Software Architecture Documentation

JRC – MYGEOSS app for Protected Areas/Sites Natura 2000

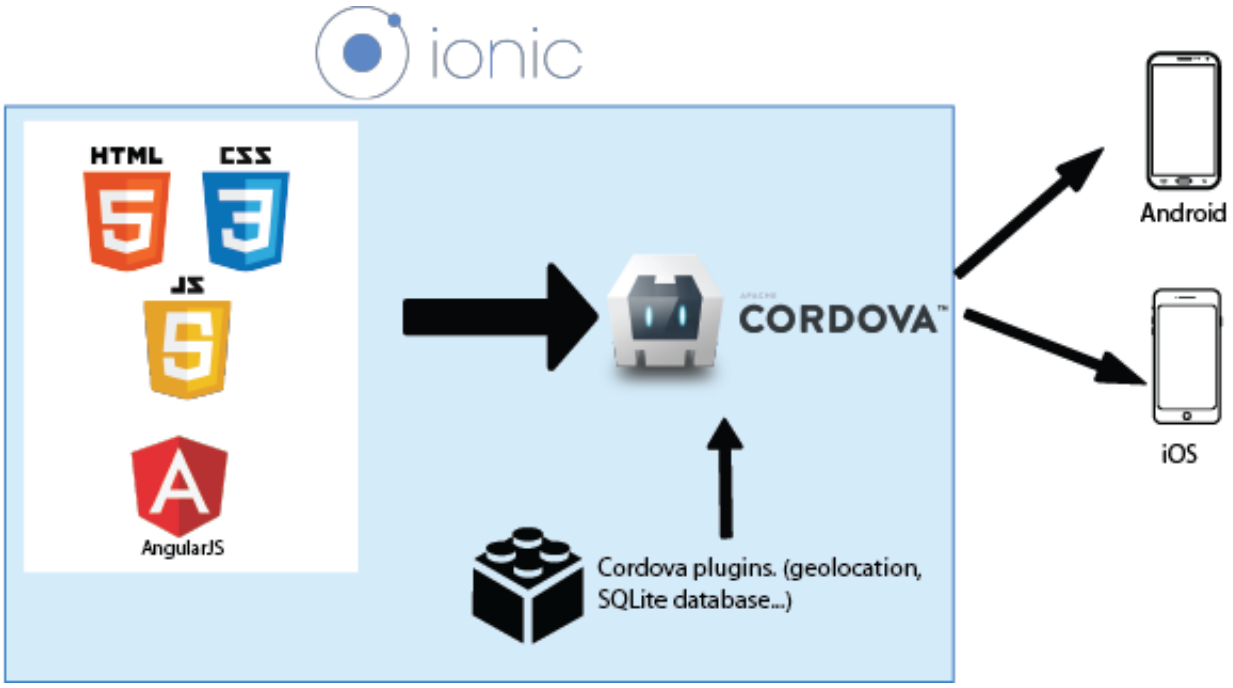
project 2016.2433

Table of Contents

1 Architecture View

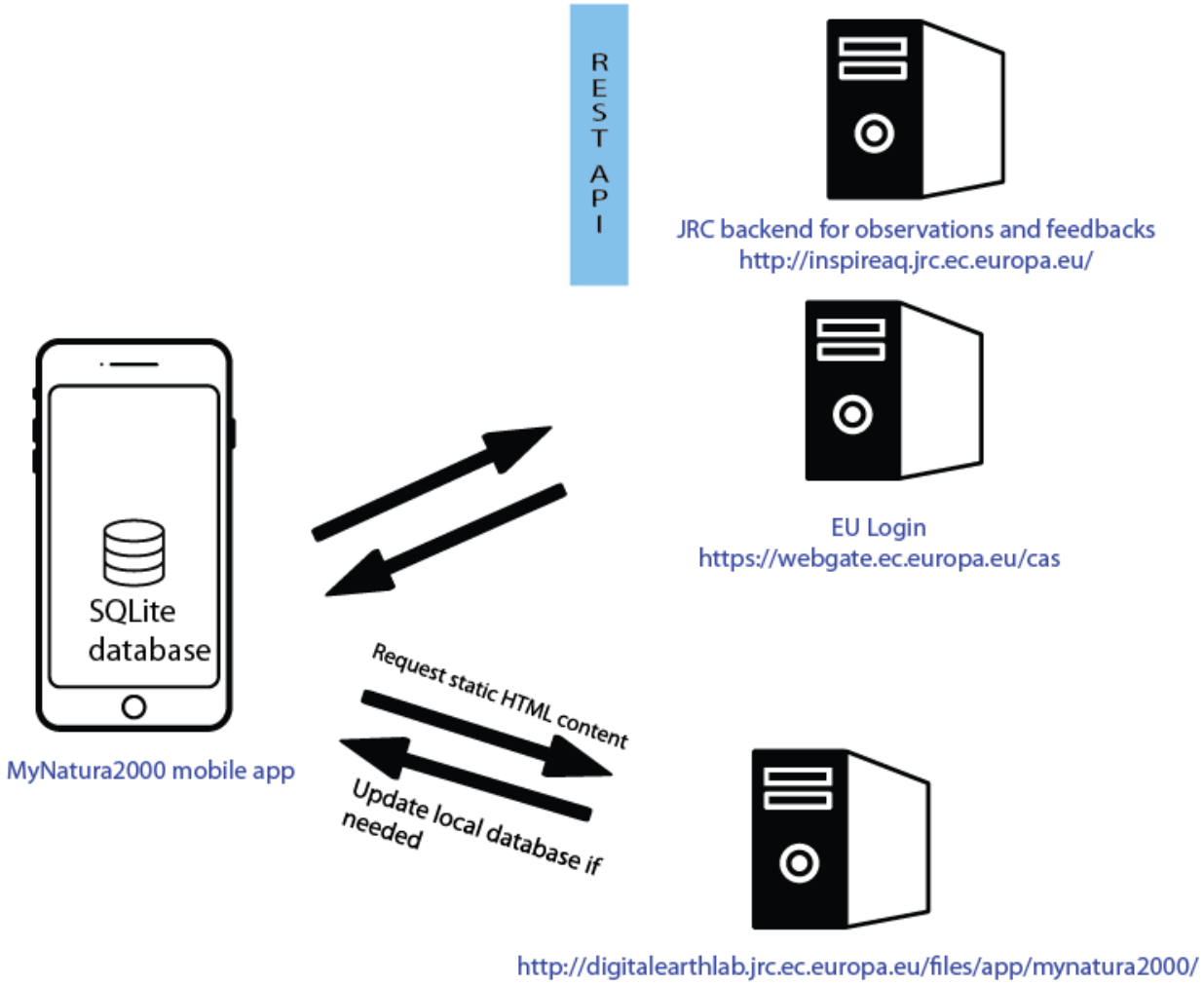
MYGEOSS app for Protected Areas/Sites Natura 2000 (MyNatura2000) is a hybrid mobile application for Android (≥ 4.4) and iOS (≥ 8) that also runs on tablets.

This application display information about some protected sites and users can send to a server some observations and/or overall feelings about that area.



Building hybrid mobile application with Ionic

Cordova and hybrid mobile applications use the native WebView of each platform to allow the use of standard web technologies. HTML5, CSS3, and AngularJS (JavaScript Framework) are therefore employed.



Different data sources

The application communicates with the JRC backend to send and retrieve different user's observations and general feelings about an area. http://inspireaq.jrc.ec.europa.eu/

Another JRC server is used to retrieve the HTML static content files. (like the about page and the Disclaimer…). The address is here: http://digitalearthlab.jrc.ec.europa.eu/files/app/mynatura2000/

The authentication is done using the EU Login (ECAS) web service. https://webgate.ec.europa.eu/cas

2 Client local SQLite database

Persistent data are managed using a local SQLite database.

2.1 Table Entry

This table is to store an user's entry / observation not yet sent to the server for further editing.

