

# World-Wide Developer Conference

## Genero Browser Client - Customization

Neil J Martin

**JW Marriott Cancùn Spa & Resort**  
September 26-29, 2017



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# Intro – It's all about me

Neil Martin - neilm@4js.com

**I work from the UK office.**

**My Roles are support / training / consultancy / development.**

**Currently also working on Genero Cloud.**

**My background is in developing 4gl applications, I have been using 4gl ( InformixRDS / Four Js BDL / Genero ) for over 25 years!**

**I do NOT consider myself a Web Developer!**



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# Overview - About the session

## Goals of this session

- Run GBC default with default demos
- Setup the GBC dev environment
- Run the GBC dev build with default demos
- Create custom build folder for the custom GBC files
- Change the colours of the GBC and test it
- Setup GeneroStudio to build GBC
- A test Application
- Headers and Footers
- Packaging and deploy GBC
- More GBC customizations



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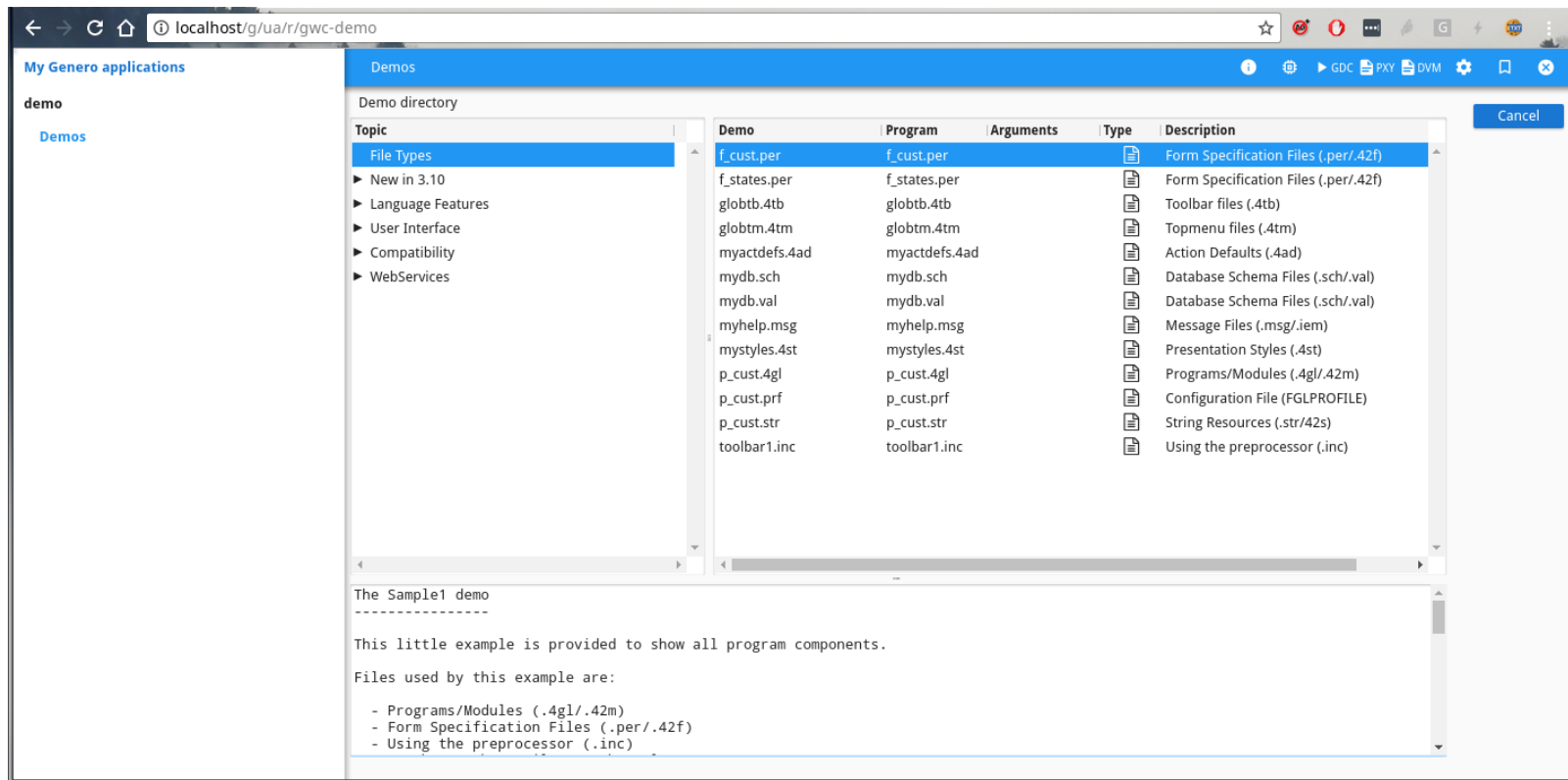
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# GBC Default Test

Basic sanity test

Before we start, let's make sure the current default GBC is working and we can run the default Genero demos!



