

Document Title EAGLE OER Learning Platform Deliverable Nature P Dissemination level PU Version 1.0

## EAGLE EnhAnced Government Learning

www.fp7-eagle.eu

FP7-ICT-2013-11

Objective 8.2 Technology-enhanced learning;

Target outcome c): Holistic learning solutions for managing, reaching and engaging learners in the public administrations

Deliverable D5.6

## **EAGLE OER Learning Platform**

WP 5 – OER Learning Platform Development Lead Participant: Fraunhofer FOKUS

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Document Title EAGLE OER Learning Platform

## **Table of Contents**

1	LIST	OF FIGURES	11
2	GLOS	SSARY	. IV
3	SOFT	WARE DETAILS	5
4	INST	ALLATION GUIDE	6
	4.1	EAGLE Platform and Portal	6
	4.1.1	General Prerequisites	6
	4.1.2	Configurations	6
	4.1.3	Installation and Deployment Steps	7
	4.2	EAGLE Knowledge Base	. 10
	4.2.1	General Prerequisites	10
	4.2.2	Configurations	11
	4.2.3	Installation and Deployment Steps	13
	4.3	EAGLE AIG Tool	. 15
	4.3.1	General Prerequisites	15
	4.3.2	Installation and Deployment Steps	16
	4.4	EAGLE Process Maps and Argumentation Tool	. 17
5	DEVE	ELOPER GUIDELINES	.18
	5.1	EAGLE Portlet development	. 18
	5.2	EAGLE Knowledge Base Development	. 46
	5.3	EAGLE AIG Development	. 51
	5.4	EAGLE Process Maps and Argumentation Tool Development	. 52
6	REFE	RENCES	.53
ΑΡΙ	PENDI	X 1 – RESOLVING GIT CONFLICTS WITH EGIT	54



Document Title EAGLE OER Learning Platform Deliverable Nature P Dissemination level PU Version 1.0

# 1 List of Figures

Figure 1: EAGLE Portal Liferay Configurations	
Figure 2: EAGLE Portal - Public Pages and Theme Setup	8
Figure 3: EAGLE Liferay Organization Management	8
Figure 4: EAGLE Portal - Liferay Site Membership	9
Figure 5: EAGLE Portal - Portlets Deployment	9
Figure 6: Liferay Marketplace	10
Figure 7 KiWi Storage Backend Configuration	11
Figure 8 Marmotta Core Configuration	12
Figure 9: Search Core Configuration	13
Figure 10 Eclipse Workspace	18
Figure 11: Eclipse Preferences	19
Figure 12 Preferences dialog box	
Figure 13: JRE Type	20
Figure 14: JRE definition	20
Figure 15: Installed JREs	21
Figure 16: Help > Install New Software	21
Figure 17: Open Add Site Dialog	
Figure 18: Add Liferay update site	
Figure 19: install Liferay IDE	
Figure 20: Liferay installation details	
Figure 21: Accept license terms	
Figure 22: Liferay IDE installation confirmation	
Figure 23: Installed Plugin SDK View	
Figure 24: Add Liferay Plugin SDK	
Figure 25: Installed SDK	
Figure 26: Server Runtime Environment View	
Figure 27: Select Server	
Figure 28: Liferay Tomcat Directory Location	
Figure 29: Add Vaadin Update Site	
Figure 30: Select Vaadin Software	
Figure 31: Vaadin Review License	
Figure 32: Help > Eclipse Marketplace	
Figure 33: Resource Builder Editor	
Figure 34:Installing Resource Builder Editor	
Figure 35: Agree to License Agreement	
Figure 36: Clone Git Repository	
Figure 37: Source Repository Location	
Figure 38: Branch Selection	
Figure 39: Select Local Directory	
Figure 40: Cloned Repository	
Figure 41: Import Dialog Box	
Figure 42: Maven Category	
Figure 43: Maven Projects from Selected Directory	
Figure 44: Add Working Set Name	
Figure 45: Package Structure	
Figure 46: Right click > New > Other.	
Figure 47: Select Maven Project	



