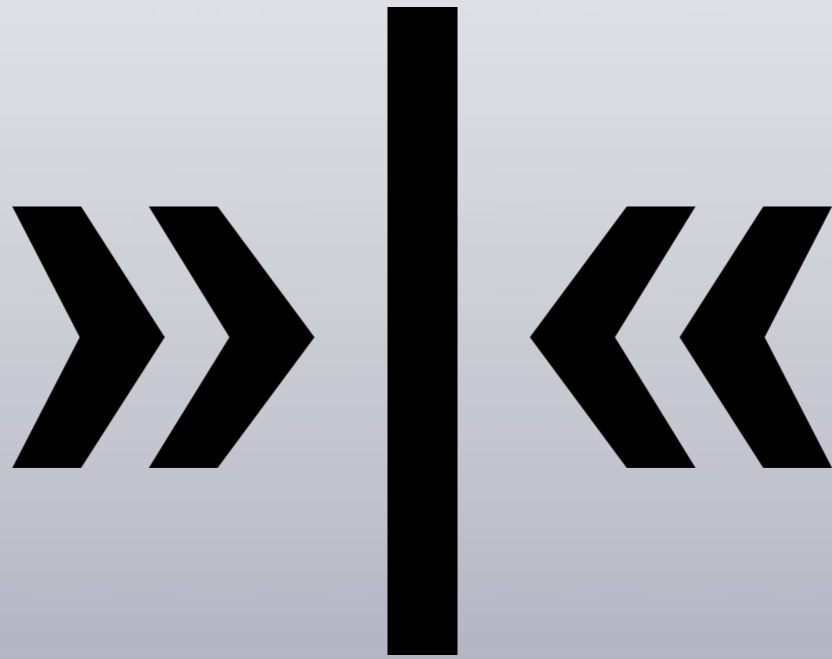


# Jifty



*Audrey Tang*



# Best Practical

# Best Practical

»|« RT

# Best Practical

»|« RT

»|« SVK

# Best Practical

»|« RT

»|« SVK

»|« Hiveminder

# Hiveminder

# Hiveminder

»|« **Multiplayer TODO**

# Hiveminder

»|« **Multiplayer TODO**

»|« **Web Application**

# Hiveminder

»|« **Multiplayer TODO**

»|« **Web Application**

»|« **Just like RT**

**RT**

# RT

»|« **Predates web frameworks**

# RT

»|« **Predates web frameworks**

»|« **20<sup>th</sup> century technology**

# RT

»|« **Predates web frameworks**

»|« **20<sup>th</sup> century technology**

»|« **Pain!**

# Use a Framework

# Use a Framework

»|« **We really want to**

# Use a Framework

»|« **We really want to**

»|« **Nothing fits Jesse's head**

# Use a Framework

»|« **We really want to**

»|« **Nothing fits Jesse's head**

»|« **This can only mean...**

# Jesse is Crazy





# Jifty

# Jifty

✓ **Web framework**

# Jifty

- ✓ **Web framework**
- ✓ **Easy things easy**

# Jifty

- ✓ **Web framework**
- ✓ **Easy things easy**
- ✓ **Impossible things *easy***

**Jifty = JFDI**

**Jifty = JFDI**

**✓ Just Do It**

# **Jifty = JFDI**

**✓ Just Do It**

**✓ Lets you JFDI**

# **Jifty = JFDI**

- ✓ **Just Do It**
- ✓ **Lets you JFDI**
- ✓ **So let's JFDI!**

# Demo

# Demo

✓ How about a Blog?

# Demo

✓ How about a Blog?

✓ Glad you like it ;)

# Demo

- ✓ How about a Blog?
- ✓ Glad you like it ;)
- ✓ Let's set it up!



```
$ jifty app --name Blog
```

```
$ jifty app --name Blog
Creating new application Blog
Creating directory lib
Creating directory lib/Blog
Creating directory bin
Creating directory etc
Creating directory doc
Creating directory log
Creating directory var
Creating directory var/mason
Creating directory share
Creating directory share/po
Creating directory share/web
Creating directory share/web/templates
Creating directory share/web/static
Creating directory lib/Blog/Model
Creating directory lib/Blog/Action
Creating directory t
Creating configuration file Blog/etc/config.yml
```

# 3 Files

# 3 Files

✓ `bin/jifty`

# 3 Files

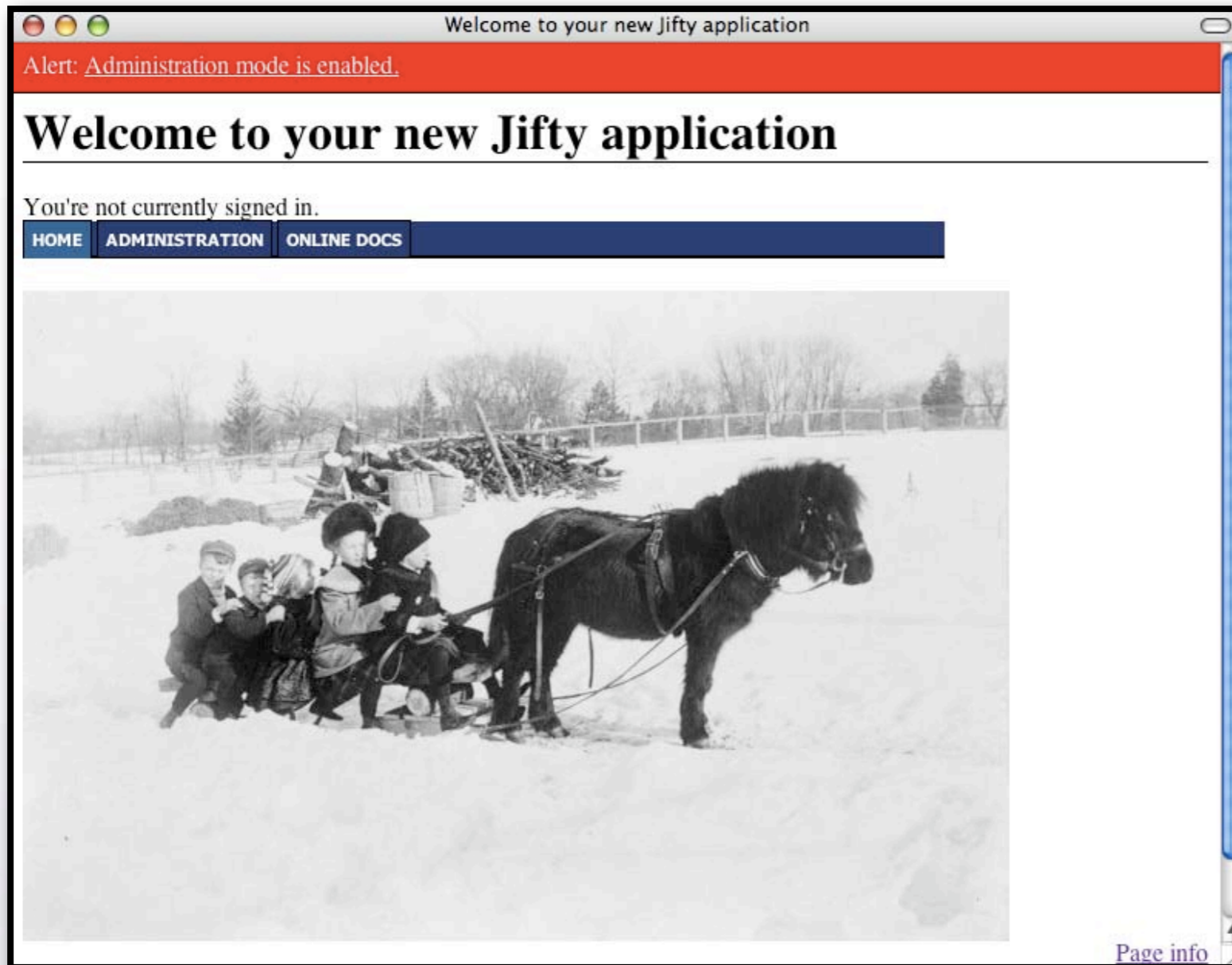
✓ `bin/jifty`

✓ `etc/config.yml`

# 3 Files

- ✓ `bin/jifty`
- ✓ `etc/config.yml`
- ✓ `Makefile.PL`

# It runs!



# It runs!



**This is not a good blog.  
(Good blogs have entries.)**



```
$ cd Blog
```

```
$ cd Blog
```

```
$ jifty model --name Entry
```

```
$ cd Blog
```

```
$ jifty model --name Entry
```

```
Writing file t/00-model-Entry.t
```

```
Writing file lib/Blog/Model/Entry.pm
```

```
$ cd Blog
```

```
$ jifty model --name Entry
```

```
Writing file t/00-model-Entry.t
```

```
Writing file lib/Blog/Model/Entry.pm
```

```
$ vim lib/Blog/Model/Entry.pm
```

```
use strict;  
use warnings;
```

```
package Blog::Model::Entry;
```

```
use Jifty::DBI::Schema;
```

```
use Blog::Record schema {
```

```
};
```

```
# Your model-specific methods go here.
```

```
1;
```

```
use strict;
use warnings;

package Blog::Model::Entry;
use Jifty::DBI::Schema;

use Blog::Record schema {

column title =>
    type is 'text',
    default is 'Untitled';

column body =>
    type is 'text',
    render as 'Textarea';

};

# Your model-specific methods go here.

1;
```



**\$ jifty schema**

```
$ jifty schema
```

```
INFO - Generating SQL for application Blog...
```

```
INFO - Using Blog::Model::Entry
```

```
INFO - Using Jifty::Model::Session
```

```
INFO - Using Jifty::Model::Metadata
```

```
INFO - Set up version v0.0.1, jifty version 0.610250
```

```
$ jifty schema
```

```
INFO - Generating SQL for application Blog...
```

```
INFO - Using Blog::Model::Entry
```

```
INFO - Using Jifty::Model::Session
```

```
INFO - Using Jifty::Model::Metadata
```

```
INFO - Set up version v0.0.1, jifty version 0.610250
```

```
$ jifty server
```

```
$ jifty schema
```

```
INFO - Generating SQL for application Blog...
```

```
INFO - Using Blog::Model::Entry
```

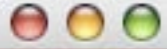
```
INFO - Using Jifty::Model::Session
```

```
INFO - Using Jifty::Model::Metadata
```

```
INFO - Set up version v0.0.1, jifty version 0.610250
```

```
$ jifty server
```

```
INFO - You can connect to your server at  
      http://localhost:8888/
```



Alert: [Administration mode is enabled.](#)

# Welcome to your new Jifty application

You're not currently signed in.