Label	Type	Description
Id (primary key, unique)	text	Unique identifier of the entry.

type	text	'0' or '1'. (Observation or overall feedback)
feedback	text	Only for type '1' Overall feedback: • '1': Positive • '0': Neutral • '-1': Negative
lat	text	Latitude coordinate
long	text	Longitude coordinate
date	text	Date of the report
comment	text	Comment field
picturetype	text	Only for type '0' Observation: '1': Landscape • '2': Species • '3': Threats
anonymous	text	"true" or "false

2.2 Table Statics

This is the static html content of the app. (About page, disclaimer...)

Label	Type	Description
name	text	Label id of the entry.
lang	text	Lang of the entry.
date	text	Date of the entry last update locally.
html	text	Html content of the entry.

2.3 Table Pics

This table is used to store the path of a picture linked to an observation.

Label	Type	Description
entry	text	Unique id of an observation.
data	text	Path of the picture.

2.4 Table User

This table store User information on the device.

Label	Type	Description
Id (primary key, unique)	integer	Unique identifier of the entry.

ICCID	text	ICCID information
ECASName	text	ECAS Name field returned by the ECAS plugin.
ECASmail	text	ECAS Mail field returned by the ECAS plugin.
ECASuniqueID	text	ECAS Unique ID field returned by the ECAS plugin..

3 Application

3.1 Technologies Used

This application is built using the IonicFramework. This framework use Cordova to create hybrid mobile applications and comes with a list of plugins to use the native functionality of the device. The applications are implemented as a browser-based WebView within the native mobile platform allowing it to use the common web technologies, more specifically HTML 5, CSS 3, and JavaScript.

Ionic also uses the Angular framework and provide a number of custom directives.

3.1.1 Apache Cordova v.6.2.0

Apache Cordova is a library that is used to create native mobile applications using Web technologies. The application is created using HTML, CSS, and JavaScript and compiled for each specific platform using the native tools of the platform. Cordova provides a standard set of JavaScript APIs to access device features on all supported platforms.

https://cordova.apache.org/

3.1.2 Ionic v.2.1.12

Ionic is a complete open-source SDK for hybrid mobile app development. Built on top of AngularJS and Apache Cordova, Ionic provides tools and services for developing hybrid mobile apps using Web technologies such as CSS, HTML5, and Sass. Applications can be built with these Web technologies and then distributed through native app stores to be installed on devices through the use of Cordova.

http://ionicframework.com/

3.1.3 Cordova platform iOS v.4.1.1

https://cordova.apache.org/docs/en/latest/guide/platforms/ios/index.html

3.1.4 Cordova platform android v.5.2.2

https://cordova.apache.org/docs/en/latest/guide/platforms/android/index.html

3.1.5 AngularJS v.1.4.3

AngularJS is a structural framework for dynamic web apps. It lets you use HTML as your template language and lets you extend HTML syntax to express your application components clearly and succinctly. Angular's data binding and dependency injection eliminates much of the code you would otherwise have to write, all from within the browser, making it an ideal partner with any server technology.

This is the core of the application.

https://angularjs.org/

3.2 Platform Requirements

iOS 8+, Android 4.4+, smartphones and tablets.

Access to features of the device:

- Access device storage
- Cellular network and WiFi
- Users geolocation

3.3 Deployment

The final deployment requires the publishing of the application on the Google app store and Apple app store. This is carried out by the Publications Office with information provided by the Author Service following the Publication Office document "*Guideline for mobile apps publishing on the European Union Accounts"*.

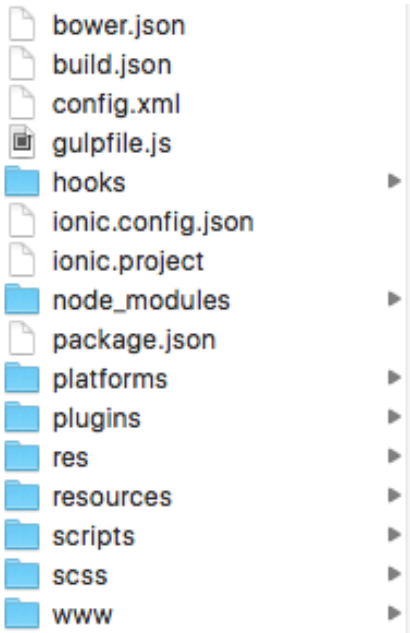
3.3.1 Folder Structure

We have two different structures. Cordova and Ionic provide one unique working directory (so both the iOS and Android versions use the same source code). The development code is inside the `www` folder. (More detail of this can be found in the *Programmers Manual*).

