Small or medium-scale focused research project (STREP)

ICT SME-DCA Call 2013 FP7-ICT-2013-SME-DCA

### Data Publishing through the Cloud: A <u>Da</u>ta- and <u>P</u>latform-<u>a</u>s-<u>a</u>-<u>S</u>ervice Approach to Efficient Open Data Publication and Consumption

DaPaaS



## Data- and Platform-as-a-Service

Deliverable 3.2

## **Cross platform data delivery framework**

Date:	31 July 2014
Author(s):	Momchill Zarev
Dissemination level:	PU
WP:	3
Version:	1.0



### Document metadata

#### **Quality assurors and contributors**

Quality assuror(s)	Bill Roberts, Amanda Smith, Alex Simov
Contributor(s)	Dumitru Roman

### Version history

Version	Date	Description
0.1	July 01, 2014	Initial structure
0.2	July 14, 2014	Comments and improvements
0.3	July 20, 2014	Revised version with screenshots and descriptions
0.4	July 24, 2014	Internal review comments
0.5	July 29, 2014	Addressed internal review comments
1.0	July 31, 2014	Final improvements



### **Executive Summary**

The main goal of the DaPaaS project is to provide an integrated Data-as-a-Service (DaaS) and Platform-as-a-Service (PaaS) environment, together with associated services, for open and linked data, where 3rd parties can publish and host both datasets and data-driven applications that are accessed by end-user data consumers in a cross-platform manner.

This deliverable focuses on the preliminary prototype for the graphical user interface (GUI) of the DaPaaS Platform. The deliverable introduces the current prototype through a set of GUIs for various capabilities of the platform, with a particular focus on:

- Web interface to access data using various visualization mechanisms researched in D3.1;
- Web interface to manage publisher's data and datasets (for data publishers and application developers);
- Cross platform UI (Web-based) that can be accessed from both desktop browser and mobile devices;
- Analytics information of customer behaviour (track data views, time spent on the site, bounce rate, unique visitors, etc);
- Contact and feedback forms.

This deliverable presents the basic framework/prototype for the DaPaaS Platform GUI and does not include actual data at this time. The UI will be further refined during the course of the project.

### **Table of Contents**

E	XECU	UTIVE SUMMARY	. 3
T.	ABLE	E OF CONTENTS	. 4
L	IST O	DF FIGURES	. 5
1	IN	NTRODUCTION	. 6
2	U	I SCREENS AND WORKFLOWS	. 7
	2.1	DATA-DRIVEN PORTALS	. 7
	2.	1.1 Tabular View Widget	. 7
	2.	1.2 Bar Chart Widget	. 8
	2.	1.3 Line Chart Widget	. 8
	2.	1.4 Geodata Widget	. 9
	2.	1.5 Timeline Widget	10
	2.	1.6 Pie Chart Widget	11
	2.2	PLATFORM ANALYTICS	11
	2.3	RATINGS	12
	2.4	BROWSE PUBLIC DATASETS	13
	2.5	SIGN-IN / SIGN-UP	13
	2.6	MANAGE ASSETS	14
	2.7	Publish New Data	15
	2.8	CONTACT FORM	17
	2.9	CROSS PLATFORM DELIVERY	17
3	IN	NSTALLATION INSTRUCTIONS	20
	31	PREDECUISITES	20
	3.1	Ortaining the Source Code	20
	3.2	COMPILING THE SOURCE CODE	20
	3.4	CONFIGURATION	20
	3.5	DEPLOYMENT	20
	0.0		
4	SU	UMMARY AND OUTLOOK	21



## List of Figures

Figure 1: Table view	8
Figure 2: Bar chart widget	8
Figure 3: Line chart widget	9
Figure 4: Map view #1	9
Figure 5: Map view #2	10
Figure 6: Timeline widget	10
Figure 7: Pie Chart	11
Figure 8: Analytics	12
Figure 9: DaPaaS Platform homepage	13
Figure 10: Login Screen	14
Figure 11: Manage my assets	15
Figure 12: Add new dataset wizard	16
Figure 13: Dataset permissions settings	16
Figure 14: Contact form	17
Figure 15: Cross-platform access to the DaPaaS Platform via graphical interfaces	19