[HOME](#)

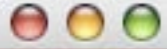
[ADMINISTRATION](#)

[ONLINE DOCS](#)



[Page info](#)

Page info



Alert: [Administration mode is enabled.](#)

# Welcome to your new Jifty application

You're not currently signed in.

[HOME](#)

[ADMINISTRATION](#)

[ONLINE DOCS](#)



[Page info](#)

Page info



Alert: [Administration mode is enabled.](#)

# Jifty Administrative Console

You're not currently signed in.

[HOME](#)

[ADMINISTRATION](#)

[ONLINE DOCS](#)

[ENTRY](#)

## Database Administration

This console lets you manage the records in your Jifty database. Below, you should see a list of all your database tables. Feel free to go through and add, delete or modify records.

To disable this administrative console, add "framework: AdminMode: 0" to your application's configuration file.

### Models

- [Entry](#)

### Actions

- [Jifty::Action::Autocomplete](#)
- [Jifty::Action::Redirect](#)

### Done?

[Back to the application](#)

Hotkeys:

[Page info](#)



Alert: [Administration mode is enabled.](#)

# Jifty Administrative Console

You're not currently signed in.

[HOME](#)

[ADMINISTRATION](#)

[ONLINE DOCS](#)

[ENTRY](#)

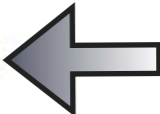
## Database Administration

This console lets you manage the records in your Jifty database. Below, you should see a list of all your database tables. Feel free to go through and add, delete or modify records.

To disable this administrative console, add "framework: AdminMode: 0" to your application's configuration file.

### Models

- [Entry](#)



### Actions

- [Jifty::Action::Autocomplete](#)
- [Jifty::Action::Redirect](#)

### Done?

[Back to the application](#)

Hotkeys:

[Page info](#)



Alert: [Administration mode is enabled.](#)

You're not currently signed in.

HOME

ADMINISTRATION

ONLINE DOCS

ENTRY

## Manage records: Entry

No items found.

title

body

Create

### Done?

[Back to the admin console](#)

Hotkeys:

[Page info](#)

[Page info](#)



Alert: [Administration mode is enabled.](#)

You're not currently signed in.

HOME

ADMINISTRATION

ONLINE DOCS

ENTRY

## Manage records: Entry

No items found.

title

body



### Done?

[Back to the admin console](#)

Hotkeys:



Alert: [Administration mode is enabled.](#)

You're not currently signed in.

[HOME](#)

[ADMINISTRATION](#)

[ONLINE DOCS](#)

[ENTRY](#)

Created

## Manage records: Entry

title	body	<a href="#">Edit</a>
First Post	This is my blog post!	

title

Untitled

body

Create

### Done?

[Back to the admin console](#)

Hotkeys:



Alert: [Administration mode is enabled.](#)

You're not currently signed in.

[HOME](#)

[ADMINISTRATION](#)

[ONLINE DOCS](#)

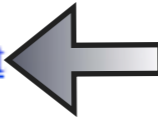
[ENTRY](#)

Created

## Manage records: Entry

title	body
First Post	This is my blog post!

[Edit](#)



title

Untitled

body

Create

### Done?

[Back to the admin console](#)

Hotkeys:



Alert: [Administration mode is enabled.](#)

You're not currently signed in.

HOME

ADMINISTRATION

ONLINE DOCS

ENTRY

## Manage records: Entry

title

First Post

body

This is my blog post! (Redux)

Save

title

Untitled

body

Create

### Done?

[Back to the admin console](#)

Hotkeys:

[Page info](#)

Hotkeys:

[Page info](#)



Alert: [Administration mode is enabled.](#)

You're not currently signed in.

- HOME
- ADMINISTRATION
- ONLINE DOCS
- ENTRY

# Manage records: Entry

title

First Post

body

This is my blog post! (Redux)

Save



title

Untitled

body

Create

## Done?

[Back to the admin console](#)

Hotkeys:

[Page info](#)

Hotkeys:

[Page info](#)



Alert: [Administration mode is enabled.](#)

You're not currently signed in.

HOME

ADMINISTRATION

ONLINE DOCS

ENTRY

Updated

## Manage records: Entry

title	body	<a href="#">Edit</a>
First Post	This is my blog post! (Redux)	

title

body

### Done?

[Back to the admin console](#)

Hotkeys:

[Page info](#)

[Page info](#)



Alert: [Administration mode is enabled.](#)

You're not currently signed in.

- HOME
- ADMINISTRATION
- ONLINE DOCS
- ENTRY

Updated

## Manage records: Entry

title	body	<a href="#">Edit</a>
First Post	This is my blog post! (Redux)	

title	body
<input type="text" value="Untitled"/>	<input type="text"/>

**Nice!**  
**(Still, not really a blog.)**

**Done?**

[Back to the admin console](#)

Hotkeys:

**lib/Blog/Dispatcher.pm**  
*(Map URLs to view logic.)*



```
package Blog::Dispatcher;  
use Jifty::Dispatcher -base;
```

```
package Blog::Dispatcher;
use Jifty::Dispatcher -base;

before '*' => run {
    my $stop = Jifty->web->navigation;
    $stop->child( 'List Entries' => url => '/' );
    $stop->child( 'New Entry' => url => '/new_entry' );
};
```

```
package Blog::Dispatcher;
use Jifty::Dispatcher -base;

before '*' => run {
    my $top = Jifty->web->navigation;
    $top->child( 'List Entries' => url => '/' );
    $top->child( 'New Entry' => url => '/new_entry' );
};

on '/new_entry' => run {
    set create => Jifty->web->new_action(
        class => 'CreateEntry'
    );
};
```

```
package Blog::Dispatcher;
use Jifty::Dispatcher -base;

before '*' => run {
    my $stop = Jifty->web->navigation;
    $stop->child( 'List Entries' => url => '/' );
    $stop->child( 'New Entry' => url => '/new_entry' );
};

on '/new_entry' => run {
    set create => Jifty->web->new_action(
        class => 'CreateEntry'
    );
};

on '/' => run {
    my $entries = Blog::Model::EntryCollection->new;
    $entries->unlimit;
    set entries => $entries;
};
```

# share/web/templates/new\_entry

Create an article

Alert: [Administration mode is enabled.](#)

## Create an article

You're not currently signed in.

[HOME](#) [LIST ENTRIES](#) [NEW ENTRY](#) [ADMINISTRATION](#) [ONLINE DOCS](#)

title

body

Hotkeys:

[Page info](#)

Create an article

Alert: [Administration mode is enabled.](#)

## Create an article

You're not currently signed in.

[HOME](#) [LIST ENTRIES](#) [NEW ENTRY](#) [ADMINISTRATION](#) [ONLINE DOCS](#)

title

body

Hotkeys:

[Page info](#)

<%ARGS>

\$create # *From the dispatcher*

</%ARGS>

Create an article

Alert: [Administration mode is enabled.](#)

## Create an article

You're not currently signed in.

[HOME](#) [LIST ENTRIES](#) [NEW ENTRY](#) [ADMINISTRATION](#) [ONLINE DOCS](#)

title

body

Hotkeys:

[Page info](#)

<%ARGS>

\$create # *From the dispatcher*

</%ARGS>

<&|/\_elements/wrapper, title => 'Create an article' &>

Create an article

Alert: [Administration mode is enabled.](#)

## Create an article

You're not currently signed in.

[HOME](#) [LIST ENTRIES](#) [NEW ENTRY](#) [ADMINISTRATION](#) [ONLINE DOCS](#)

title

body

Hotkeys:

[Page info](#)

```
<%ARGS>
```

```
$create # From the dispatcher
```

```
</%ARGS>
```

```
<&|/_elements/wrapper, title => 'Create an article' &>
```

```
% my $form = Jifty->web->form;
```

```
<% $form->start %>
```



The screenshot shows a web browser window with the title "Create an article". At the top, there is a red alert bar that says "Alert: Administration mode is enabled." Below the alert, the page title "Create an article" is displayed in a large, bold font. Underneath the title, it says "You're not currently signed in." There is a navigation menu with buttons for "HOME", "LIST ENTRIES", "NEW ENTRY", "ADMINISTRATION", and "ONLINE DOCS". The "NEW ENTRY" button is highlighted. Below the navigation menu, there is a form with two input fields: "title" with the value "Untitled" and "body" with the text "I'm in deep shit if the NSA intercept this". A "Save" button is located below the form. At the bottom left, there is a "Hotkeys:" label. At the bottom right, there is a "Page info" link.

```
<%ARGS>
```

```
$create # From the dispatcher
```

```
</%ARGS>
```

```
<&|/_elements/wrapper, title => 'Create an article' &>
```

```
% my $form = Jifty->web->form;
```

```
<% $form->start %>
```

```
% for my $arg ($create->argument_names) {
```

```
    <% $create->form_field($arg) %>
```

```
% }
```

Create an article

Alert: [Administration mode is enabled.](#)

## Create an article

You're not currently signed in.

[HOME](#) [LIST ENTRIES](#) [NEW ENTRY](#) [ADMINISTRATION](#) [ONLINE DOCS](#)

title

body

Hotkeys:

[Page info](#)

```
<%ARGS>
```

```
$create # From the dispatcher
```

```
</%ARGS>
```

```
<&|/_elements/wrapper, title => 'Create an article' &>
```

```
% my $form = Jifty->web->form;
```

```
<% $form->start %>
```

```
% for my $arg ($create->argument_names) {
```

```
    <% $create->form_field($arg) %>
```

```
% }
```

```
<% $form->submit( label => 'Save' ) %>
```

```
<% $form->end %>
```

```
</&>
```

Create an article

Alert: [Administration mode is enabled.](#)

## Create an article

You're not currently signed in.

