

openSAP Evolved Web Apps with SAPUI5

Week 1 Unit 3: Local Setup with the UI5 Tooling (optional)

Exercises

PUBLIC



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LOCAL SETUP WITH THE UI5 TOOLING (optional)

Note: This is an optional exercise which should show interested participants how to use the UI5 Tooling besides from SAP Web IDE. If you are used to work with an editor and command line tools, it might be an interesting challenge for you to complete the exercise that way. Otherwise it is not necessary to do this setup or this exercise to be able to complete the following unit exercises.

Summary

In this unit you will learn how to develop, run and build a UI5 application in local development environment with a template app cloned from a GitHub repository. For this, you will use open source tools like node.js, git and an editor. You will establish a connection to an external OData service and retrieve data about directions in your app.

Preview

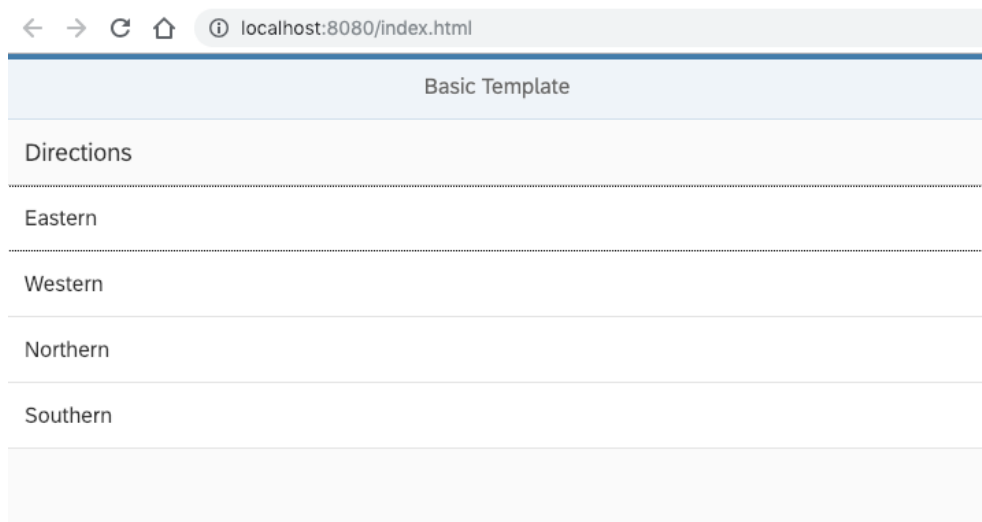


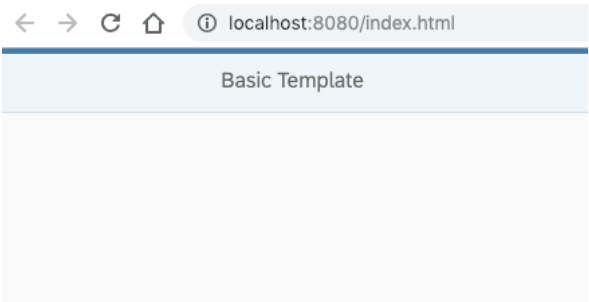
Figure 1: Preview of the Result

Prerequisites

You should have installed **and be familiar** with:

- a code editor
- Node.js (<https://nodejs.org/download>)
- Git (<https://git-scm.com/downloads/>)
- a CLI or shell

Working with the UI5 Command Line Interface (CLI)

Explanation	Commands
<p>1. Open a new terminal window, and make sure all prerequisites are installed properly by checking the versions.</p> <p>Note: Please make sure that at least the following versions of the required software are installed:</p> <ul style="list-style-type: none">• Node.js: 8.5• npm: 5• Git: 2.1	<pre># Verify installations node -v npm -v git --version</pre>
<p>2. Install the UI5 Tooling.</p> <p>Note: You need a working internet connection for this step.</p>	<pre>npm install -global @ui5/cli # Verify installation ui5 --help</pre>
<p>3. Clone the UI5 template project from GitHub and enter its directory</p>	<pre>git clone https://github.com/SAP/openui5- basic-template-app/ cd openui5-basic-template-app</pre>
<p>4. Let npm install the necessary dependencies.</p> <p>Note: Ignore all deprecation Warnings.</p>	<pre>npm install</pre>
<p>5. Run the local development server. Triggered by the <code>-o index.html</code>, argument a browser window should open showing the application.</p> <p>Note: The default URL of the server is: http://localhost:8080/index.html</p>	<pre>ui5 serve -o index.html</pre> 

