Put Some Backbone.js in your apps

HTML5 DevConf - Oct 2013

Introduction

Today, we'll look at the components used to construct a Backbone.js application. These include models, collections, views, templates and routers. As we walk through the code each example will build upon the previous one until we have a fully functional app.

Features

Backbone.js employs a MVC (Model View Controller) pattern. Data management is a key feature of the framework. Data is stored in models and collections and saved via a RESTful backend. For today, we'll use StackMob's JavaScript SDK to easily add a backend to our backbone.js app we are building. We will also use require.js to physically separate our code and then assemble it for production.

What you'll need for the workshop

Your laptop with the following software

- **HTML Editor** of your choice (Sublime Text, TextMate, etc)
- **Modern Browser** (Chrome is a good choice)

Create your free **StackMob Account**

- http://bit.ly/html5devconf2013

Node.js for compiling with require.js (You can download here http://nodejs.org/download/)

The node.js stuff can be tricky to install, so don't stress if you have issues. It's a very small part of the session and I will demonstrate on my laptop.

Download the **Workshop files**
https://github.com/SidneyAllen/backbonejs-stackmob-workshop

Contact Me

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Agenda

- Module Pattern
- Models
- Collections
- Views
- Templates
- Routers
- Events
- StackMob Datastore
- Data Access Controls
- User Management
- Require.js

Section 0 - Module Pattern

Open 00-module.html in your browser.

Open your browser Developer Tools

- Chrome or Safari - Right-click or Control-click anywhere in the browser window and select **Inspect Element**

Select the **Console** tab and enter the following commands. Hit the enter key after each command to see the results.

```
app.foo

app.name

app.get()

app.set("StackMob")

app.get()

app
```

Section 1 - Models

Open 01-model.html in your browser.

Open your browser Dev Tools

- Chrome or Safari - Right-click or Control-click anywhere in the browser window and select **Inspect Element**

Select the **Console** tab and enter the following commands. Hit the enter key after each command to see the results.

```
firstWine = new Wine({name : 'Clos Pegase', year : '2008'})
```

```
firstWine.get('name');
```

```
firstWine.set('name','Cakebread');
```

```
firstWine.toJSON()
```

Section 2 - Collections

Open 02-collection.html in your browser.

Open your browser Dev Tools

- Chrome or Safari - Right-click or Control-click anywhere in the browser window and select **Inspect Element**

Select the **Console** tab and enter the following commands. Hit the enter key after each command to see the results.

```
wines = new Wines()
```
```
wines.toJSON()
```
```
w = new Wine({name : 'Clos Pegase'})
```
```
wines.add(w)
```
```
wines.toJSON()
```

Handy tip! use the up and down arrow keys to see previous commands you typed into the console.

Section 3 - Home View

Open 03-home-view.html in your browser.

Open your browser Dev Tools

- Chrome or Safari - Right-click or Control-click anywhere in the browser window and select **Inspect Element**

Select the **Console** tab and enter the following commands. Hit the enter key after each command to see the results.

```
view
```

```
view.render()
```

```
view.el
```

```
view.render().el
```

Open 03-home-view.html in your HTML Editor.

Add the lines of code in **bold**.

```
HomeView = Backbone.View.extend({
  initialize : function() {
    this.render();
  },
  render: function() {
    this.$el.empty();
    this.$el.append("<h1>Wine Cellar</h1>");
    return this;
  }
});

$(document).ready(function() {
    view = new HomeView();
    $('body').append(view.el);
});
```

Section 4 - List View

Open 04-list-view.html in your browser.

You'll see the HomeView displayed. Now let's add a list subview.

Open 04-list-view.html in your HTML Editor.

Add the lines of code in **bold**.

```
ListView = Backbone.View.extend({
  tagName: 'ul',
  render: function() {
    this.$el.empty();
    this.$el.append("<li>Wine 1</li>");
    this.$el.append("<li>Wine 2</li>");

    return this;
  }
});
```

Inside the HomeView render method

```
render: function() {
  this.$el.empty();
  this.$el.append("<h1>Wine Cellar</h1>");

  this.listView = new ListView();
  this.$el.append(this.listView.render().el);

  return this;
}
```

Section 5 - Basic Template

Open 05-basic-template.html in your browser.