### 1 Introduction

This document represents supporting documentation for Deliverable D3.2 (Nature: Prototype) and addresses GUI requirements outlined in Deliverable D3.1<sup>1</sup>. The goals of this deliverable are to provide:

- A prototype of GUIs for different roles considered in DaPaaS (in particular end user data consumers and data publishers). The prototype is based on DaPaaS platform requirements outlined in Deliverable D3.1 and includes GUIs for uploading, managing and accessing data from the platform.
- Visualization widgets. The previous deliverable outlines major frameworks for data visualization and mandatory widgets. This prototype implements visualization widgets based on D3 JS library and DaPaaS requirements.
- Cross platform data delivery.
- Analytics information of customer behaviour (track data views, time spent on the site, bounce rate, unique visitors, etc).
- Contact and feedback forms.

Deliverable D3.1 outlined a set of requirements for visualization components. The tables below summarize how the current version of the prototype as of M9 addresses the requirements.

	In the	current version of the prototype
ID	Name	Brief description of how the current version of the prototype addresses the requirements.
IO-06	UI for Instance Opera- tor	The Instance Operator user interface is not part of this proto- type and shall be addressed later in the project when the back-end capabilities for the instance operator are made available.
DP-12	UI for Data Publisher	The Data Publisher graphical user interfaces are addressed in this prototype and different screens are described in this document, Sections 2.5, 2.6, 2.7, 2.8.
AD-07	UI for Application Developer	The Application Developer interfaces include all data publish- ing screens described in Sections 2.5, 2.6, 2.7, 2.8, and addi- tional screens for application management (to be addressed in the next phase).
EU-04	Mobile and desktop GUI access	The End-Users Data Consumers screens are addressed in the prototype and described in this document, Sections 2.1, 2.3, 2.4, 2.5, 2.8, 2.9.

## Table 1: Visualization requirements for DaPaaS Key Roles (D3.1) and how they are addressed in the current version of the prototype

<sup>&</sup>lt;sup>1</sup> <u>http://project.dapaas.eu/dapaas-reports/deliverable-31-analysis-requirements-design-architecture-specification-for-the-data-access-framework</u>



#### Table 2: Description of requirements for Visualization Types (D3.1) and how they are addressed in the current version of the prototype

ID	Name	Brief description of how the current version of the prototype addresses the requirements.
UI-01	Cross platforms and mobile support	As a result of research and analysis in Deliverable D3.1, UI is built based on D3 JS library for visualization, and jQuery JS library for communication and overall user interaction. Both libraries support cross platforms with extensive mobile support.
UI-02	Support for bar and column charts	Bar chart widget is implemented and described in Section 2.1.2.
UI-03	Support for line and area charts	Line chart widget is implemented and described in Section 2.1.3.
UI-04	Support for pie charts	The pie chart widget is implemented and described in Section 2.1.6.
UI-05	Support for scatter plots and bubble charts	Scatter plot widget is implemented.
UI-06	Support for tables	Table widget is implemented and described in Section 2.1.1.

Deliverable D3.1 outlined a set of libraries for visualization components (D3 and jqPlot) and overall UX development (jQuery and Dojo). Based on that evaluation, the prototype uses D3 JS library to implement visualization widgets and jQuery library for overall UI implementation and communication with backend.

This rest of the document provides a set of screenshots on how the implemented GUIs look like (Section 2), describes installation instructions for accessing and deploying the code for the prototype (Section 3), and outlines the focus for the next implementation phase (Section 4).

### 2 UI Screens and Workflows

### 2.1 Data-driven Portals

Data-driven portals are the main interaction point for the data uploaded to the DaPaaS Platform, where the publisher specifies how this data should be visualized. A data-driven portal is configured / generated by the data publisher and can contain different visualization widgets, as shown below.