[HOME](#) [LIST ENTRIES](#) [NEW ENTRY](#) [ADMINISTRATION](#) [ONLINE DOCS](#)

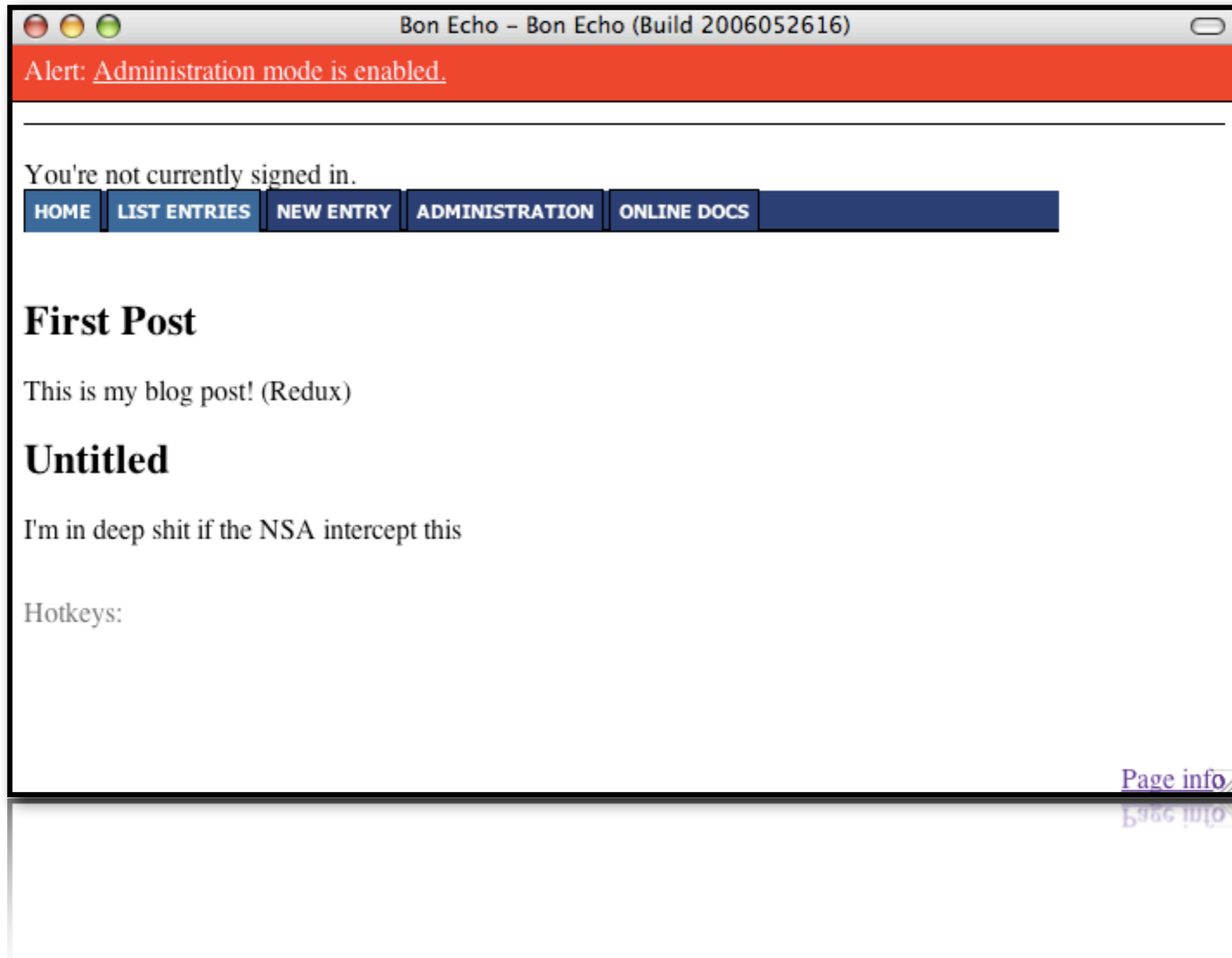
title

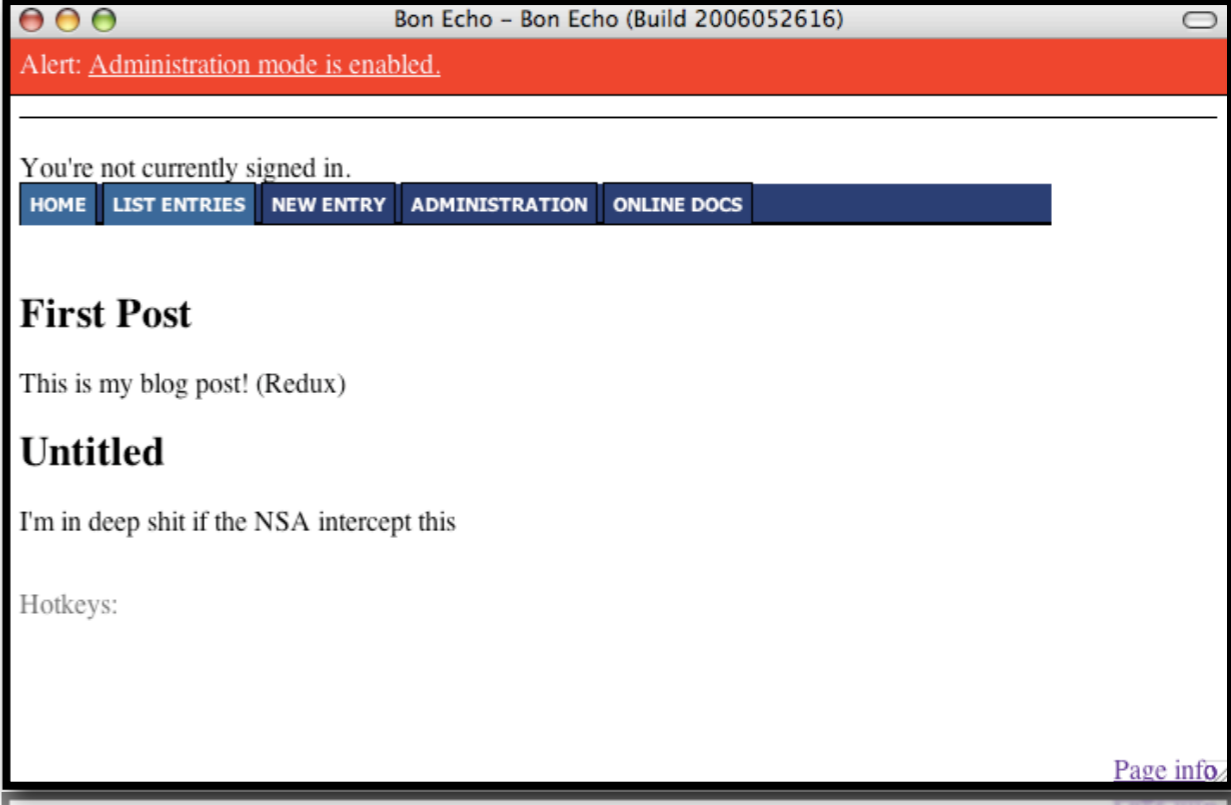
body

Hotkeys:

[Page info](#)

# share/web/templates/index.html





<%ARGS>

\$entries # *From the dispatcher*

</%ARGS>



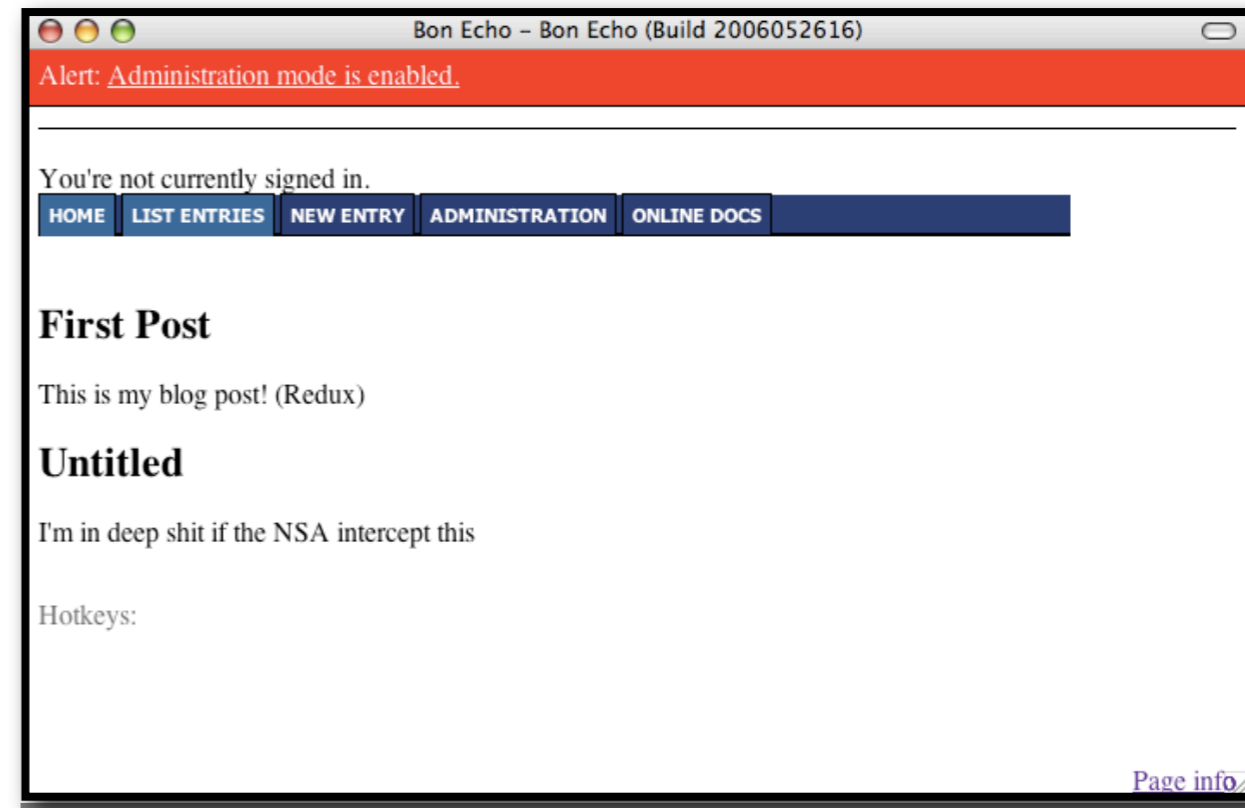
```
<%ARGS>
```

```
$entries # From the dispatcher
```

```
</%ARGS>
```

```
<&|/_elements/wrapper&>
```

```
% while (my $entry = $entries->next) {
```



```
<%ARGS>
```

```
$entries # From the dispatcher
```

```
</%ARGS>
```

```
<&|/_elements/wrapper&>
```

```
% while (my $entry = $entries->next) {
```

```
  <h2><% $entry->title %></h2>
```

```
  <div class="body">
```

```
    <% $entry->body %>
```

```
  </div>
```



```
<%ARGS>
```

```
$entries # From the dispatcher
```

```
</%ARGS>
```

```
<&|/_elements/wrapper&>
```

```
% while (my $entry = $entries->next) {
```

```
  <h2><% $entry->title %></h2>
```