You'll see the HomeView displayed. Now let's render our list with a template.

Open 05-basic-template.html in your HTML Editor.

Our template looks like this.

```
<script type="text/template" id="listTemplate">
  <li><%= winery %></li>
</script>
```

Add the lines of code in **bold**.

```
 ListView = Backbone.View.extend({
  tagName: 'ul',

  initialize: function() {
    this.template = _.template($('#listTemplate').html());
    this.render();
  },

  render: function() {
    this.$el.empty();
    this.$el.append(this.template({winery : "Cakebread"}));

    return this;
  }
});
```

Section 6 - Collection & Template

Open 06-collection-template.html in your browser.

You'll see the HomeView and displayed, but our list is empty.

Open 06-collection-template.html in your HTML Editor.

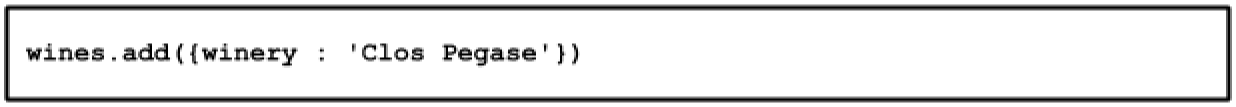
In our **ListView** let's loop over our collection and render using a template

```
render: function() {
  var   self = this;

  this.$el.empty();

  wines.each(function(model) {
    self.$el.append(self.template(model.toJSON()));
  });

  return this;
}
```

Let's listen for changes in our collection to trigger the render method.

```
initialize: function() {
  this.template = _.template($('#listTemplate').html());
  this.listenTo(wines, "all", this.render);
  this.render();
},
```

Open your Developer Tools
Select the **Console** tab and enter the following commands. Hit the enter key after each command to see the results.



```
wines.add({winery : 'Clos Pegase'})
```

Section 7 - Basic Router

Open 07-basic-router.html in your browser.

You'll see the HomeView and a link to Add View. Click the link to display the AddView.

Open 07-basic-router.html in your HTML Editor.

I've added **AppRouter** with 2 routes, home and add along with an AddView

```
var AppRouter = Backbone.Router.extend({
  routes:{
    "":"home",
    "add":"add"
  },
  home:function () {
    var view = new HomeView();
    $('body').empty();
    $('body').append(view.el);
  },
  add:function () {
    var view = new AddView();
    $('body').empty();
    $('body').append(view.el);
  }
});
```

At this point everything inside our module is var scoped and private. To kick off our app, we add an initialize method and expose it via a return. Then call the method on document ready.

```
var app = (function($){
    ….
    var initialize = function() {
        wineApp = new AppRouter();
        Backbone.history.start();
     }
    return { initialize : initialize};
}(jQuery));

$(document).ready(function() {
    app.initialize();
});
```

Section 8 - Adv. Router

Open 08-adv-router.html in your browser.

You'll see the HomeView.

Open 08-adv-router.html in your HTML Editor.

Cut and paste the new Wines code from line 24 and paste into initialize method. Pass the wines collection to the AppRouter.

```
var initialize = function() {
  var wines = new Wines([{winery : "Cakebread"}]);

  wineApp = new AppRouter({collection : wines});
  Backbone.history.start();
}
```

Add an initialize method on our AppRouter, then pass the collection into our views.

```
var AppRouter = Backbone.Router.extend({
  routes:{
    "":"home",
    "add":"add"
  },

  initialize:function(options) {
    this.collection = options.collection;
  },

  home:function () {
    var view = new HomeView({collection : this.collection});
    $('body').empty();
    $('body').append(view.el);
  },
  add:function () {
    var view = new AddView({collection : this.collection});
    $('body').empty();
    $('body').append(view.el);
  }
});
```

Now change the render method in our ListView to use the collection pass to it.

```
render: function() {
    var   self = this;

    this.$el.empty();

    this.collection.each(function(model) {
      self.$el.append(self.template(model.toJSON()));
    });

    return this;
}
```

Section 9 - Events

Open 09-events.html in your browser.

You’ll see the HomeView.