### 2.1.1 Tabular View Widget

Tabular view displays data as a table with pagination, option to search/filter table content and browse content. Example for tabular view is displaying safety cameras in London:

## D3.2: Cross platform data delivery framework PU

## DaPaaS

Easting	Northing	Speed limit	Location	Fixed Camera Type
547750	400040	20mmla		Real Links
547752	100019	Sompri	- Valence Avenue - Decontree Avenue	
545310	185088	30mph	A124 Longbridge Road - Upney Lane	Red Light
549067	184517	20mph	A1240 Heathway - Church Elm Lane	Red Light
548860	183545	30mph	A1306 Ripple Road - Merrielands Crescent	Red Light
548987	185794	30mph	A1240 Heathway - Oxlow Lane	Red Light
547002	183623	40mph	A13 Ripple Road - Renwick Road	Red Light
550046	184204	30mph	B178 Ballards Road south of Boleyn Gardens	Speed Camera
550677	184245	30mph	Rainham Road South By Canberra Crescent E B (Omni) E+W	Speed Camera
550677	184245	30mph	A1112 Rainham Road South jw Canberra Crescent	Speed Camera
549292	183517	30mph	A1306 New Road By South Close	Speed Camera
543476	184240	50mph	A406 North Circular Road Inear A124 Slip Road	Speed Camera
548614	186874	30mph	Green Lane By Tenterden Road eb	Speed Camera
545813	185445	30mph	Longbridge Road By Malvern Drive North-East Bound (Dual System	Speed Camera
545056	183264	50mph	A13 Alfreds Way By Movers Lane Easbound Off Slip To Movers DE14	Average Speed Camera
545526	183414	50mph	A13 Alfreds Way By Movers Lane Easbound On Slip From Movers (E	Average Speed Camera
545660	183457	50mph	A13 Alfreds Way By By Saxham Road E16a	Average Speed Camera
547735	183584	50mph	A13 Ripple Road By Gale Street	Average Speed Camera

#### Figure 1: Table view

### 2.1.2 Bar Chart Widget

Bar charts can be used to compare data. In the example below, a bar chart has been used to show number of bicycle hires throughout London in the past 6 months:



Figure 2: Bar chart widget

### 2.1.3 Line Chart Widget

Line charts can be used to monitor trends or compare data. In the example below, the line chart shows public transport journeys in London:





### 2.1.4 Geodata Widget

This widget is used to display geo data on map, and supports different kind of map views, including integration with google maps or open street maps. It allows user interaction with map, zooming, panning, and click and explores locations.



Figure 4: Map view #1

D3.2: Cross platform data delivery framework PU



Figure 5: Map view #2

### 2.1.5 Timeline Widget

Timeline is useful to display events happing during time and relationship between these events. This kind of widget can show historical information, milestones during long term events and similar data.

• Ultra Rare Trax, Volume 5	Ultra Rare Trax, Volume 7: Emotion 2000 Remixes	Violated	
	• Useless	Violation 15	
	Ultra Rare Trax, Volume 8: Accapella Mixes	Venetian Dreams	
	Ultra: Remixes by ML Gee	Violator	
	Une Nuit a la Mode		
01 20	02 2003 20	04 2005	

#### Figure 6: Timeline widget

### 2.1.6 Pie Chart Widget

A pie chart is used to compare relatively different components, usually of the same type. This pie chart example demonstrates a visualization of buses by type in London.



Figure 7: Pie Chart

### 2.2 Platform Analytics

The prototype provides means to track user views (on datasets), bounce rate, time spent on the site, etc. Tracking is implemented using Google analytics.