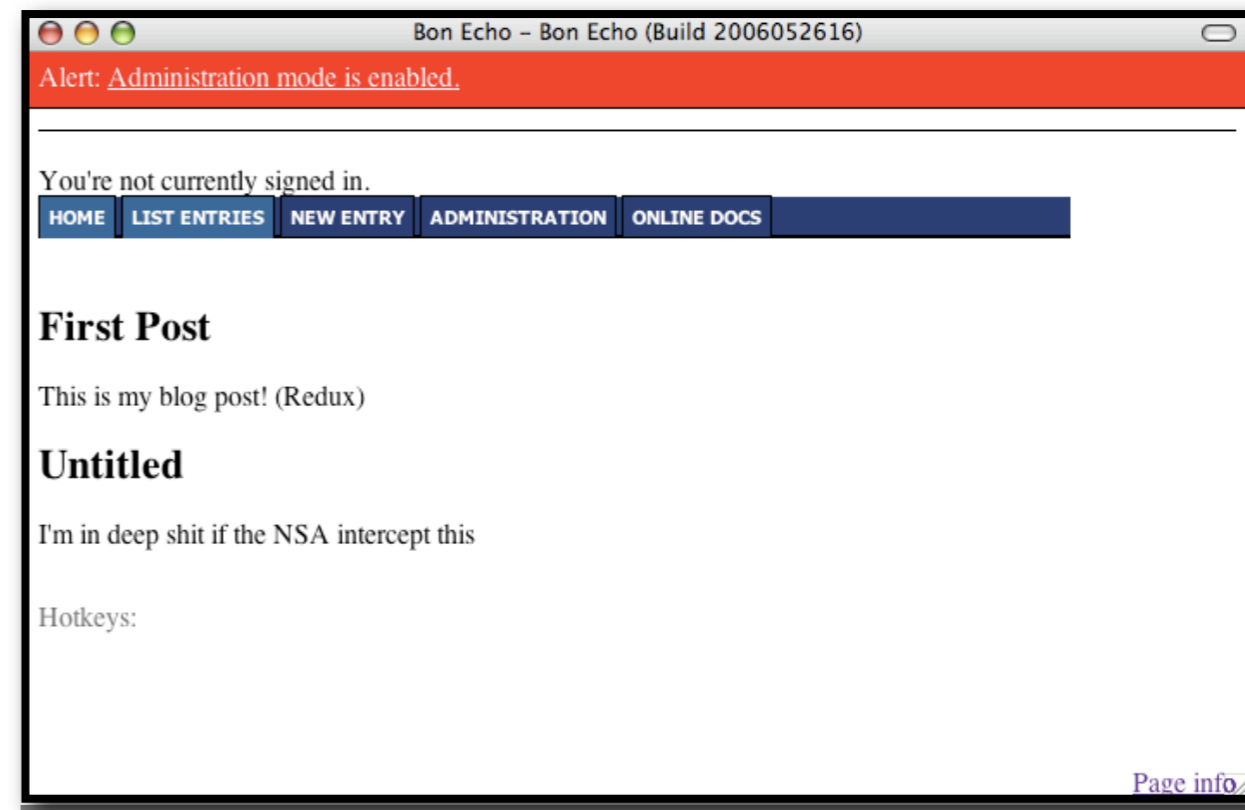
```
  <div class="body">
```

```
    <% $entry->body %>
```

```
  </div>
```

```
% }
```

```
</&>
```



# All Done!

# All Done!

✓ **lib/Blog/Dispatcher.pm**

# All Done!

- ✓ `lib/Blog/Dispatcher.pm`
- ✓ `lib/Blog/Model/Entry.pm`

# All Done!

- ✓ `lib/Blog/Dispatcher.pm`
- ✓ `lib/Blog/Model/Entry.pm`
- ✓ `web/templates/new_entry`

# All Done!

- ✓ `lib/Blog/Dispatcher.pm`
- ✓ `lib/Blog/Model/Entry.pm`
- ✓ `web/templates/new_entry`
- ✓ `web/templates/index.html`



# Blog Demo

# Blog Demo

☺ **It runs!**

# Blog Demo

😊 **It runs!**

😊 **Ship it!**

# Blog Demo

😊 **It runs!**

😊 **Ship it!**

😊 **Oh wait...**

# New U.S. Law

# New U.S. Law

☺ **Banning profanity**

# New U.S. Law

☺ **Banning profanity**

☺ **To protect the children**

# New U.S. Law

- ☺ **Banning profanity**
- ☺ **To protect the children**
- ☺ **...from the internet**

# Blog Censorship

# Blog Censorship

☺ No problem

# Blog Censorship

☺ No problem

☺ Back to the code!

# Blog Censorship

☺ No problem

☺ Back to the code!

☺ `lib/Blog/Model/Entry.pm`



```
package Blog::Model::Entry;
```

```
package Blog::Model::Entry;
```

```
use Regexp::Common 'profanity_us';
```

```
package Blog::Model::Entry;

use Regexp::Common 'profanity_us';

sub validate_body {
    my ($self, $body) = @_;
```

```
package Blog::Model::Entry;

use Regexp::Common 'profanity_us';

sub validate_body {
    my ($self, $body) = @_;

    if ($body =~ /$RE{profanity}/i) {
        return (
            0, 'Would you speak like that '.
                'in front of your mother? *cough*'
        );
    }
}
```

```
package Blog::Model::Entry;

use Regexp::Common 'profanity_us';

sub validate_body {
    my ($self, $body) = @_;

    if ($body =~ /$RE{profanity}/i) {
        return (
            0, 'Would you speak like that ' .
              'in front of your mother? *cough*'
        );
    }

    return 1;
}
```

Alert: [Administration mode is enabled.](#)

# Create an article

You're not currently signed in.

- HOME
- LIST ENTRIES
- NEW ENTRY
- ADMINISTRATION
- ONLINE DOCS

title

body

Would you speak like that in front of your mother? \*cough\*

Hotkeys:

# Validator

# Validator

☺ Not good enough

# Validator

☺ Not good enough

☺ Stops people from blogging

# Validator

- ☺ Not good enough
- ☺ Stops people from blogging
- ☺ Let's clean it up directly!

```
package Blog::Model::Entry;
use Regexp::Common 'profanity_us';

sub canonicalize_body {
    my ($self, $body) = @_;

    $body =~ s/$RE{profanity}/**expletives**/gi;
    return $body;
}
```

Alert: [Administration mode is enabled.](#)

# Create an article

You're not currently signed in.

[HOME](#)

[LIST ENTRIES](#)

[NEW ENTRY](#)

[ADMINISTRATION](#)

[ONLINE DOCS](#)

title

body

Save

Hotkeys:

[Page info](#)

[Page info](#)

# Canonicalizer

# Canonicalizer

☺ Part of the model

# Canonicalizer

☺ **Part of the model**

☺ **Same for auto completers**

# Canonicalizer

- ☺ **Part of the model**
- ☺ **Same for auto completers**
- ☺ ***Now we ship it!***