# Setup the GBC Dev Environment

Tools of the trade

The GBC uses various standard web development tools, these need to be installed in your development environment so you can build the GBC Runtime from the Project sources.

```
$ sudo yum install git unzip nodejs
$ wget https://nodejs.org/dist/v6.11.3/node-v6.11.3-
linux-x64.tar.xz
$ tar xvJf node-v6.11.3-linux-x64.tar.xz
$ export PATH=node-v6.11.3-linux-x64/bin:$PATH
$ sudo npm install -g grunt-cli
```



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# Setup the GBC Dev Environment

Our first build

Once the require packages are installed you need to set up the GBC project folder

```
$ unzip fjs-gbc-1.00.39-build201709041139-  
project.zip  
$ cd gbc-1.00.39/  
$ npm install  
$ grunt
```

When complete you should have the 'default' custom GBC built.



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# Setup the GBC Dev Environment

Configure for running

Before you can test the 'default' custom GBC you need to make sure the GAS can find it.

There are a couple of ways to tell the GAS how to find your custom GBC.

One method is a symbolic link in `$FGLDIR/web_utilities/gbc`

```
$ ln -s $HOME/gbc-  
1.00.39/dist/customization/default  
$FGLDIR/web_utilities/gbc/mydef
```

Another method is to modify the `as.xcf` for the "res.path.gbc.user".



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# GBC 'Default' Custom Run

The results of all that effort

Test the 'default' custom GBC:  
<http://<server>/gas/ua/r/gwc-demo?gbc=mydef>

The screenshot shows a web application interface for testing the 'default' custom GBC. The browser address bar displays `localhost/g/ua/r/gwc-demo?gbc=mydef`. The application title is "Applications started: 1 Currently opened window title : Demos".

On the left, under "My Genero applications", the "demo" section is expanded, showing a "Demos" link. The main area displays a "Demo directory" with a table of files and their descriptions.

Topic	Demo	Program	Arguments	Type	Description
File Types	f_cust.per	f_cust.per			Form Specification Files (.per/.42f)
▶ New in 3.10	f_states.per	f_states.per			Form Specification Files (.per/.42f)
▶ Language Features	globtb.4tb	globtb.4tb			Toolbar files (.4tb)
▶ User Interface	globtm.4tm	globtm.4tm			Topmenu files (.4tm)
▶ Compatibility	myactdefs.4ad	myactdefs.4ad			Action Defaults (.4ad)
▶ WebServices	mydb.sch	mydb.sch			Database Schema Files (.sch/.val)
	mydb.val	mydb.val			Database Schema Files (.sch/.val)
	myhelp.msg	myhelp.msg			Message Files (.msg/.iem)
	mystyles.4st	mystyles.4st			Presentation Styles (.4st)
	p_cust.4gl	p_cust.4gl			Programs/Modules (.4gl/.42m)
	p_cust.prf	p_cust.prf			Configuration File (FGLPROFILE)
	p_cust.str	p_cust.str			String Resources (.str/.42s)
	toolbar1.inc	toolbar1.inc			Using the preprocessor (.inc)

Below the table, the "The Sample1 demo" section displays the following text:

```
-----
This little example is provided to show all program components.

Files used by this example are:

- Programs/Modules (.4gl/.42m)
- Form Specification Files (.per/.42f)
```

The footer area contains the text "Place your footer here".



# First Customization

First a new build

**I recommend testing your application with the default Custom GBC build before doing any customizations.**

**Next, setup your own sources folder like this:**

- **Create a new folder in your sources location for your custom GBC files. ( so they are part of your Source Code Control )**
- **Create a link in the GBC customization build folder to this 'new folder'**
- **Change the custom.json to build that custom folder**
- **Make a small change to the theme file and do your first build**
- **Create a link in \$FGLEDIR/web\_utilities/gbc to this new custom build**
- **Run the new build in your browser.**



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# First Customization

Do the work

```
$ cd $HOME/gbc-1.00.39/  
$ cp -r customization/default $MY_SRC_DIR/mygbc  
$ ln -s $MY_SRC_DIR/mygbc/ customization/mygbc  
$ vi custom.json  
    change:      "customization": "customization/default"  
    to this:     "customization": "customization/mygbc"  
$ grunt          ( make sure we can build our new folder )  
$ ln -s $HOME/gbc-1.00.39/dist/customization/mygbc  
    $FGLDIR/web_utilities/gbc/mygbc  
$ grunt dev      ( This will automatically build after any changes )
```

-> new terminal

```
$ cd $MY_SRC_DIR/mygbc  
$ vi theme.scss.json  
    do some changes & save them
```