Connecting to a Service

To illustrate how to connect to backend systems in this scenario, we are going to consume a publicly available demo service and show a list of directions in our app.

webapp/view/Home.view.xml

```
<mvc:View
  controllerName="sap.ui.demo.basicTemplate.controller.Home"
  displayBlock="true"
  xmlns="sap.m"
  xmlns:mvc="sap.ui.core.mvc">
  <Page
    id="page"
    title="{i18n>title}">
    <content>
      <List headerText="Directions">
        <StandardListItem/>
      </List>
    </content>
  </Page>
</mvc:View>
```

To be able to bind some data in your application, you start by adding a `sap.m.List` to your Home view. Start your editor, and open the `webapp/view/Home.view.xml` file. Add the yellow passages to the existing file.

webapp/manifest.json

```
{
  "_version": "1.12.0",
  "sap.app": {
    "id": "sap.ui.demo.basicTemplate",
    ...
    "ach": "ach",
    "dataSources": {
      "mainService": {
        "uri": "https://services.odata.org/V2/Northwind/Northwind.svc/",
        "type": "OData",
        "settings": {
          "odataVersion": "2.0",
          "localUri": "localService/metadata.xml"
        }
      }
    }
  },
  ...
  "sap.ui5": {
    "rootView": {
      "viewName": "sap.ui.demo.basicTemplate.view.App",
      "type": "XML",
      "async": true,
      "id": "app"
    },
    ...
    "models": {
      "i18n": {
        "type": "sap.ui.model.resource.ResourceModel",
        "settings": {
          "bundleName": "sap.ui.demo.basicTemplate.i18n.i18n"
        }
      },
      "data": {
        "type": "sap.ui.model.odata.v2.ODataModel",
        "dataSource": "mainService",
        "preload": true,
        "settings": {
          "useBatch": false
        }
      }
    }
  },
  ...
}
```

You now have a *list*, but no data is shown, because you haven't bound any values. Therefore you enhance your application by adding a model via the `manifest.json`. You have to define a `dataSource` first, which will then be used in the model's description.

The setting for `preload` optimizes the loading time of the model. `useBatch` is set to `false`, because the service doesn't support it. Normally, you should make use of batch calls, but this is explained in detail in another unit.

webapp/view/Home.view.xml

```
<mvc:View
  controllerName="sap.ui.demo.basicTemplate.controller.Home"
  displayBlock="true"
  xmlns="sap.m"
  xmlns:mvc="sap.ui.core.mvc">
  <Page
    id="page"
    title="{i18n>title}">
    <content>
      <List headerText="Directions" items="{data>/Regions}">
        <StandardListItem title="{data>RegionDescription}" />
      </List>
    </content>
  </Page>
</mvc:View>
```

Now add the data binding to the Home view.

proxy.js

```
var cors_proxy = require('cors-anywhere');

// Listen on a specific IP Address
var host = 'localhost';

// Listen on a specific port, adjust if necessary
var port = 8081;

cors_proxy.createServer({
  originWhitelist: [], // Allow all origins
  requireHeader: ['origin', 'x-requested-with'],
  removeHeaders: ['cookie', 'cookie2']
}).listen(port, host, function() {
  console.log('Running CORS Anywhere on ' + host + ':' + port);
});
```

You might have noticed that the app reports a technical error when you run it at this point in time. This is due to the browser blocking the CORS request. Therefore, you will introduce a CORS proxy, which will provide the network requests with the necessary CORS headers. Create a new script in the project folder which makes use of CORS Anywhere.