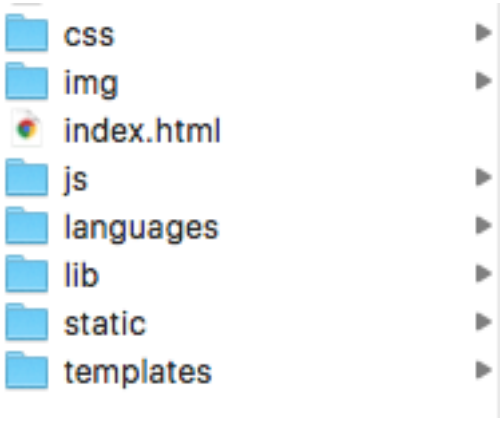
In the resources folder we find all of the icon and splash screen files, for the entire available platforms.

We use Sass to generate the CSS files.

The `config.xml` file contains all of the important information, such as the bundle ID and the version numbers of the applications. It contains the reference to the splash screen and icons for each platform, you can also find the platform version used and the list of plugin.

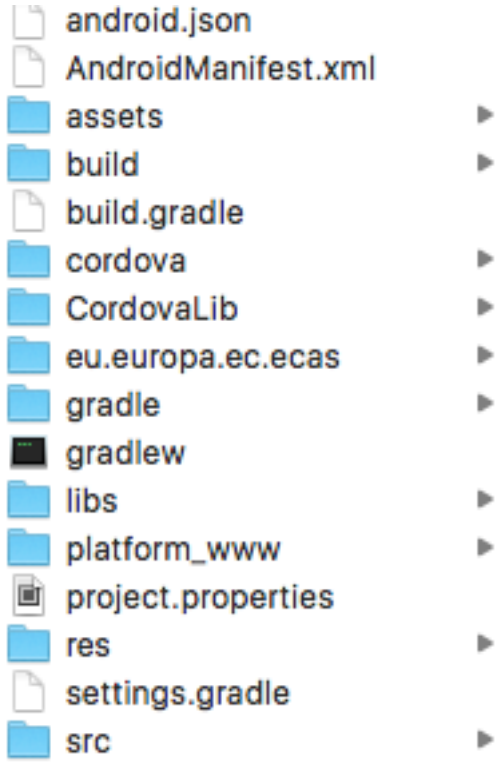


root directory

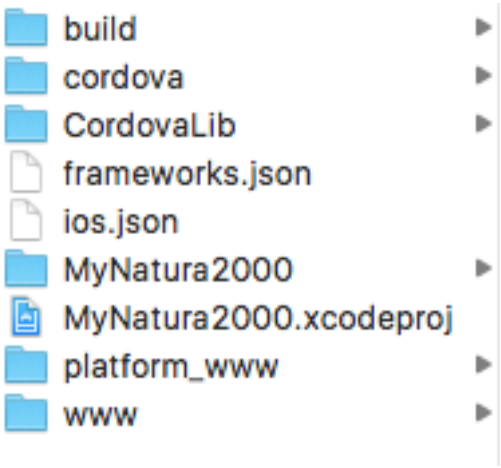


www directory

The code that is compiled to create hybrid app is inside the platform directory (Android and iOS). It is Cordova that generates these files, and they can be opened with Android Studio and Xcode, respectively. As a general rule we do not manage or change files in these directories. If a change is needed inside the platform folder, it will be mentioned inside the programmer manual.



Android platform



iOS platform

Further instructions on how to setup the development environment can be found in the Programmer Manual.

END OF DOCUMENT

EPUB_Lot1_MAN_2016.2433_SoftArc_v010