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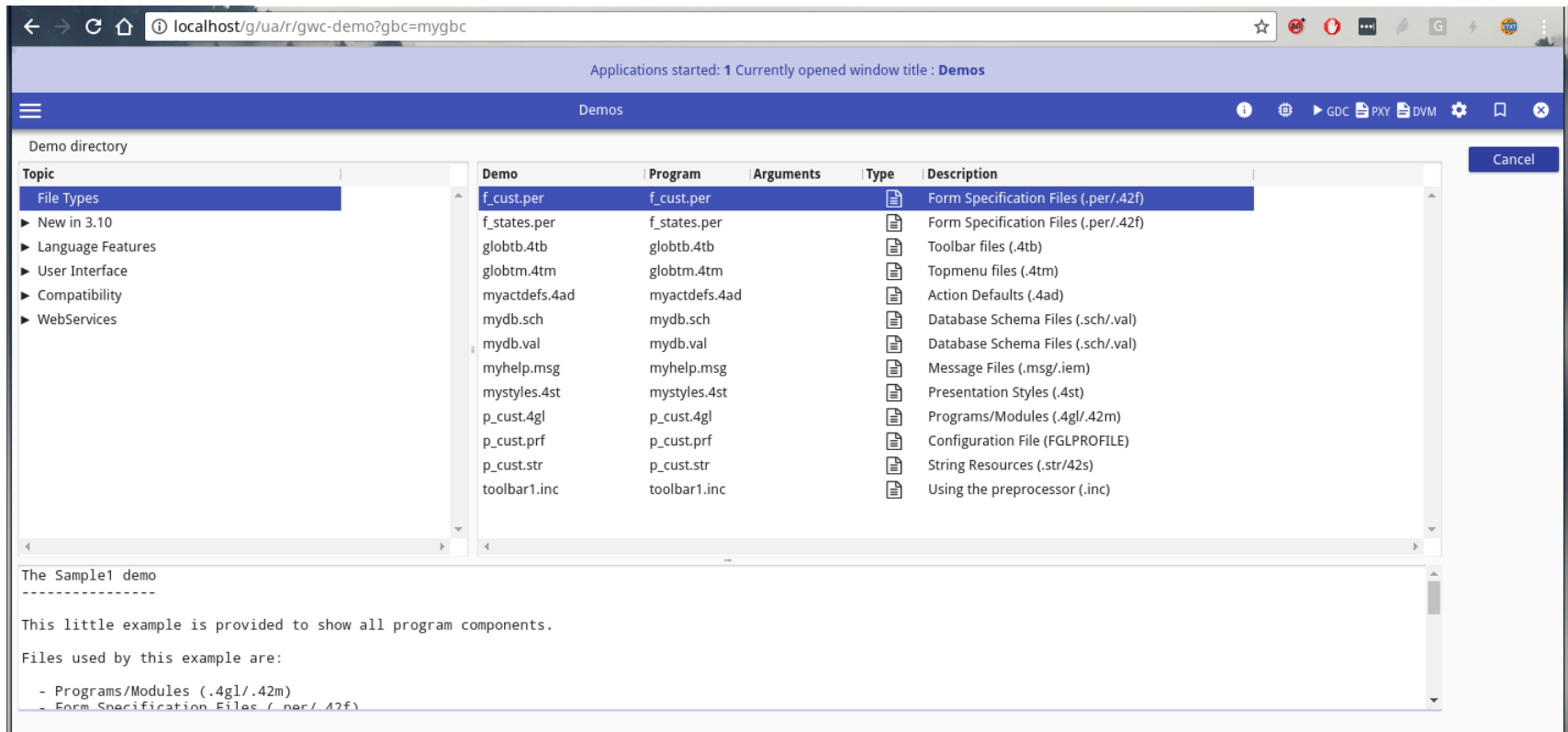


# GBC 'Default' Custom Run

At last, our own colours!

Test the custom GBC:

<http://<server>/gas/ua/r/gwc-demo?gbc=mygbc> )



# Colors ( Colours )

All the colours of the rainbow

Coloring the GBC should be done by changing the theme json file. I'd recommend removing most color changes from the .4st file so the GBC can use the theme.

**NOTE:** The .4st colors will override the GBC theme colors.

The theme file allows us to change the colors for a 'material design'. See:

<https://material.io/guidelines/style/color.html#color-color-palette>



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# Colors ( Colours )

All the colours of the rainbow

Style – Color

Deep Purple	
500	#673AB7
50	#EDE7F6
100	#D1C4E9
200	#B39DDB
300	#9575CD
400	#7E57C2
500	#673AB7
600	#5E35B1
700	#512DA8
800	#4527A0
900	#311B92

Indigo	
500	#3F51B5
50	#E8EAF6
100	#C5CAE9
200	#9FA8DA
300	#7986CB
400	#5C6BC0
500	#3F51B5
600	#3949AB
700	#303F9F
800	#283593
900	#1A237E