With this script, the proxy listens to `localhost:8081`. To learn more about the other settings, please refer to the CORS Anywhere documentation.

package.json

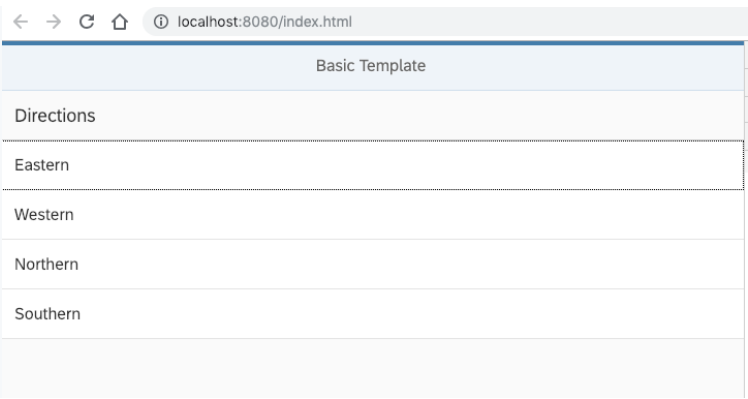
```
{
  "name": "openui5-basic-template-app",
  "version": "0.1.0",
  "description": "Best-practice starting point for building a freestyle app",
  "private": true,
  "scripts": {
    "start": "ui5 serve",
    ...
    "proxy": "node proxy.js"
  },
  ...
},
{
  "devDependencies": {
    "@ui5/cli": "^0.2.9",
    "chrome-headless-launcher": "^0.1.5",
    "cors-anywhere": "^0.4.1"
    ...
  }
}
```

The CORS Anywhere dependency needs to be declared in the `package.json`, and the new script needs to be declared there, to make it available as an `npm` command later on. Run `npm install` on the command line.

webapp/manifest.json

```
{
  "_version": "1.12.0",
  "sap.app": {
    "id": "sap.ui.demo.basicTemplate",
    ...
    "dataSources": {
      "mainService": {
        "uri":
          "http://localhost:8081/services.odata.org/V2/Northwind/Northwind.svc",
        "type": "OData",
        "settings": {
          "odataVersion": "2.0",
          "localUri": "localService/metadata.xml"
        }
      }
    }
  },
  ...
}
```

Finally, after you added the proxy's address to your service URI, you should start it and see it in action.

Explanation	Commands
1. Start the proxy in another terminal window, so both (server and proxy) are running.	<code>npm run proxy</code>
2. Switch to the browser window and refresh to see the list populated with data from the service. Note: If the <code>cors-anywhere</code> proxy doesn't work as expected and you still see the CORS technical error in the console, try to use a different proxy like <code>local-cors-proxy</code> .	

package.json

```
{
  "name": "openui5-basic-template-app",
  "version": "0.1.0",
  "description": "Best-practice starting point for building a freestyle app",
  "private": true,
  "scripts": {
    "start": "ui5 serve",
    ...
    "local-proxy": "lcp --proxyUrl https://services.odata.org/V2/Northwind/Northwind.svc/"
  },
  ...
  "devDependencies": {
    "@ui5/cli": "^0.2.9",
    "chrome-headless-launcher": "^0.1.5",
    "local-cors-proxy": "^1.0.2",
    ...
  }
}
```

Add the script and the dependency to the `package.json` file, and execute the command `npm install` again to install the new dependency. Now execute the command `npm run local-proxy`.

The proxy will start on port 8010.

webapp/manifest.json

```
{
  "_version": "1.12.0",
  "sap.app": {
    "id": "sap.ui.demo.basicTemplate",
    ...
    "dataSources": {
      "mainService": {
        "uri": "http://localhost:8010/proxy",
        "type": "OData",
        "settings": {
          "odataVersion": "2.0",
          "localUri": "localService/metadata.xml"
        }
      }
    }
  },
  ...
}
```

Follow the instructions on the terminal and replace your service `uri` with `http://localhost:8010/proxy`. Now you should see your *list* showing some data from the service

RELATED MATERIAL

- UI5 Tooling: <https://github.com/SAP/ui5-tooling>
- Node.js: <https://nodejs.org/en/docs>
- Git: <https://git-scm.com/docs>
- Visual Studio Code: <https://code.visualstudio.com>
- CORS Anywhere: <https://www.npmjs.com/package/cors-anywhere>
- local-cors-proxy: <https://www.npmjs.com/package/local-cors-proxy>
- [Demo Kit: Request Fails Due to Same-Origin Policy \(Cross-Origin Resource Sharing - CORS\)](#)

Coding Samples

Any software coding or code lines/strings ("Code") provided in this documentation are only examples and are not intended for use in a production system environment. The Code is only intended to better explain and visualize the syntax and phrasing rules for certain SAP coding. SAP does not warrant the correctness or completeness of the Code provided herein and SAP shall not be liable for errors or damages caused by use of the Code, except where such damages were caused by SAP with intent or with gross negligence.

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