## D3.2: Cross platform data delivery framework PU

Forware       Session         Avg. Session Duration and Pages / Session       0         Sogle Analytics       1,545         Internet Explorer       20         Dorner Mini       1         Dorner Mini <th>Sessions</th> <th>Sessions by Browser</th> <th></th>	Sessions	Sessions by Browser	
GoodeAnalytics 1,545 Internet Explorer 20 Chrone 13 Firefox 2 Nintendo 3DS Browser 1 Opera Mini 1 Bunce Rate 9 Bounce 8 Bounce 9 Bounce Rate 9 Bounce 8 Bounce 8 Bounce 9 Bounce 8 Bo	and the second	Browser Ses	sions
kry: Session Duration and Pages / Session Ary: Session Duration Pages / Session and a grad		GoogleAnalytics	1,545
Chrone 13 Firefox 2 Nittendo 3DS Browser Oper Mini <b>Bounce Rate Bounce Rat</b>		Internet Explorer	20
Fields 2 Number do 3DS Browser 1<		Chrome	13
Nintendo 3DS Browser   Avg. Session Duration and Pages / Session   0002   0003   0003   0004   0005   0005   0006   0007		Firefox	2
Opera Min 1      Opera Min <		Nintendo 3DS Browser	1
		Opera Mini	1
1 121     Avg. Session Duration Pages / Session     0000 0   0001 0   001 0	and the second		
Avg. Session Duration and Pages / Session 0.03 0.02 0.01 0.02 0.01 0.02 0.01 0.02 0.01 0.02 0.01 0.02 0.01 0.02 0.01 0.02 0.01 0.02 0.01 0.02 0.01 0.02 0.01 0.02 0.01 0.02 0.01 0.02	1 1.221	Bounce Rate	
Avg. Session Duration Pages / Session 0.03 0.02 0.01 0.02 0.01 0.02 0.01 0.02 0.01 0.02 0.01 0.02 0.01 0.02 0.01 0.02 0.0		Bounce Rate	
Avg. Session Duration and Pages / Session 0:03 0:02 0:02 0:01 0:02 0:01 0:02 0:02 0:01 0:02 0:02 0:01 0:02 0:01 0:02		6.00%	
<ul> <li>Avg. Session Duration</li> <li>Pages / Session</li> <li>0:02</li> <li>0:02</li> <li>0:01</li> <li>0:02</li> <li>0:01</li> <li>0:02</li> <li>0:01</li> <li>0:02</li> <li>0:01</li> <li>0:02</li> <li>0:01</li> <li>0:02</li> <li>0:02<td>Avg. Session Duration and Pages / Session</td><td>-</td><td></td></li></ul>	Avg. Session Duration and Pages / Session	-	
00:02 00:02 00:02 00:01 0 0 Coll Completions 1 0 0 1 0 1 0 1 0 1 1 0 1 1 0 1 1 1 1 1 1 1 1 1 1 1 1 1	Avg. Session Duration     Pages / Session	3.00%	
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	00:03 1		
0001       0	00:02		
Jun 22       Jun 29       Jul 6       Jul 13         Goal Completions <ul> <li>Revenue</li> <li>\$1.00</li> <li>\$000</li> <li>Jun 22</li> <li>Jun 29</li> <li>Jul 6</li> <li>Jul 13</li> </ul> <li>Jun 22</li> <li>Jun 29</li> <li>Jul 6</li> <li>Jul 13</li>		Jun 22 Jun 29 Jul 6 Jul 13	
Jun 22     Jun 29     Jul 6     Jul 13       Goal Completions     I     Revenue       1     0     3000			
Goal Completions         • Goal Completions         1         0         Jun 22       Jun 29         Jul 6         Jul 13	Jun 22 Jun 29 Jul 6 Jul 13	Revenue	
Goal Completions         1         0         Jun 22       Jun 29         Jul 8		Revenue	
• Goal Completions         \$0.00           1         Jun 22         Jun 29         Jul 13	Goal Completions	\$1.00	
1 0 Jun 22 Jun 29 Jul 6 Jul 13	Goal Completions	-	
Jun 22 Jun 29 Jul 6 Jul 13	1	\$0.00	
Jun 22 Jun 29 Jul 6 Jul 13			
	•_• • • • • • • • • • • • • • • • • • •	Jun 22 Jun 29 Jul 6 Jul 13	
lun 22 lun 29 lul 6 lul 43	lun 22 lun 20 lui 6 lui 42		

Figure 8: Analytics

### 2.3 Ratings

The prototype provides users with ability to rate datasets, by specifying one (lowest) to five (highest) star rating. Based on user rating, a list of the highest rated datasets available on the platform can be shown, therefore boosting better data content to the users.