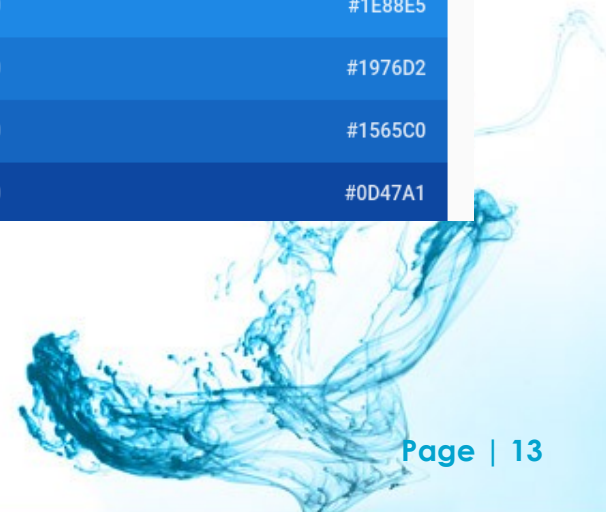
Blue	
500	#2196F3
50	#E3F2FD
100	#BBDEFB
200	#90CAF9
300	#64B5F6
400	#42A5F5
500	#2196F3
600	#1E88E5
700	#1976D2
800	#1565C0
900	#0D47A1



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# Colors ( Colours )

All the colours of the rainbow

The theme file is a JSON file and allows you to use the 'Material Design' color names. After changing this file you must rebuild the GBC using the 'grunt' command.

```
"gbc-header-color"           : "$mt-indigo-200",
"gbc-primary-medium-color"    : "$mt-indigo-900",

"gbc-primary-background-color" : "$mt-indigo-100",
"gbc-primary-color"           : "$mt-indigo-600",
"gbc-primary-light-color"     : "$mt-indigo-900",

"gbc-secondary-background-color" : "$mt-indigo-50",
"gbc-secondary-text-color"      : "$mt-white",
"gbc-secondary-color"          : "$mt-white",

"gbc-field-disabled-background-color" : "$mt-grey-100",
"gbc-field-disabled-background"      : "rgba(0,0,0,0.44)",
"gbc-field-background-color"         : "$mt-white",
"gbc-disabled-color"                 : "$mt-grey-300",

"gbc-separator-color"           : "$mt-white",
"gbc-message-color"            : "$mt-grey-800",
"gbc-error-color"              : "$mt-red-800",
```



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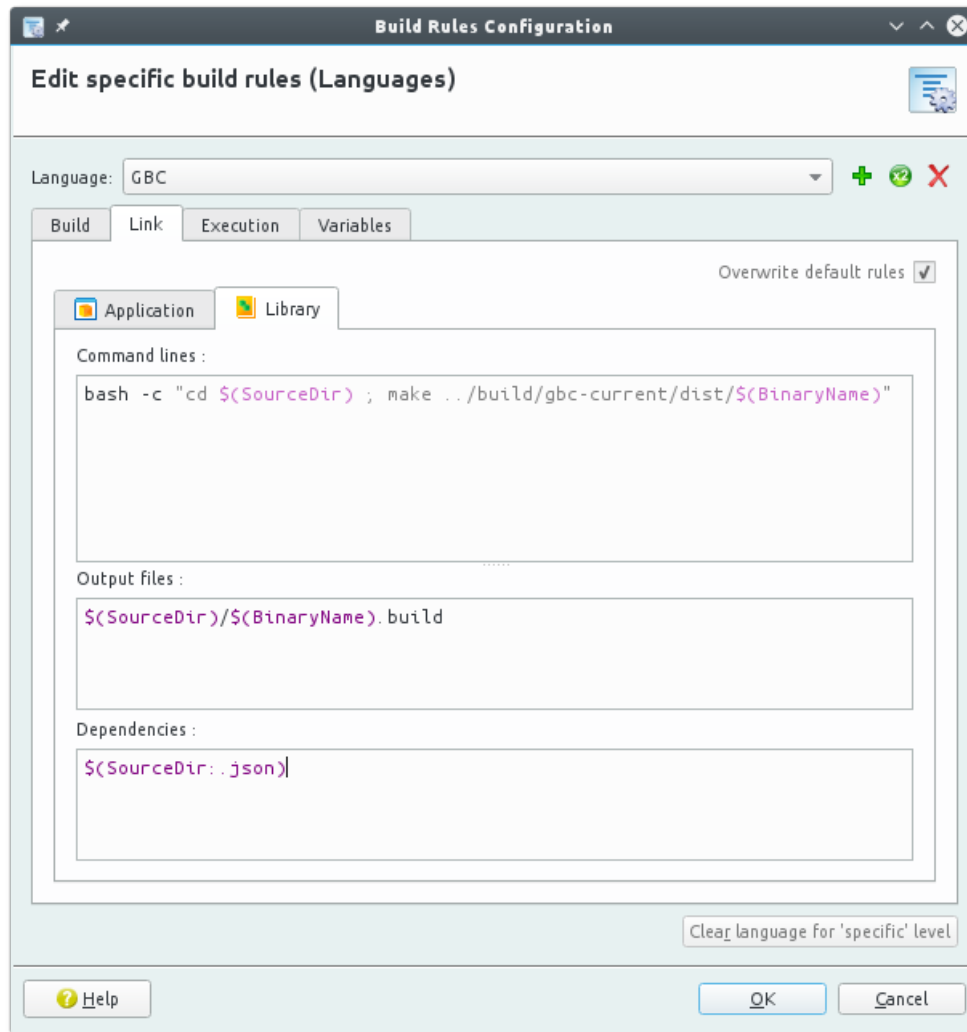
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# Genero Studio

## Custom rules



Genero Studio has many useful features that make it worth spending some time to configure so you can also use it to work on and build your custom GBC.