Open 09-events.html in your HTML Editor.

We need to listen for a click event on the save button and call the save method.

```
var AddView = Backbone.View.extend({
  events: {
     "click #saveBtn": "save"
  },

  initialize: function() {
    this.template = _.template($('#addTemplate').html());
    this.collection = this.options.collection;
    this.router = this.options.router;
    this.render();
  },

  render: function() {
    this.$el.empty();
    this.$el.append(this.template());

    return this;
  },

  save: function(e) {
    e.preventDefault();

    var wine = new Wine({winery:$('#winery').val() });
    this.collection.add(wine);

    this.router.navigate('#',{trigger: true});

    return this;
  }
});
```

Section 10 - StackMob

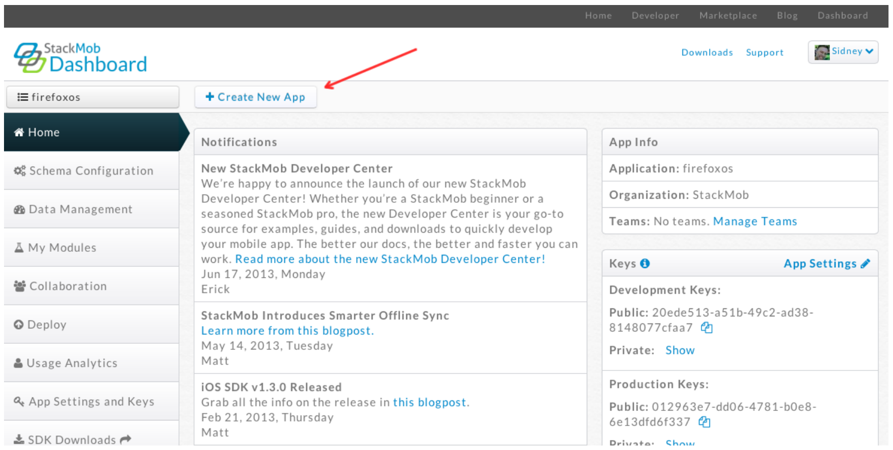
Open stackmob-init.js in your HTML Editor.

You'll see a few lines of code that initializes the StackMob SDK.

```
StackMob.init({
    publicKey: "cb28c0a3-20b9-4a3c-9691-aa1b86ee558f",
    apiVersion: 0
});
```

Open your browser to dashboard.stackmob.com

Click on Create New App.



Notifications

New StackMob Developer Center
We're happy to announce the launch of our new StackMob Developer Center! Whether you're a StackMob beginner or a seasoned StackMob pro, the new Developer Center is your go-to source for examples, guides, and downloads to quickly develop your mobile app. The better our docs, the better and faster you can work. Read more about the new StackMob Developer Center!
Jun 17, 2013, Monday
Erick

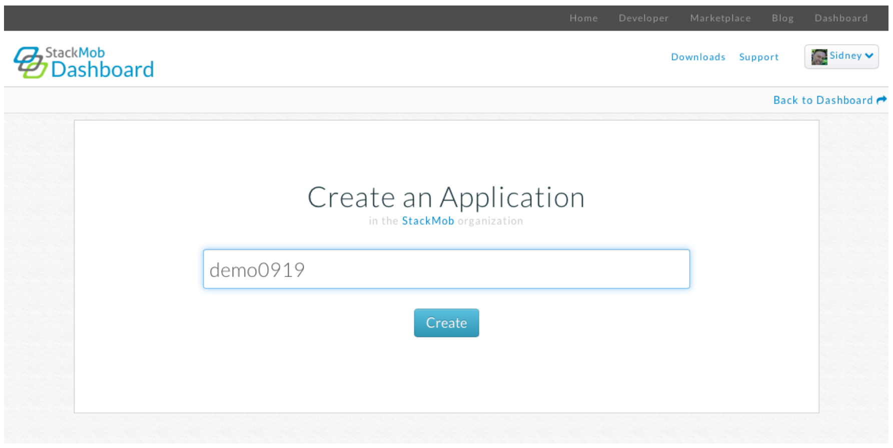
StackMob Introduces Smarter Offline Sync
Learn more from this blogpost.
May 14, 2013, Tuesday
Matt

iOS SDK v1.3.0 Released
Grab all the info on the release in this blogpost.
Feb 21, 2013, Thursday
Matt