Please rate us ◎★★★★★ Good

### 2.4 Browse Public Datasets

APAAS				Search	Q	s	ign up	Login C
atest datase	te			Popular data	sots			
Dataset	User	Published	Portal	Dataset	User	Published		Portal
y data	Peter	Jan-2014	http://portal1.dapaas.eu	My data	Peter	Jan-2014	http://p	ortal1.dapaa
anda population	John Smith	Dec-2013	http://portal2.dapaas.eu	Uganda population	John Smith	Dec-2013	http://p	ortal2.dapaa
countries debt	Jessica	Nov-2013	http://portal3.dapaas.eu	EU countries debt	Jessica	Nov-2013	http://p	ortal3.dapaa
rex rates	Brown	2012	http://portal4.dapaas.eu	Forex rates	Brown	2012	http://p	ortal4.dapaa
	:	1 of 5	>		1	of 5		
uery datase	ts			Title				
fix dapaas: <http:\\d< td=""><td>)aPaas.eu\resou</td><td>rces\&gt;</td><td></td><td>Name / Job ti</td><td>tle Ag</td><td>e Nickr</td><td>name</td><td>Employ</td></http:\\d<>	)aPaas.eu\resou	rces\>		Name / Job ti	tle Ag	e Nickr	name	Employ
				Giacomo Guilizz Founder & CE	oni 37 O	Pe	ldi	0
				Marco Bottor Tuttofare	34			۷
				Mariah Maclach Better Half	lan 37	Pat	ata	
				Valerie Libert Head Chef	:)	Va	al	۷
					1	of 5		



#### Figure 9: DaPaaS Platform homepage

The capability for a user to browse public data is on the homepage of the DaPaaS public portal. This screen provides the following functionality:

- View most popular / highest ranked datasets. Browse the list of most popular datasets, view data driven portals.
- View latest uploaded public datasets. Browse the list of latest datasets, view data driven portals.
- Search datasets based on keywords.

### 2.5 Sign-in / Sign-up

To be able to use most of the functionality of the DaPaaS platform, users need to be registered. The key roles supported by DaPaaS are described in Deliverable 3.1 and they define access level of the registered user, where next level accumulates permissions and functionalities of previous levels.

The first key role is End-User Data Consumer (Data Explorer) which can browse data on the platform, subscribe for notifications, and provide ratings. The next key role is Data Publisher which extends Data Consumer role with ability to publish data. Application developer has ability to publish applications beyond data publisher functionalities.

The sign-in/sign-up process supports several methods for registration and login using different authentication providers:

- Sign-in/Sign-up using Facebook account
- Sign-in/Sign-up using Google+ account
- Sign-in/Sign-up using username and password



Real names	Role	Login with username & password
-mail	<ul> <li>Publisher</li> </ul>	Username
Jsername	<ul> <li>Application developer</li> </ul>	Password
Password		Login
		Or login with social account
	Sign up with Facebook	Login with Facebook
Sign up	Sign up with Google+	Login with Pacebook



#### Figure 10: Login Screen

#### 2.6 Manage Assets

After login, data publishers are redirected to manage their assets screen, where private and shared datasets are shown. This screen provides the following functionality:

- Browse their own and shared datasets -
- Search datasets -
- Filter datasets based on popularity or latest -
- Edit the metadata for datasets and modify data-driven portal properties (widgets) -
- Delete datasets \_
- Upload/propose modifications to shared datasets -
- Create new datasets and upload data -

DAPAAS	N	Manage my assets	s Add new dataset B	rowse public catalogs
My dataset catalog	🗂 to		🛱 search	Q
Dataset		Date	Portal	Actions
My data This is example dataset that i use to create my data driven portal		Jan-2014	http://portal1.dapaas.eu	Edit   Delete
Uganda population		Dec-2013	http://portal2.dapaas.eu	Edit   Delete
EU countries debt		Nov-2013	http://portal3.dapaas.eu	Edit   Delete
Forex rates		2012	http://portal4.dapaas.eu	Edit   Delete
Datasets shared with me				
Dataset		Date	Portal	Actions
My data		lan-2014	http://portal1.dapaas.eu	Edit   Delete
This is example dataset that i use to create my data driven portal		5411-2014	http://portaii.dapaas.eu	<u>Eur   Delete</u>
Uganda population		Dec-2013	http://portal2.dapaas.eu	Edit   Delete
EU countries debt		Nov-2013	http://portal3.dapaas.eu	Edit Delete
Forex rates		2012	http://portal4.dapaas.eu	Edit   Delete