# Anatomy of a Jifty App

# Anatomy of a Jifty App

☺ **Model : Columns**

# Anatomy of a Jifty App

☺ **Model : Columns**

☺ **Action : Parameters**

# Anatomy of a Jifty App

- ☺ **Model : Columns**
- ☺ **Action : Parameters**
- ☺ **Template : Fragments**

# More Components

# More Components

😊 **Dispatcher**

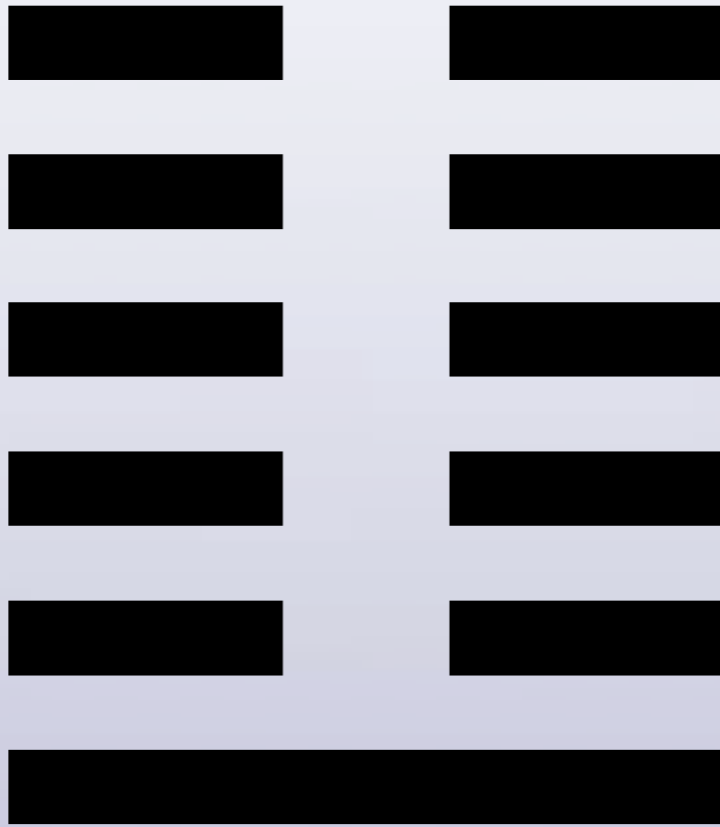
# More Components

☺ **Dispatcher**

☺ **ClassLoader**

# More Components

- ☺ **Dispatcher**
- ☺ **ClassLoader**
- ☺ **Continuations**



# Jifty::DBI

# Jifty::DBI

Ø **CREATE TABLE**

# Jifty::DBI

Ø **CREATE TABLE**

Ø **ALTER TABLE**

# Jifty::DBI

- ∅ **CREATE TABLE**
- ∅ **ALTER TABLE**
- ∅ **CREATE FOREIGN KEY**

# Object Relational Mapper

# Object Relational Mapper

∅ SELECT

# Object Relational Mapper

⊘ **SELECT**

⊘ **INSERT**

# Object Relational Mapper

Ø SELECT

Ø UPDATE

Ø INSERT

# Object Relational Mapper

Ø SELECT

Ø UPDATE

Ø INSERT

Ø DELETE

# Jifty::DBI::Handle

# Jifty::DBI::Handle

 SQLite

# Jifty::DBI::Handle

≡ SQLite

≡ Postgres

# Jifty::DBI::Handle

≡ SQLite

≡ MySQL

≡ Postgres

# Jifty::DBI::Handle

≡ SQLite

≡ MySQL

≡ Postgres

≡ Oracle

# Jifty::DBI::Collection

# Jifty::DBI::Collection

## ≡ Joins and Limits

# Jifty::DBI::Collection

≡ Joins and Limits

≡ Paging = Data : : Page

# Jifty::DBI::Collection

- ≡ Joins and Limits
- ≡ Paging = Data::Page
- ≡ Caching = Memcached

# Jifty::DBI::Schema

# Jifty::DBI::Schema

## Declarative Columns

# Jifty::DBI::Schema

- ≡ Declarative Columns

- ≡ Remember our Blog?

# Jifty::DBI::Schema

- ≡ Declarative Columns
- ≡ Remember our Blog?
- ≡ Time for 0.0.2!



```
package Blog::Model::Comment;  
use Jifty::DBI::Schema;  
use Blog::Record schema {  
  
since '0.0.2';
```

```
package Blog::Model::Comment;
use Jifty::DBI::Schema;
use Blog::Record schema {

    since '0.0.2';

    column entry => refers to Blog::Model::Entry;
    column author => refers to Blog::Model::User;
```

```
package Blog::Model::Comment;
use Jifty::DBI::Schema;
use Blog::Record schema {

    since '0.0.2';

    column entry => refers to Blog::Model::Entry;
    column author => refers to Blog::Model::User;

    column body =>
        label is 'Content',
        type is 'Text',
        render as 'Textarea',
        default is 'First Post!';
```

```
package Blog::Model::Comment;
use Jifty::DBI::Schema;
use Blog::Record schema {

since '0.0.2';

column entry => refers to Blog::Model::Entry;
column author => refers to Blog::Model::User;

column body =>
  label is 'Content',
  type is 'Text',
  render as 'Textarea',
  default is 'First Post!';

column title =>
  is mandatory,
  label is 'Title',
  length is 40,
  hints is '40 bytes max';
```

```
package Blog::Model::Comment;
use Jifty::DBI::Schema;
use Blog::Record schema {

    since '0.0.2';

    column entry => refers to Blog::Model::Entry;
    column author => refers to Blog::Model::User;

    column body =>
        label is 'Content',
        type is 'Text',
        render as 'Textarea',
        default is 'First Post!';

    column title =>
        is mandatory,
        label is 'Title',
        length is 40,
        hints is '40 bytes max';

};
```

# Database Upgrade

# Database Upgrade

- ☰ Used to be painful

# Database Upgrade

☰ Used to be painful

☰ Not anymore

# Database Upgrade

- ≡ Used to be painful
- ≡ Not anymore
- ≡ Jifty fixed it!



```
$ vim etc/config.yml
```

```
$ vim etc/config.yml  
(Set version to 0.0.2)
```

```
$ vim etc/config.yml  
(Set version to 0.0.2)
```

```
$ jifty server
```

```
$ vim etc/config.yml
```

```
(Set version to 0.0.2)
```

```
$ jifty server
```

```
Application schema version in database (v0.0.1)  
doesn't match application schema version (0.0.2)  
Please run `bin/jifty schema --setup` to upgrade  
the database.
```

```
$ vim etc/config.yml
```

```
(Set version to 0.0.2)
```

```
$ jifty server
```

```
Application schema version in database (v0.0.1)  
doesn't match application schema version (0.0.2)  
Please run `bin/jifty schema --setup` to upgrade  
the database.
```

```
$ jifty schema --setup
```

```
$ vim etc/config.yml
```

```
(Set version to 0.0.2)
```

```
$ jifty server
```

```
Application schema version in database (v0.0.1)  
doesn't match application schema version (0.0.2)  
Please run `bin/jifty schema --setup` to upgrade  
the database.
```

```
$ jifty schema --setup
```

```
Jifty version 0.605070 up to date.
```

```
INFO - Generating SQL to upgrade Blog  
v0.0.1 database to v0.0.2
```

```
INFO - Upgraded to version v0.0.2
```

```
$ vim etc/config.yml
```

```
(Set version to 0.0.2)
```

```
$ jifty server
```

```
Application schema version in database (v0.0.1)  
doesn't match application schema version (0.0.2)  
Please run `bin/jifty schema --setup` to upgrade  
the database.
```

```
$ jifty schema --setup
```

```
Jifty version 0.605070 up to date.
```

```
INFO - Generating SQL to upgrade Blog  
v0.0.1 database to v0.0.2
```

```
INFO - Upgraded to version v0.0.2
```

```
$ jifty server
```

```
$ vim etc/config.yml
```

```
(Set version to 0.0.2)
```

```
$ jifty server
```

```
Application schema version in database (v0.0.1)  
doesn't match application schema version (0.0.2)  
Please run `bin/jifty schema --setup` to upgrade  
the database.
```

```
$ jifty schema --setup
```

```
Jifty version 0.605070 up to date.  
INFO - Generating SQL to upgrade Blog  
      v0.0.1 database to v0.0.2  
INFO - Upgraded to version v0.0.2
```

```
$ jifty server
```

```
INFO - You can connect to your server at  
      http://localhost:8888/
```



```
column tags =>  
  since '0.0.3',  
  refers to Blog::Model::TagCollection by 'entry';
```

```
column tags =>  
  since '0.0.3',  
  refers to Blog::Model::TagCollection by 'entry';
```

```
column mood =>  
  since '0.0.4',  
  default is 'happy',  
  valid are  
    { display => 'Sad', value => 'sad' },  
    { display => 'Happy', value => 'happy' };
```

```
column tags =>  
  since '0.0.3',  
  refers to Blog::Model::TagCollection by 'entry';
```

```
column mood =>  
  since '0.0.4',  
  default is 'happy',  
  valid are  
    { display => 'Sad', value => 'sad' },  
    { display => 'Happy', value => 'happy' };
```

```
column created =>  
  since '0.0.5',  
  is immutable,  
  type is 'timestamp',  
  default is literal 'now()',  
  filters are 'Jifty::DBI::Filter::DateTime';
```



```
$ vim etc/config.yml
```

```
$ vim etc/config.yml  
(Set version to 0.0.5)
```

```
$ vim etc/config.yml
```

```
(Set version to 0.0.5)
```

```
$ jifty schema --setup
```

```
$ vim etc/config.yml
```

```
(Set version to 0.0.5)
```

```
$ jifty schema --setup
```

```
Jifty version 0.605070 up to date.
```

```
INFO - Generating SQL to upgrade Blog  
v0.0.2 database to v0.0.5
```

```
INFO - Upgraded to version v0.0.5
```

```
$ vim etc/config.yml
```

```
(Set version to 0.0.5)
```

```
$ jifty schema --setup
```

```
Jifty version 0.605070 up to date.
```

```
INFO - Generating SQL to upgrade Blog  
      v0.0.2 database to v0.0.5
```

```
INFO - Upgraded to version v0.0.5
```

```
$ jifty server
```

```
$ vim etc/config.yml
```

```
(Set version to 0.0.5)
```

```
$ jifty schema --setup
```

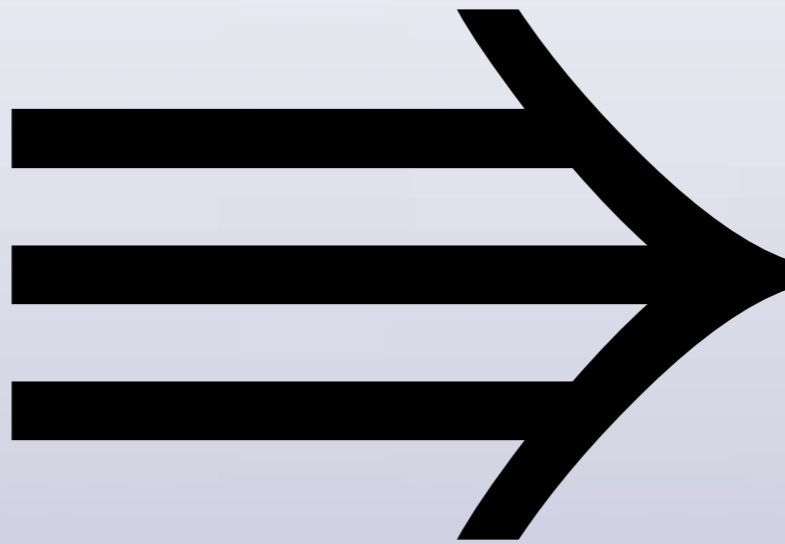
```
Jifty version 0.605070 up to date.
```

```
INFO - Generating SQL to upgrade Blog  
v0.0.2 database to v0.0.5
```

```
INFO - Upgraded to version v0.0.5
```

```
$ jifty server
```

```
INFO - You can connect to your server at  
http://localhost:8888/
```



# Action = APIs

# Action = APIs

⇒ Method Calls

# Action = APIs

⇒ **Method Calls**

⇒ **Typed named arguments**

# Action = APIs

⇒ **Method Calls**

⇒ **Typed named arguments**

⇒ **Returns results or errors**

# Action ≠ URLs

# Action ≠ URLs

⇒ Many actions on one page

# Action ≠ URLs

⇒ Many actions on one page

⇒ Called with web forms

# Action ≠ URLs

- ⇒ Many actions on one page
- ⇒ Called with web forms
- ⇒ Sounds like RPC?