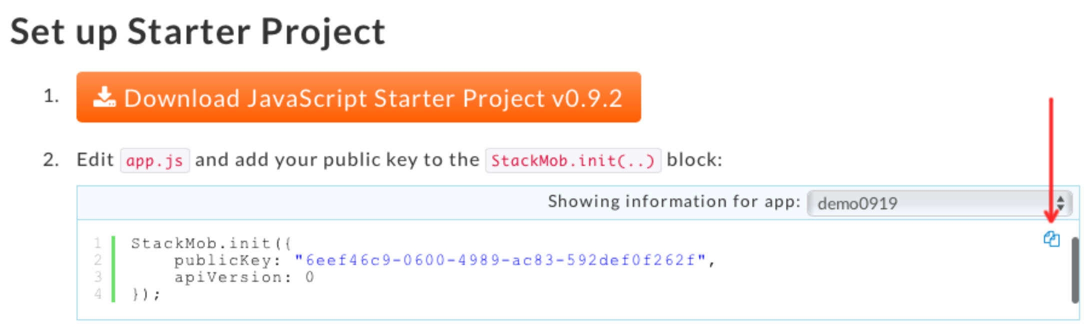
App Info
Application: firefoxos
Organization: StackMob
Teams: No teams. Manage Teams

Keys — App Settings
Development Keys:
Public: 20ede513-a51b-49c2-ad38-8148077cfaa7
Private: Show
Production Keys:
Public: 012963e7-dd06-4781-b0e8-6e13dfd6f337
Private: Show

Enter the name of your new App



Select JavaScript as your platform and copy the StackMob.init method in step 2.


Set up Starter Project
1. Download JavaScript Starter Project v0.9.2
2. Edit app.js and add your public key to the StackMob.init(..) block:
Showing information for app: demo0919

```
StackMob.init({
    publicKey: "6eef46c9-0600-4989-ac83-592def0f262f",
    apiVersion: 0
});
```

Paste the StackMob.init method into **stackmob-init.js** file.

Open 10-stackmob.html in your browser.

You'll see the HomeView, but data is not persisted anywhere

Open 10-stackmob.html in your HTML Editor.

Change your Model and Collection in **bold**.

```
 var Wine = StackMob.Model.extend({
     schemaName : "wine"
});

var Wines = StackMob.Collection.extend({
       model: Wine
});
```

Fetch your wines at the start of your app.

```
var initialize = function() {
  var wines = new Wines();
  wines.fetch({async:true});

  wineApp = new AppRouter({collection : wines});
  Backbone.history.start();
}
```

In your save method, wrap your collection.add and router.navigate inside a success callback from the model.

```
wine.create({
   success: function(model){
   self.collection.add(model);
   self.router.navigate('#',{trigger: true});
  }
});
```

Refresh 10-stackmob.html in your browser, now try to add a new wine.

Go back to **StackMob Dashboard** and select the **Data Management** to see if your data was saved.

Open 11-update.html in your browser.

You'll see the HomeView, but no way to edit an existing wine.

Open 11-update.html in your HTML Editor.

Change your Template in **bold**.

```
<script type="text/template" id="listTemplate">
    <li>
        <a href="#update/<%= wine_id %>"><%= winery %></a>
    </li>
</script>
```

Add the update router in **bold**.

```
routes:{
    "":"home",
    "add":"add",
    "update/:id":"update"
}
```

Select the model from your collection and pass the model AND router into the UpdateView in **bold**.

```
update:function (e) {
  this.model = this.collection.get(e);
  this.changePage(new UpdateView({model:this.model, router:this}) );
}
```

The Save Method updates our model and redirects back to the HomeView.

```
self.model.save({winery:$('#winery').val() },{
  success: function(model){
    self.router.navigate('#',{trigger: true, replace: false});
  }
});
```

Refresh 11-update.html in your browser, now try to edit and existing wine.

Go back to **StackMob Dashboard** and select the **Data Management** to see if your data was updated.