Terms of use Privacy policy Co

DaPaaS is co-founded by the European Commission under the Seventh Framework Programme (FP7 2007-2013)

#### Figure 11: Manage my assets

### 2.7 Publish New Data

The data publishing process is implemented using wizard UI, where the publisher is lead one step after another to import their data into the platform. The process involves several steps:

- Step 1: Provide metadata. Metadata contains of information about the new dataset. This includes properties such as dataset name, description, source of data, original publisher, etc.
- Step 2: Upload data files and optional mapping. In the final version the system shall support processing data from the following files: CSV, XLS, XLSX, PDF, and RDF.
- Step 3: Explore data search, browse, etc.
- Step 4: Interlink data with other data already available on DaPaaS platform.
- Step 5: Dataset permissions. The publisher can specify whether the dataset is publicly available or private data accessible to only predefined users.
- Step 6: Create data driven portal for the given dataset. Publishers can select widgets that will be included in the portal and configure each widget to use excerpt from datasets.

DAPAS	
Step 1: Dataset properties	
Dataset name           Description           Source           Publisher	Dataset name Description Source Dublicher
Step 2a: Upload your data	Step 2b: Data mapping
Publisher can upload various types of data format, CSV, XLS, XLSX, PDF, RFD, etc	If the data requires additional metadata, such as RDF mapping, it should be provided on the second step. The server should determine whether additional metadata is needed or user can be load directly to the next step.
Upload data Select file Browse Upload	Upload metadata
Or select public data to clone into DaPaaS Enter URI	Cor select from the web Enter URI Clone
	Next >>
DAPAAS DAPAAS DaPaaS is co-founded by the European Commission	Terms of use Privacy policy Cookie policy under the Seventh Framework Programme (FP7 2007-2013)
Figure 12: Add ı	new dataset wizard

### **Step 5: Permissions**

#### Dataset type

- Open data everyone can read, changes are moderated
- Private data, only these users can read and modify data (modify is not moderated)

user1@dapaas.eu user2@dapaas.eu user3@dapaas.eu Step 6: Pc	ortal				
URL Http://		.DaPaaS.eu			
Content	tabular view       pie chart       iine chart       add new content	Configure Configure element			Publish
DAPAAS DaPaaS is co-fou	unded by the Europ	ean Commission under	Terms of use the Seventh Framewo	Privacy policy rk Programme (F	Cookie policy P7 2007-2013)

#### Figure 13: Dataset permissions settings



### 2.8 Contact Form



#### Contact us

Thank you for your interest in DaPaaS. We'd love to hear from you.

Please send us an email and let us know what we can do for you, and we will contact you promptly.

#### Name \*

E-mail *		
mail@example.com		

Message \*

* indicate	s a requ	ired fie	d	

Send



Figure 14: Contact form

Contact form is a standard way to receive user feedback. The platform provides means to manage user requests for contact and respond back.

### 2.9 Cross Platform Delivery

Data browsing and data driven portals are viewable across screens, supporting different resolutions, desktop browsers, tablets and mobile browsers, as depicted below.

	<b></b>	4:07 PM		· · · · ·	0% 💼 🕫
	Please rate u	Data Driven porta	com ມ	СЦС	+
Relea	ises				
	<>: 1/165 >Y		PFilter		
	Release	Tracks	play tim	e in minutes	
Personal Jesus		8	41.8		
A Broken Fram	e	10	40.9		
A Broken Fram	e	11	47.1		
Construction T	me Again	10	42.5		
Construction T	me Again	10	42.5		