**Action = RPC**

# Action = RPC

⇒ Web form encoding

# Action = RPC

⇒ **Web form encoding**

⇒ **XML/YAML encoding**

# Action = RPC

- ⇒ **Web form encoding**
- ⇒ **XML/YAML encoding**
- ⇒ **Web services for free!**

**Model  $\Rightarrow$  Action**

**Model  $\Rightarrow$  Action**

**$\Rightarrow$  Blog::Action::CreateEntry**

# **Model $\Rightarrow$ Action**

**$\Rightarrow$  Blog::Action::CreateEntry**

**$\Rightarrow$  Blog::Action::SearchEntry**

# **Model $\Rightarrow$ Action**

**$\Rightarrow$  Blog::Action::CreateEntry**

**$\Rightarrow$  Blog::Action::SearchEntry**

**$\Rightarrow$  Blog::Action::UpdateEntry**

# **Model $\Rightarrow$ Action**

**$\Rightarrow$  Blog::Action::CreateEntry**

**$\Rightarrow$  Blog::Action::SearchEntry**

**$\Rightarrow$  Blog::Action::UpdateEntry**

**$\Rightarrow$  Blog::Action::DeleteEntry**

# Make your own Actions

ⓘ Hello, jesse ✕

Your name?



```
package Hello::Action::SayHi;
use Jifty::Param::Schema;
use Jifty::Action schema {

    param name =>
        label is 'Your name?';

};
```

```
package Hello::Action::SayHi;
use Jifty::Param::Schema;
use Jifty::Action schema {

    param name =>
        label is 'Your name?';

};

sub take_action {
    my $self = shift;
    my $name = $self->argument_value('name');
    $self->result->message( "Hello, $name" );
}
```

Your name?

**Click me!**

```
<%init>  
my $action = Jifty->web->new_action(  
    class => 'SayHi'  
);  
</%init>
```



A screenshot of a web browser window showing a simple form. The form contains a text input field with the label "Your name?" and a button labeled "Click me!". The button is highlighted with a grey background and a black border.

```
<%init>
my $action = Jifty->web->new_action(
    class => 'SayHi'
);
</%init>
```

```
<&|/_elements/wrapper&>
<% Jifty->web->form->start %>
<% $action->form_field('name') %>
<% Jifty->web->form->submit %>
<% Jifty->web->form->end %>
</&>
```



Your name?

```
<%init>  
my $action = Jifty->web->new_action(  
    class => 'SayHi'  
);  
</%init>
```

```
<&|/_elements/wrapper&>  
<% Jifty->web->form->start %>  
<% $action->form_field('name') %>  
<% Jifty->web->form->submit %>  
<% Jifty->web->form->end %>  
</&>
```

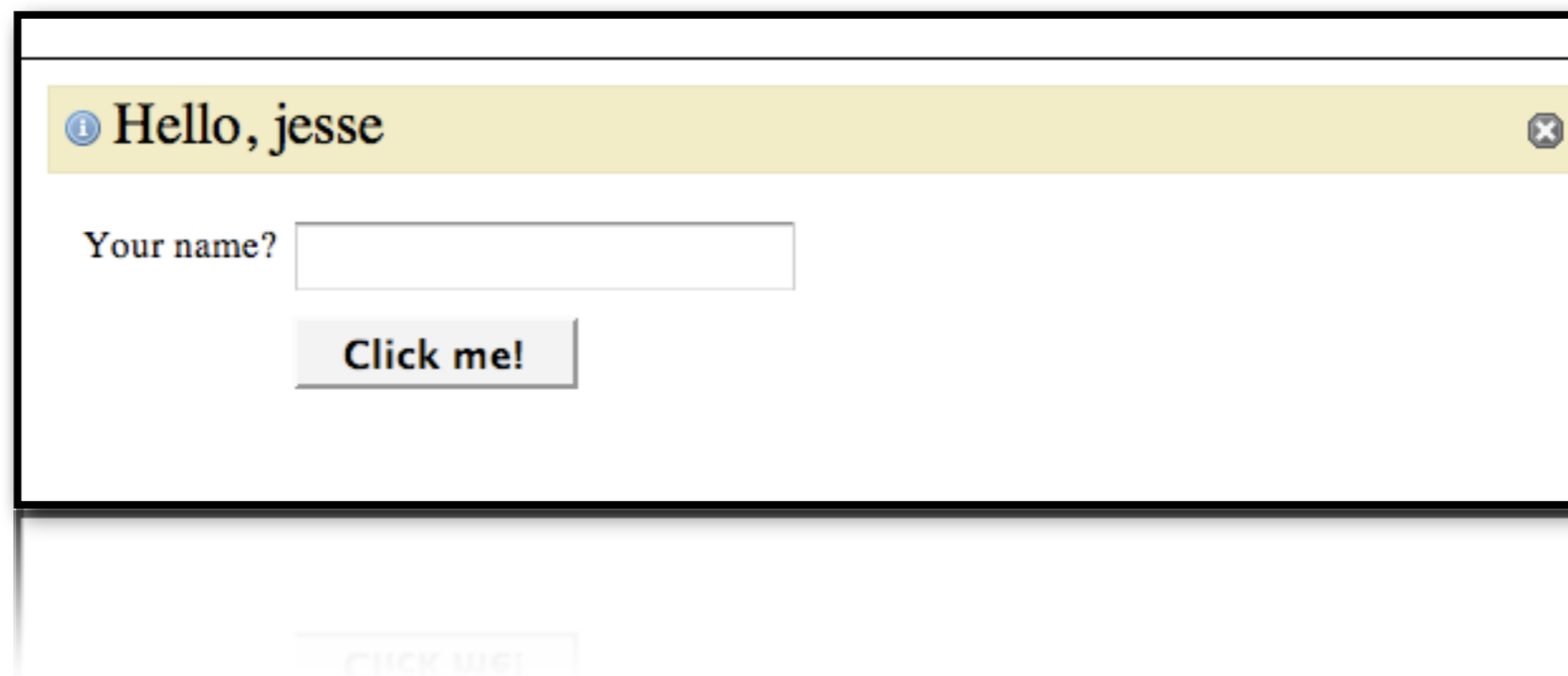


Your name?

Click me! 

```
<%init>
my $action = Jifty->web->new_action(
    class => 'SayHi'
);
</%init>
```

```
<&|/_elements/wrapper&>
<% Jifty->web->form->start %>
<% $action->form_field('name') %>
<% Jifty->web->form->submit %>
<% Jifty->web->form->end %>
</&>
```



The screenshot shows a web browser window with a yellow header bar containing the text "Hello, jesse" and a close button. Below the header, there is a form with the label "Your name?" followed by a text input field. Below the input field is a button labeled "Click me!".



```
$ curl \
http://localhost:8888/__jifty/webservices/yaml?\
J:A-1=SayHi;J:A:F-name-1=Jesse
```

```
$ curl \
http://localhost:8888/__jifty/webservices/yaml?\
J:A-1=SayHi;J:A:F-name-1=Jesse
```

```
1: !!perl/hash:Jifty::Result
  _content: {}
  action_class: Hello::Action::SayHi
  failure: 0
  field_errors:
    name: ~
  field_warnings:
    name: ~
  message: 'Hello, Jesse'
```



# Jifty::Dispatcher

# Dispatcher = Kernel

# Dispatcher = Kernel

⊗ Simple

# Dispatcher = Kernel

⊗ Simple

⊗ Declarative

# Dispatcher = Kernel

- ⊗ Simple
- ⊗ Declarative
- ⊗ Encapsulates view logic

# Three Stages

# Three Stages

- ⚓ **Before: Sets up state**

# Three Stages

- ⚙ **Before: Sets up state**
- ⚙ **On: Shows your pages**

# Three Stages

- ⚙ **Before: Sets up state**
- ⚙ **On: Shows your pages**
- ⚙ **After: Cleans up state**

# **Jifty::ClassLoader**

# Scaffolding Bad

# Scaffolding Bad

⚓ Ugly

# Scaffolding Bad

⊗ Ugly

⊗ Redundant

# Scaffolding Bad

- ⚓ Ugly
- ⚓ Redundant
- ⚓ Fragile

# Scaffolding Bad

- ⚓ Ugly
- ⚓ Annoying
- ⚓ Redundant
- ⚓ Fragile

# Scaffolding Bad



**Ugly**



**Annoying**



**Redundant**



**Redundant**



**Fragile**

# Scaffolding Bad

⚓ Ugly

⚓ Annoying

⚓ Redundant

⚓ Redundant

⚓ Fragile

⚓ Redundant

# **Why *Empty* Classes?**

# Why *Empty* Classes?

⊗ **Jifty::ClassLoader**

# Why *Empty* Classes?

- ⊗ **Jifty::ClassLoader**
- ⊗ **Auto-creates classes**

# Why *Empty* Classes?

- ⊗ **Jifty::ClassLoader**
- ⊗ **Auto-creates classes**
- ⊗ **Never writes them to disk**

# Auto-created Classes

# Auto-created Classes

 **Blog**

# Auto-created Classes

- ⊗ Blog
- ⊗ Blog::Record

# Auto-created Classes

- ⊗ Blog
- ⊗ Blog::Record
- ⊗ Blog::Collection

# Auto-created Classes

- ⊗ Blog
- ⊗ Blog::Record
- ⊗ Blog::Collection
- ⊗ Blog::Bootstrap

# Auto-created Classes

- ⊗ Blog
- ⊗ Blog::Record
- ⊗ Blog::Collection
- ⊗ Blog::Bootstrap
- ⊗ Blog::Upgrade

# Auto-created Classes

- ⊗ Blog
- ⊗ Blog::Record
- ⊗ Blog::Collection
- ⊗ Blog::Bootstrap
- ⊗ Blog::Upgrade
- ⊗ Blog::Dispatcher

# Auto-created Classes

- ⊗ Blog
- ⊗ Blog::Record
- ⊗ Blog::Collection
- ⊗ Blog::Bootstrap
- ⊗ Blog::Upgrade
- ⊗ Blog::Dispatcher
- ⊗ Blog::CurrentUser

# Auto-created Classes

- ⊗ Blog
- ⊗ Blog::Record
- ⊗ Blog::Collection
- ⊗ Blog::Bootstrap
- ⊗ Blog::Upgrade
- ⊗ Blog::Dispatcher
- ⊗ Blog::CurrentUser
- ⊗ Blog::Model::EntryCollection