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# Genero Studio

The screenshot displays the Genero Studio 3.10.06 - njms\_demos310 interface. The main window shows a project tree on the left with a context menu open over the 'js' folder. The menu includes options like 'New File', 'New Virtual Folder', 'Add Files...', 'Genero Workplace Window', 'Open Dependency Diagram', 'Add Web Service', 'Build', 'Rebuild', 'Clean', 'Cut', 'Copy', 'Rename', 'Delete', 'Delete from Disk', 'SCM', 'Display Environment', 'Edit Build Rules', 'Edit Package Rules', and 'Advanced Properties'. The 'Build' option is highlighted. The 'Output' window at the bottom shows the execution time and progress of the build process.

**Execution Time (2017-09-20 12:01:05 UTC+1)**

Task	Time	Progress
loading tasks	5.8s	██████████
copy:droidFonts	34ms	██ 4%
copy:materialIcons	195ms	██ 2%
copy:resources	290ms	██ 4%
copy:customizationResources	189ms	██ 2%
templates2js:compile	241ms	██ 3%
sass:development	606ms	██ 8%
Total	7.8s	

\*\*\* Success [12:01:13] \*\*\*



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# Test Application

A testing asset

**A good idea is to write a small stand-alone test program to run using Custom GBC to see all your changes.**

**The 'Test' program should use all the GUI elements you use in a similar way to your main application, but with the advantage that you don't have to navigate through various menus and sub programs to get to see any specific UI features you may use.**

**Another useful feature would be if the program can open and show any of your 42f files.**



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# Headers

Getting a head of ourselves

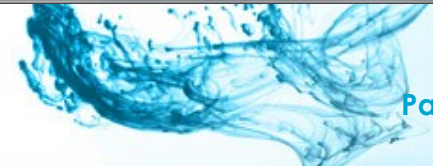
Once we are happy with our basic colours, we can add a heading with a sensible title and logo.



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# Headers

Getting a head of ourselves

**My Code adds a the Application Text into the header.  
MyHeadingBarWidget.tpl.html:**

```
<div>
  <table width="100%">
    <tr>
      <td id="logocell" width="20%" align="left">
        
      </td>
      <td width="60%">
        <h1 class="MyHeaderBarWidget-banner"></h1>
        <b id="MyWinTitle" class="MyHeaderBarWidget-title"></b>
      </td>
      <td width="20%" align="right">
        <b id="dyntext">none</b>
        <span style="display: none">Apps: <b class="MyHeaderBarWidget-counter"></b></span>
      </td>
    </tr>
  </table>
</div>
```



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# Headers

## MyHeadingBarWidget.js

```
cls.MyHeaderBarWidget = context.oo.Class(cls.WidgetBase, function($super) {  
  return {  
    __name: "MyHeaderBarWidget",  
    _model: null,  
    _appsCount: null,  
  
    constructor: function() {  
      $super.constructor.call(this);  
      this._appsCount = 0;  
      this._model = new cls.ModelHelper(this);  
      this._model.addNewApplicationListener(this.onNewApplication.bind(this));  
      this._model.addCloseApplicationListener(this.onCloseApplication.bind(this));  
      this._model.addCurrentWindowChangeListener(this.onCurrentWindowChanged.bind(this));  
      elb = this.getElement().querySelector(".MyHeaderBarWidget-banner");  
    },  
  
    onNewApplication: function(application) {  
  
    onCloseApplication: function(application) {  
  
    onCurrentWindowChanged: function(windowNode) {  
      var elt = this.getElement().querySelector(".MyHeaderBarWidget-title");  
      // Set the banner text to the value set by ui.interface.setText()  
      elb.textContent = windowNode.getAncestor("UserInterface").attribute('text');  
      // Set the header sub title to the window text.  
      if (windowNode) {  
        elt.textContent = windowNode.attribute('text');  
      } else {  
        elt.textContent = "<NONE>";  
      }  
    }  
  }  
}
```





# More Customizations

Closer to our goal

Here there are few more subtle changed to the styles to limit the size, change group titles, remove some unwanted spaces



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# More Customizations

Multiple Themes: Blues

With basic customizations you can achieve a variety of looks.