•••••• Mtel 🗢						da	4 paas.c	:07 PM	xt.com	1					Ċ		80	% <b>■</b> ≁	
8							Data D	Driven po	ortal										
Line ch	nart																		
1.3 E 1.2 k 1.1 k 1.0 k 900 800 700 600 500 800 700 600 500 800 700 600 500 800 700 600 500 800 700 600 500 800 700 600 500 800 700 800 700 800 700 800 700 800 700 800 700 800 700 800 700 800 700 800 700 800 700 800 8	- Tell	The Singles 86>90	Remixes 8104 (disc 3)	Joek Branding, Volume 3	Razdrmaid! The Customize Series II	The Best Of (DVD)	The Remixes, Volume 3	Tour of the Universe: Barcelona 20/21.11.09	A Pain That I'm Used To	DJ Mix, Volume 3	John the Revelator	Protac Nation 2	2009-06-30: Tour of the Universe: Copenhage	Tout of the Universe: Barcelona 20/21.11.09 (dis-	Remixes 2: 81–11	2010-02-17: Concert for Teenage Cancer Trust:	Exciter Remixes		
Мар																			
							-	7	9	Londo	F			5	L.				



Figure 15: Cross-platform access to the DaPaaS Platform via graphical interfaces.

### 3 Installation Instructions

The UX layer runs as standard Web application and is distributed as a Web application ARchive (WAR) file, which is uploaded on compliant Web application servers. The following instruction assumes Tomcat Web application server running on Linux environments.

### 3.1 Prerequisites

- OS supporting Java and Tomcat container
- Java runtime environment 1.6+
- Tomcat application server 7+

### 3.2 Obtaining the Source Code

The source code can be obtained from DaPaaS project GITHUB repository located at:

```
https://github.com/dapaas/ui-prototype
```

The following command retrieves source code from the repository:

# git clone https://github.com/dapaas/ui-prototype

### 3.3 Compiling the Source Code

The source code can be compiled using ant build system, or any IDE that support building WAR, such as Eclipse or similar.

To build package from ant, navigate to the project source and execute from command line:

# ant war

To build from Eclipse, import project into eclipse and chose auto-build project, or manually select from project menu "Build project".

### 3.4 Configuration

Configuration options are located in source>/WebContent/WEB\_INF/web.xml. This xml file contains several context properties as described below:

- googlePlusClientId application ID used for Google+ authentication
- googlePlusClientSecret API key used for Google+ authentication
- additionalPermissions permissions for accessing user profile. Should contain at least access to profile and email
- FBClientId application ID used for Facebook authentication
- FBClientSecret API key used for Facebook authentication

### 3.5 Deployment

The war file with compiled code and configuration should be deployed using standard application contained means. For Tomcat this means using Tomcat manager to deploy war file, or if enabled hot deploy, copy war file to tomcat/webapps/demo folder.

### 4 Summary and Outlook

This document provided an overview of the current prototype of UX Layer of the DaPaaS platform, outlined a set of screens and workflows for the UX Layer from the perspective of users, and the visualization widgets the platform supports, as of M9. Following the technology evaluation during prototype development, the following remarks are to be considered for the next version of the UX Layer implementation, with a particular focus on the Platform Layer:

- The UI should provide means for visual data exploration (for graph data in RDF). After uploading and RDF-izing data the user should be able to browse/explore RDF data with visual tools. The followings are tools-implementations currently considered for this task: Visual RDF<sup>2</sup>, D3 graph map<sup>3</sup>, LOD Live<sup>4</sup>, Payola<sup>5</sup>.
- In order to allow users to work with UI without technical knowledge of SPARQL queries, it would be beneficial to provide visual query builder as alternative of direct SPARQL query writing.

Besides the visual support for RDF data exploration/querying, GUIs for DaPaaS components will be built once the components become available. Specifically, GUI components addressing requirements AD07 and IO-06 will be considered.

<sup>&</sup>lt;sup>2</sup> <u>http://graves.cl/visualRDF/</u>

<sup>&</sup>lt;sup>3</sup> <u>http://nylen.tv/d3-process-map/graph.php?dataset=les-mis</u>

<sup>&</sup>lt;sup>4</sup> http://en.lodlive.it/

<sup>&</sup>lt;sup>5</sup> https://payola.github.io/Payola/