# Auto-created Classes

- ⊗ Blog
- ⊗ Blog::Record
- ⊗ Blog::Collection
- ⊗ Blog::Bootstrap
- ⊗ Blog::Upgrade
- ⊗ Blog::Dispatcher
- ⊗ Blog::CurrentUser
- ⊗ Blog::Model::EntryCollection
- ⊗ Blog::Action::CreateEntry

# Auto-created Classes

- ⊗ Blog
- ⊗ Blog::Record
- ⊗ Blog::Collection
- ⊗ Blog::Bootstrap
- ⊗ Blog::Upgrade
- ⊗ Blog::Dispatcher
- ⊗ Blog::CurrentUser
- ⊗ Blog::Model::EntryCollection
- ⊗ Blog::Action::CreateEntry
- ⊗ Blog::Action::SearchEntry

# Auto-created Classes

- ⊗ Blog
- ⊗ Blog::Record
- ⊗ Blog::Collection
- ⊗ Blog::Bootstrap
- ⊗ Blog::Upgrade
- ⊗ Blog::Dispatcher
- ⊗ Blog::CurrentUser
- ⊗ Blog::Model::EntryCollection
- ⊗ Blog::Action::CreateEntry
- ⊗ Blog::Action::SearchEntry
- ⊗ Blog::Action::UpdateEntry

# Auto-created Classes

- ⊗ Blog
- ⊗ Blog::Record
- ⊗ Blog::Collection
- ⊗ Blog::Bootstrap
- ⊗ Blog::Upgrade
- ⊗ Blog::Dispatcher
- ⊗ Blog::CurrentUser
- ⊗ Blog::Model::EntryCollection
- ⊗ Blog::Action::CreateEntry
- ⊗ Blog::Action::SearchEntry
- ⊗ Blog::Action::UpdateEntry
- ⊗ Blog::Action::DeleteEntry

# Auto-created Classes

- ⊗ Blog
- ⊗ Blog::Record
- ⊗ Blog::Collection
- ⊗ Blog::Bootstrap
- ⊗ Blog::Upgrade
- ⊗ Blog::Dispatcher
- ⊗ Blog::CurrentUser
- ⊗ Blog::Model::EntryCollection
- ⊗ Blog::Action::CreateEntry
- ⊗ Blog::Action::SearchEntry
- ⊗ Blog::Action::UpdateEntry
- ⊗ Blog::Action::DeleteEntry
- ⊗ *...et cetera*



# Continuation = Job Control

# Continuation = Job Control

☯ Continuations in Perl?

# Continuation = Job Control

☯ **Continuations in Perl?**

☯ **Not Full Continuations**

# Continuation = Job Control

- ☯ **Continuations in Perl?**
- ☯ **Not Full Continuations**
- ☯ **Delimited Continuations**

# Full Continuations

# Full Continuations

☯ **Serializes everything**

# Full Continuations

- ☯ Serializes everything
- ☯ %ENV, STDIN, STDOUT

# Full Continuations

- ☯ **Serializes everything**
- ☯ **%ENV, STDIN, STDOUT**
- ☯ **DBI Handle, Log Handle**

# Full Continuations

- ☯ **Serializes everything**
- ☯ **%ENV, STDIN, STDOUT**
- ☯ **DBI Handle, Log Handle**
- ☯ **Phase of the moon**

# Jifty Continuations

# Jifty Continuations

- ☯ Only the application state

# Jifty Continuations

- ☯ Only the application state
- ☯ Requests and Actions

# Jifty Continuations

- ☯ Only the application state
- ☯ Requests and Actions
- ☯ That's all we need

# Why Continuations?

# Why Continuations?

 **The web is built on GOTO**

# Why Continuations?

- ☯ The web is built on GOTO
- ☯ Do you *like* GOTO?

# Why Continuations?

- ☯ **The web is built on GOTO**
- ☯ **Do you *like* GOTO?**
- ☯ **Continuations are GOSUB**

# Why Continuations?

- ☯ **The web is built on GOTO**
- ☯ **Do you *like* GOTO?**
- ☯ **Continuations are GOSUB**
- ☯ **Welcome to Civilization!**

# A Brief Tangent...

# A Brief Tangent...

 **Back to our Blog**

# A Brief Tangent...

 **Back to our Blog**

 **Requiring Login**

# A Brief Tangent...

- ☯ **Back to our Blog**
- ☯ **Requiring Login**
- ☯ **`lib/Blog/Dispatcher.pm`**



```
package Blog::Action::Login;
use Jifty::Param::Schema;
use Jifty::Action schema {

    param address =>
        is mandatory,
        ajax validates,
        label is 'Email address';

    param password =>
        is mandatory,
        type is 'Password',
        label is 'Password';

};
```

```

package Blog::Action::Login;
use Jifty::Param::Schema;
use Jifty::Action schema {

param address =>
    is mandatory,
    ajax validates,
    label is 'Email address';

param password =>
    is mandatory,
    type is 'Password',
    label is 'Password';

};

sub take_action {
    my $self = shift;
    if ( $self->validate_login ) {
        $self->login_as_user( $self->user );
        return 1;
    }
    return 0;
}

```

```
package Blog::Dispatcher;
```

```
## Auth and Login
```

```
before '*' => run {
```

```
    if (not Jifty->web->current_user->id ) {  
        tangent '/login';
```

```
    }
```

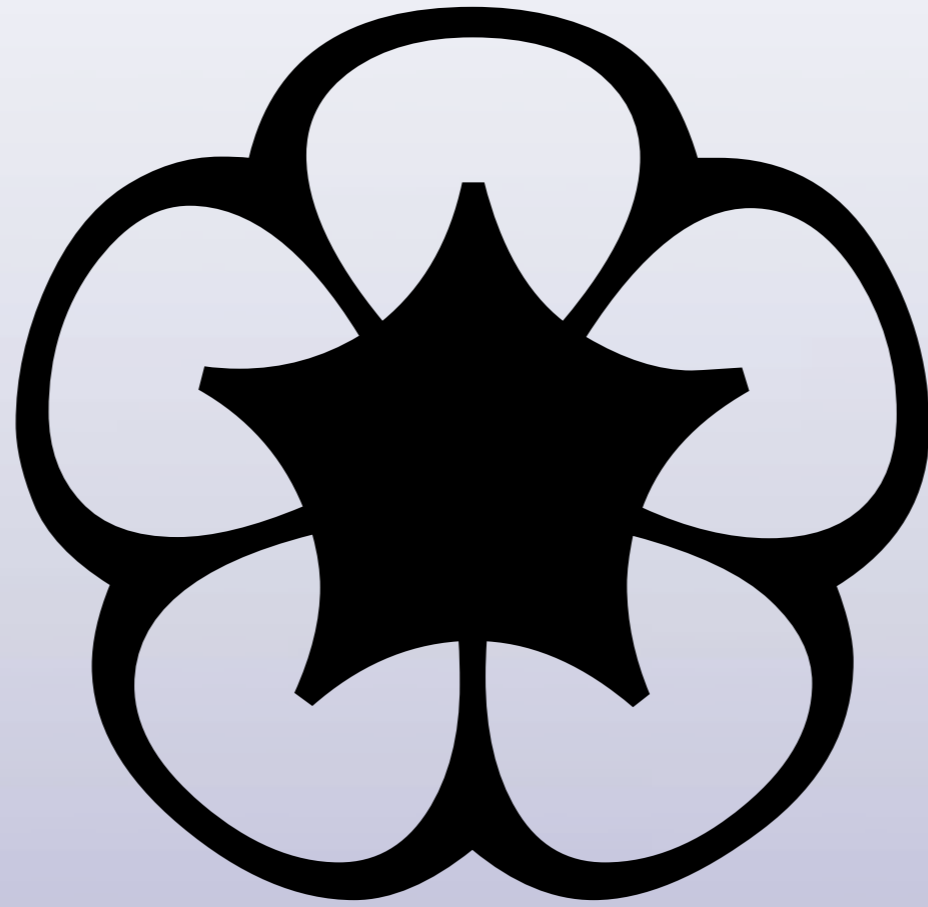
```
};
```



```
## share/web/templates/Login  
<%init>  
my $action = Jifty->web->new_action(  
    class => 'Login',  
);  
</%init>
```

```
## share/web/templates/Login
<%init>
my $action = Jifty->web->new_action(
    class => 'Login',
);
</%init>

<&|/_elements/wrapper, title => 'Login' &>
<h2>Login</h2>
    <% Jifty->web->form->start %>
        <% $action->form_field('address') %>
        <% $action->form_field('password') %>
        <% Jifty->web->return( label => 'Login' ) %>
    <% Jifty->web->form->end %>
</&>
```



# Templates = View

# Templates = View

 **HTML::Mason**

# Templates = View

✿ HTML::Mason

✿ Mason has Components

# Templates = View

- ✿ **HTML::Mason**
- ✿ **Mason has Components**
- ✿ **Server-side inclusion**

# Fragments

# Segments

## Components 2.0

# Fragments

- ✿ **Components 2.0**
- ✿ **Client-side for AJAX**

# Fragments

- ✿ **Components 2.0**
- ✿ **Client-side for AJAX**
- ✿ **Server-side for Lynx**

```
<% Jifty->web->region(  
    name => "myweblog-posts",  
    path => "/fragments/page_of_posts"  
) %>
```

# Chat

# Chat

✿ **Server-push (Comet)**

# Chat

- ✿ **Server-push (Comet)**
- ✿ **Refreshed fragments**

# Chat

- ✿ **Server-push (Comet)**
- ✿ **Refreshed fragments**
- ✿ **Live Demo!**



# Development Tools

# Development Tools

## ∇ Standalone Server

# Development Tools

∇ Standalone Server

∇ Module::Install

# Development Tools

- ∇ **Standalone Server**
- ∇ **Module::Install**
- ∇ **PAR Distribution**

# Halos

autohandler <span>[ X ]</span>
/autohandler <i>Rendered in 0.122s</i>
<b>Children</b>
<ul style="list-style-type: none"><li>• <a href="#">/_elements/nav - 0</a></li><li>• <a href="#">/edit - 0.099</a></li></ul>
<b>Variables</b>
<ul style="list-style-type: none"><li>◆ page: <a href="#">Wifty::Model::Page</a></li><li>◆ revision: <a href="#">Wifty::Model::Revision</a></li><li>◆ viewer: <a href="#">Wifty::Action::UpdatePage</a></li></ul>
<b>SQL Statements</b>
<ul style="list-style-type: none"><li>● SELECT * FROM pages WHERE name = ? <b>Bindings:</b> HomePage <i>0.000277042388916016 seconds</i></li></ul>
<b>Edit</b>