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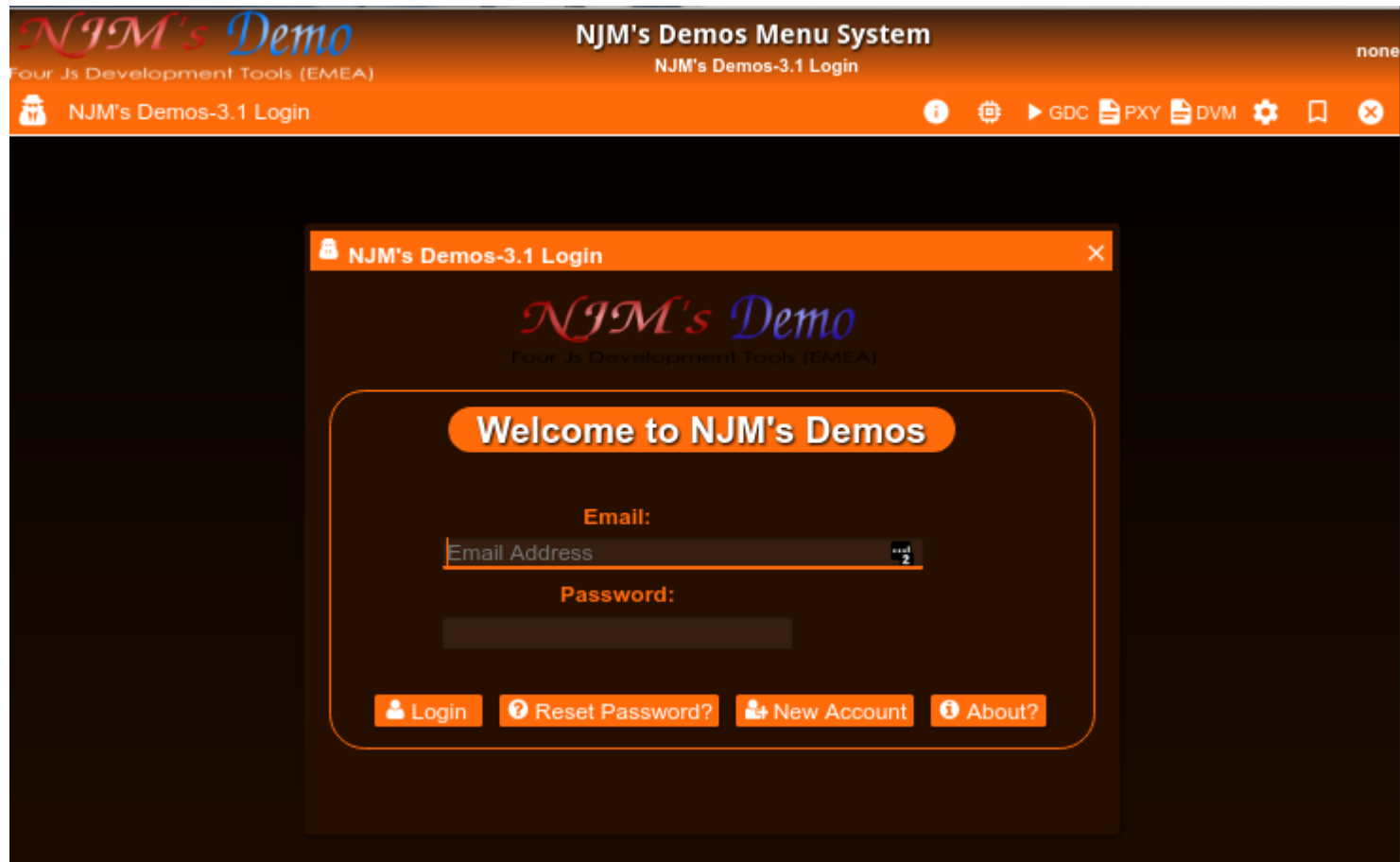
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# More Customizations

Multiple Themes: Elite

Only the 'theme' file is different from the previous slide.



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# More Customizations

Multiple Themes: Simply Purple

A very simple plain version.

A screenshot of a web browser window titled "NJM's Demos-3.1 Login". The page has a purple header with the text "NJM's Demo" in a stylized font, followed by "Four Js Development Tools (EMEA)". Below this is a "Welcome to NJM's Demos" message. The login form consists of an "Email:" label, an "Email Address" input field, a "Password:" label, and a password input field. At the bottom, there are four buttons: "Login", "Reset Password?", "New Account", and "About?". The entire form is set against a light purple background within the browser window.

NJM's Demos-3.1 Login

*NJM's Demo*  
Four Js Development Tools (EMEA)

Welcome to NJM's Demos

Email:  
Email Address

Password:

Login Reset Password? New Account About?



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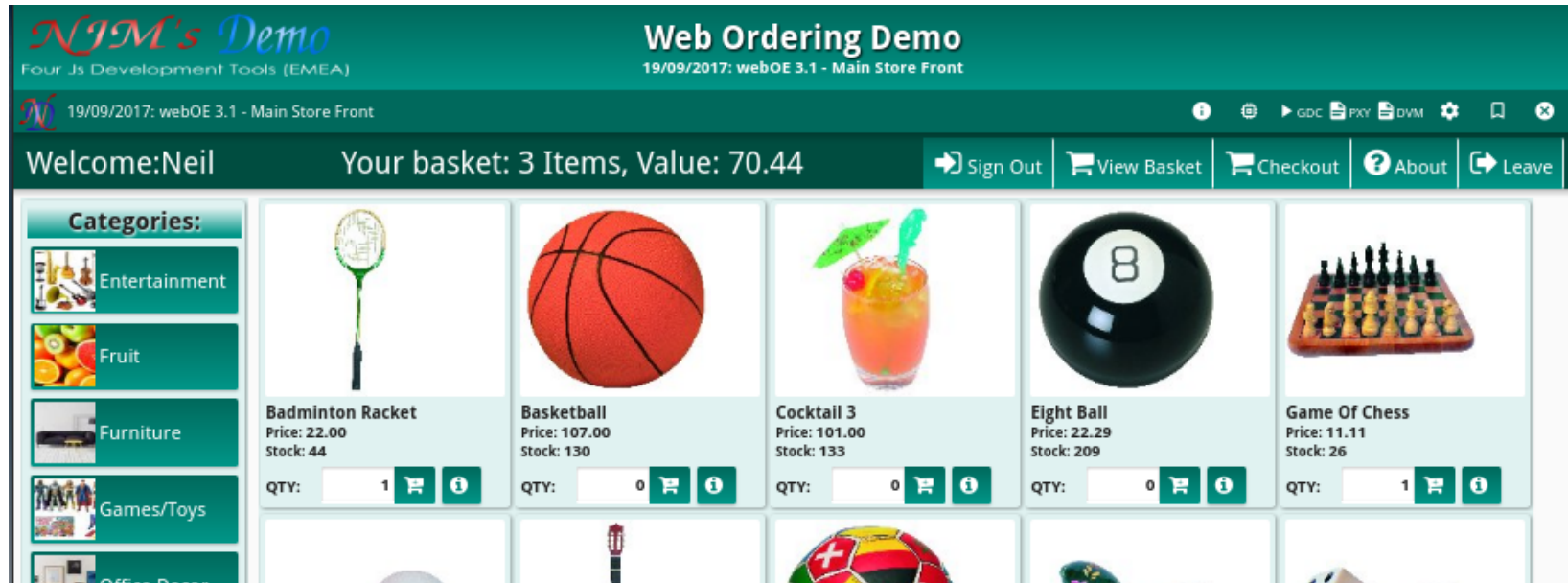
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# More Advanced Customizations

## Custom Toolbar

This screenshot shows a custom 'ToolBar' that included a some fields from the form.



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# More Advanced Customizations

Paging products

There are couple ways to do a responsive design for listing 'items', this example is using JavaScript and a dynamic form layout.

**NJM's Demo**  
Four Js Development Tools (EMEA)

**Web Ordering Demo**  
19/09/2017: webOE 3.1 - Main Store Front

19/09/2017: webOE 3.1 - Main Store Front

Welcome: Guest Your basket: 0 Items, Value: 0.00 Sign In View Basket Checkout About Leave

**Categories:**

- Entertainment
- Fruit
- Furniture
- Games/Toys
- Office Decor
- Supplies
- Travelling
- WWIII Supplies

**This Sale:**

Total Qty: 0

Total Cost: 0.00

PayPal MasterCard VISA

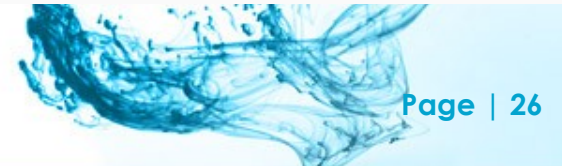
 <b>Badminton Racket</b> Price: 22.00 Stock: 44 QTY: <input type="text"/> <input type="button" value="Add"/> <input type="button" value="Remove"/>	 <b>Basketball</b> Price: 107.00 Stock: 130 QTY: <input type="text"/> <input type="button" value="Add"/> <input type="button" value="Remove"/>	 <b>Cocktail 3</b> Price: 101.00 Stock: 133 QTY: <input type="text"/> <input type="button" value="Add"/> <input type="button" value="Remove"/>	 <b>Eight Ball</b> Price: 22.29 Stock: 209 QTY: <input type="text"/> <input type="button" value="Add"/> <input type="button" value="Remove"/>	 <b>Game Of Chess</b> Price: 11.11 Stock: 26 QTY: <input type="text"/> <input type="button" value="Add"/> <input type="button" value="Remove"/>
 <b>Golf Ball And Tee</b> Price: 14.50 Stock: 179 QTY: <input type="text"/> <input type="button" value="Add"/> <input type="button" value="Remove"/>	 <b>Guitar 2</b> Price: 37.33 Stock: 126 QTY: <input type="text"/> <input type="button" value="Add"/> <input type="button" value="Remove"/>	 <b>International Football</b> Price: 21.67 Stock: 129 QTY: <input type="text"/> <input type="button" value="Add"/> <input type="button" value="Remove"/>	 <b>Maracas</b> Price: 3.00 Stock: 167 QTY: <input type="text"/> <input type="button" value="Add"/> <input type="button" value="Remove"/>	 <b>Playing Dice</b> Price: 25.00 Stock: 44 QTY: <input type="text"/> <input type="button" value="Add"/> <input type="button" value="Remove"/>
 <b>Scuba Diving Flippers</b> Price: 31.00 Stock: 182 QTY: <input type="text"/> <input type="button" value="Add"/> <input type="button" value="Remove"/>	 <b>Table Tennis Bats And Ball</b> Price: 4.00 Stock: 175 QTY: <input type="text"/> <input type="button" value="Add"/> <input type="button" value="Remove"/>	 <b>Toy Bi Plane</b> Price: 17.29 Stock: 191 QTY: <input type="text"/> <input type="button" value="Add"/> <input type="button" value="Remove"/>		