00  
00  
0.03  
/\_elements/menu:menu - 0.0

# Halos

## SQL Logging

**autohandler** [ X ]

/autohandler  
*Rendered in 0.122s*

**Children**

- [/\\_elements/nav - 0](#)
- [/edit - 0.099](#)

**Variables**

- ◆ page: [Wifty::Model::Page](#)
- ◆ revision: [Wifty::Model::Revision](#)
- ◆ viewer: [Wifty::Action::UpdatePage](#)

**SQL Statements**

- SELECT \* FROM pages WHERE name = ?  
**Bindings:** HomePage  
*0.000277042388916016 seconds*

**Edit**

[/\\_elements/menu:menu - 0.031](#)  
[/\\_elements/menu:menu - 0.031](#)

# Halos

∇ SQL Logging

∇ SQL Profiling

The screenshot displays a performance profile for an 'autohandler' component. The profile shows the following details:

- autohandler** [X]
- Path: /autohandler
- Rendered in: 0.122s
- Children**
  - [/\\_elements/nav](#) - 0
  - [/edit](#) - 0.099
- Variables**
  - page: [Wifty::Model::Page](#)
  - revision: [Wifty::Model::Revision](#)
  - viewer: [Wifty::Action::UpdatePage](#)
- SQL Statements**
  - SELECT \* FROM pages WHERE name = ?
  - Bindings:** HomePage
  - 0.000277042388916016 seconds
- Edit** [X]

Additional visible text at the bottom of the screenshot includes: [/\\_elements/menu:menu](#) - 0.03, [/\\_elements/menu:menu](#) - 0.0, and [/\\_elements/menu:menu](#) - 0.0.

# Halos

∇ SQL Logging

∇ SQL Profiling

∇ Template Profiling

The screenshot displays the Halos tool interface for profiling an autohandler. The main content area is divided into several sections:

- autohandler** [X]: The top section, indicating the current view.
- Children**: A list of child elements, including [/\\_elements/nav - 0](#) and [/edit - 0.099](#).
- Variables**: A list of variables, including `page: Wifty::Model::Page`, `revision: Wifty::Model::Revision`, and `viewer: Wifty::Action::UpdatePage`.
- SQL Statements**: A list of SQL statements, including `SELECT * FROM pages WHERE name = ?`. Below this, it shows **Bindings:** `HomePage` and a timing of `0.000277042388916016 seconds`.
- Edit**: A button at the bottom left of the main content area.

At the bottom right, there are some partially visible links and numbers, including `00`, `00`, `0.03`, and `/elements/menu:menu - 0.0`.

# Halos

[/autohandler - 0.122](#) [Edit](#)  
[/\\_elements/nav - 0](#) [Edit](#)  
[/edit - 0.099](#) [Edit](#)  
[/\\_elements/page\\_nav - 0.001](#) [Edit](#)  
[/\\_elements/wrapper - 0.095](#) [Edit](#)  
[/\\_elements/header - 0.001](#) [Edit](#)  
[/\\_elements/javascript - 0](#) [Edit](#)  
[/\\_elements/sidebar - 0.074](#) [Edit](#)  
[/\\_elements/menu - 0.072](#) [Edit](#)  
[/\\_elements/menu:.menu - 0.001](#)  
[/\\_elements/menu:.menu - 0.001](#)  
[/\\_elements/menu:.menu - 0.033](#)  
[/\\_elements/menu:.menu - 0.001](#)  
[/\\_elements/menu:.menu - 0.001](#)  
[/\\_elements/menu:.menu - 0.001](#)  
[/\\_elements/markup - 0](#) [Edit](#)

# Halos

## ▽ View Tracing

```
/autohandler - 0.122 Edit  
  /\_elements/nav - 0 Edit  
    /edit - 0.099 Edit  
      /\_elements/page\_nav - 0.001 Edit  
        /\_elements/wrapper - 0.095 Edit  
          /\_elements/header - 0.001 Edit  
            /\_elements/javascript - 0 Edit  
              /\_elements/sidebar - 0.074 Edit  
                /\_elements/menu - 0.072 Edit  
                  /\_elements/menu:.menu - 0.001  
                    /\_elements/menu:.menu - 0.001  
                      /\_elements/menu:.menu - 0.033  
                        /\_elements/menu:.menu - 0.001  
                          /\_elements/menu:.menu - 0.001  
                            /\_elements/menu:.menu - 0.001  
                              /\_elements/markup - 0 Edit
```

# Halos

∇ **View Tracing**

∇ **Online Editing**

```
/autohandler - 0.122 Edit  
/\_elements/nav - 0 Edit  
/edit - 0.099 Edit  
/\_elements/page\_nav - 0.001 Edit  
/\_elements/wrapper - 0.095 Edit  
/\_elements/header - 0.001 Edit  
/\_elements/javascript - 0 Edit  
/\_elements/sidebar - 0.074 Edit  
/\_elements/menu - 0.072 Edit  
/\_elements/menu:.menu - 0.001  
/\_elements/menu:.menu - 0.001  
/\_elements/menu:.menu - 0.033  
/\_elements/menu:.menu - 0.001  
/\_elements/menu:.menu - 0.001  
/\_elements/menu:.menu - 0.001  
/\_elements/markup - 0 Edit
```

# Halos

- ▽ **View Tracing**
- ▽ **Online Editing**
- ▽ **...and more!**

```
/autohandler - 0.122 Edit  
/\_elements/nav - 0 Edit  
/edit - 0.099 Edit  
/\_elements/page\_nav - 0.001 Edit  
/\_elements/wrapper - 0.095 Edit  
/\_elements/header - 0.001 Edit  
/\_elements/javascript - 0 Edit  
/\_elements/sidebar - 0.074 Edit  
/\_elements/menu - 0.072 Edit  
/\_elements/menu:.menu - 0.001  
/\_elements/menu:.menu - 0.001  
/\_elements/menu:.menu - 0.033  
/\_elements/menu:.menu - 0.001  
/\_elements/menu:.menu - 0.001  
/\_elements/menu:.menu - 0.001  
/\_elements/markup - 0 Edit
```

# Devel Mode

# Devel Mode

▽ **Module::Refresh**

# Devel Mode

▽ **Module::Refresh**

▽ **Tracing with Log4Perl**

# Devel Mode

- ∇ **Module::Refresh**
- ∇ **Tracing with Log4Perl**
- ∇ **Administrative Console**

# Deployment

# Deployment

∇ **Lighttpd / Apache**

# Deployment

∇ **Lighttpd / Apache**

∇ **Fast Static Server**

# Deployment

∇ **Lighttpd / Apache**

∇ **Fast Static Server**

∇ **CSS::Squish, JS::Squish**

# More Goodies

# More Goodies

∇ Comprehensive I18N

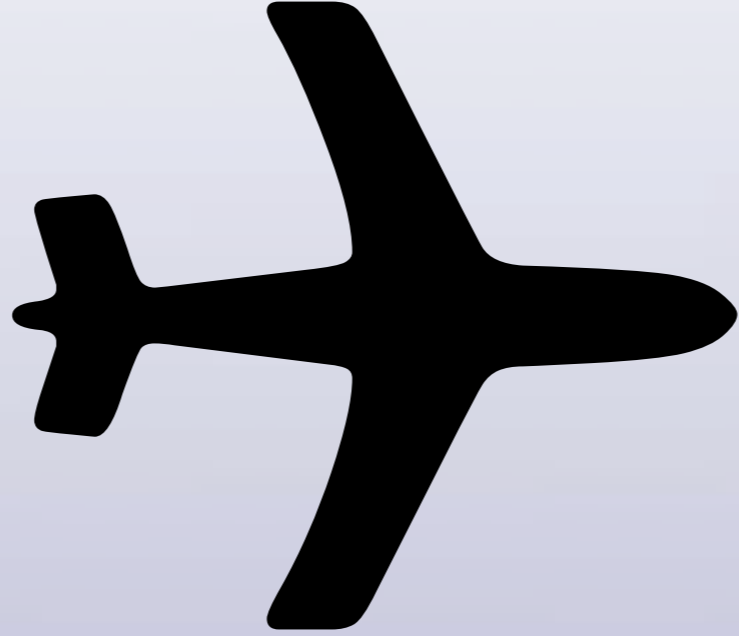
# More Goodies

∇ **Comprehensive I18N**

∇ **Client-Side Sessions**

# More Goodies

- ∇ **Comprehensive I18N**
- ∇ **Client-Side Sessions**
- ∇ **Events and Subscriptions**



# Future Plans

# Future Plans

✈ **Wiki-style UI Editor**

# Future Plans

✈ **Wiki-style UI Editor**

✈ **Even less code**

# Future Plans

- ✈ **Wiki-style UI Editor**
- ✈ **Even less code**
- ✈ **“Jifty in a Jiffy” MTVs**

# Sample Applications

# Sample Applications

 **Wifty**

# Sample Applications

✈ **Wifty**

✈ **CommitBit**

# Sample Applications

✈ **Wifty**

✈ **CommitBit**

✈ **Ping / Chat / Clock**

# Get Jifty

# Get Jifty

✈ cpan Jifty

# Get Jifty

✈ cpan Jifty

✈ [svn.jifty.org/svn/jifty.org](http://svn.jifty.org/svn/jifty.org)

# Get Jifty

✈ cpan Jifty

✈ [svn.jifty.org/svn/jifty.org](http://svn.jifty.org/svn/jifty.org)

✈ <http://jifty.org/>

# Getting Started

# Getting Started

✈ **Jifty::Manual::Tutorial**

# Getting Started

✈ **Jifty::Manual::Tutorial**

✈ **irc.freenode.net #jifty**

# Getting Started

- ✈ **Jifty::Manual::Tutorial**
- ✈ **irc.freenode.net #jifty**
- ✈ **jifty-devel@lists.jifty.org**

Thank you!