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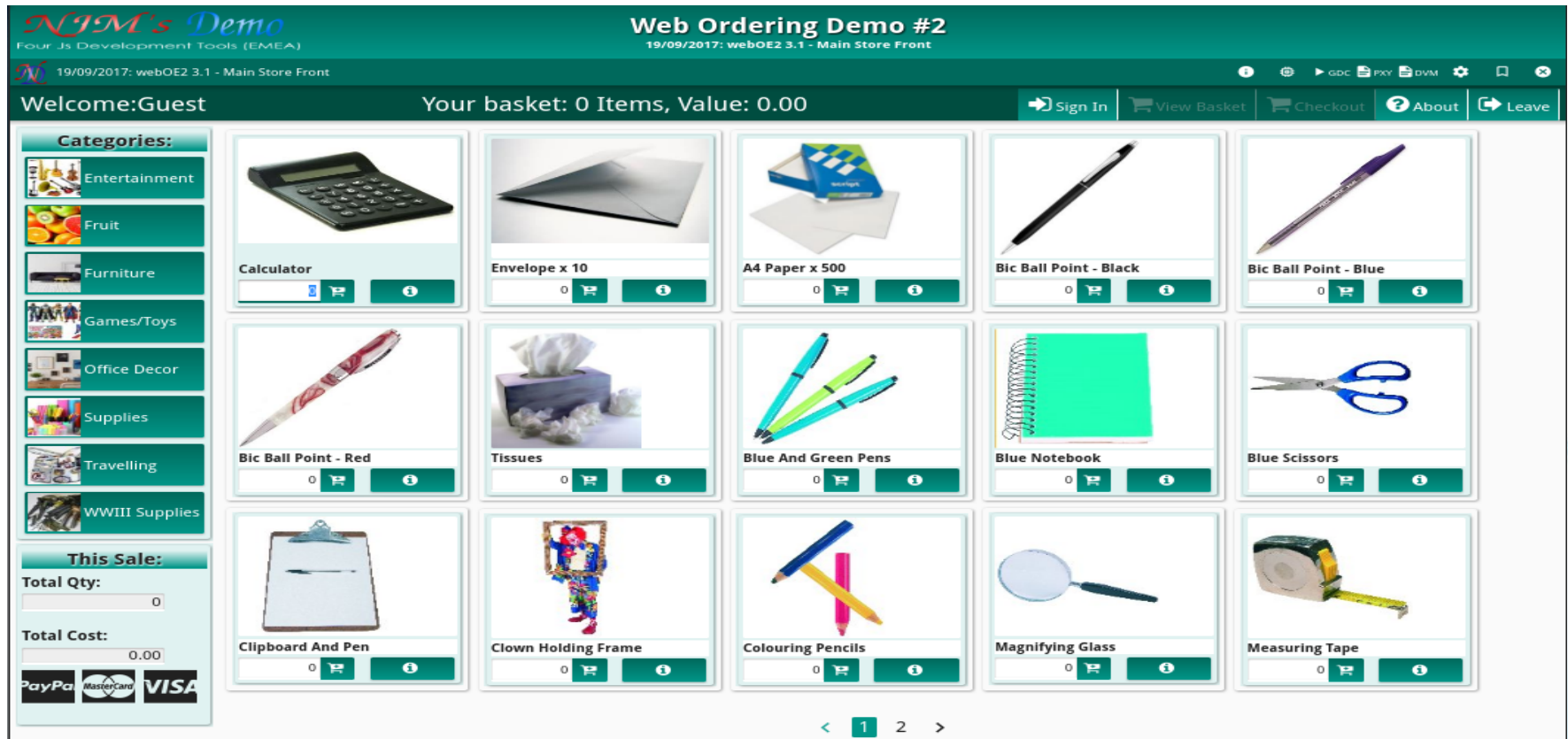




# More Advanced Customizations

Paging products

This version is using a 'simple' ScrollGrid



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