#### Document Title EAGLE OER Learning Platform

Deliverable Nature P Dissemination level PU Version 1.0

Figure 48: New Maven Project	43
Figure 49: Select Architype	43
Figure 50: Archetype Properties	44
Figure 51: Project Structure	45
Figure 52: Liferay Portal View	45
Figure 53: EAGLE KB Architecture Overview	46
Figure 54: Import Maven Projects	47
Figure 55: EAGLE Knowlege Base Workspace	47
Figure 56: Run Configuration	48
Figure 57: EAGLE Knowlege Backend Module creation	49
Figure 58: EAGLE Knowlege Backend Module Archetype selection & configuration	49
Figure 59: EAGLE Knowledge Backend Module Structure	50
Figure 60: Admin Section of the created EAGLE Module	51
Figure 61: Always start with Synchronize Workspace	54
Figure 62: If there are conflicts, it would be shown as follows	55
Figure 63: Go back to the conflicting resource in the Package View, and click Commit	56
Figure 64: Commit the changes locally	57
Figure 65: Click Merge on the project holding the conflicting resource	58
Figure 66: Click Merge	59
Figure 67: Merge Result	59
Figure 68: You will be shown conflicts like this	60
Figure 69: Open the merge tool on the conflicting file	61
Figure 70: Manully merge the conflicts	62
Figure 71:After manully merging, add the file to the index	62
Figure 72: Finally commit the resource	63
Figure 73: Commit and Push to remote repository	64
Figure 74: Conflict Resolution End Result	



Document Title EAGLE OER Learning Platform Deliverable Nature P Dissemination level PU Version 1.0

# 2 Glossary

FP7	Seventh Framework Programme
EC	European Commission
EAGLE	EnhAnced Government Learning
EU	European Union
WP	Work Package
OSGi	Open Service Gateway Initiative
RAP	Remote Application Platform
EMF	Eclipse Modeling Framework
MDE	Model Driven Engineering
LOM	Learning Object Meta-data
OER	Open Educational Resource
НСМ	Harvester Control Module
JDK	Java Development Kit
ETL	Extract Transform Load
SWORD	Simple Web-service Offering Repository Deposit
OAI-PMH	Open Archives Initiative - Protocol for Metadata Harvesting
FTP	File Transfer Protocol
DC	Dublin Core



Document Title EAGLE OER Learning Platform

## **3 Software Details**

Title of the Software	EAGLE OER Learning Platform
Version	1.0
Release Date	29 July 2016
Relevant Licenses	GNU General Public License (GPL) Apache License 2.0 Eclipse Public License (EPL) v1.0
Programming Languages	Java, HTML, CSS, Velocity, GO, SPARQL
Source code	https://git.list.lu/groups/eagle
Developers	Arun Prakash, Dietmar Glachs, Juhi Gaba, Eric Tobias, Horst Friedrich, Thomas-Frederick Gordon



Document Title EAGLE OER Learning Platform

## 4 Installation Guide

The following instructions have been prepared to guide developers and IT professionals with installation, deployment and development the EAGLE OER Learning Platform (henceforth EAGLE Platform).

### 4.1 EAGLE Platform and Portal

#### 4.1.1 General Prerequisites

The EAGLE Platform is built on Liferay which is a free and open source portal platform distributed under LGPL. The Liferay portal is built largely on Java, with the portlets conforming to both JSR 168 (Portlet Specification 1.0) and JSR 286 (Portlet Specification 2.0) standards. Experimental support for JSR 362 is available. Additionally, knowledge of JavaScript, Velocity, Freemaker scripting languages, HTML and CSS are required for developing and customizing the Liferay portal. Vaadin is used as the primary framework for developing EAGLE specific portlets. Vaadin is a Java based WebApps framework.

The following software is required as prerequisite for building, installing and running the EAGLE platform

- Java version JDK 1.8u92
- Git distributed version control system.
- m2e Maven for Eclipse for Development
- For deployment any machine that supports Liferay deployment (Linux 64-bit is preferable)
  - Machine Requirements
    - No. of CPUS # 4
    - o RAM Memory: Minimum 8GB
    - Hard disk: Minimum 20GB

#### 4.1.2 Configurations

All configurations for the EAGLE (Liferay) portal are available in the master branch of the *portal* repository, <u>https://git.list.lu/eagle/portal/tree/master/eu.fp7.eagle.portal.liferay.config.</u>

eu.fp7.eagle.portal.liferay.config
config
portal-ext.properties
web.xml
content
content<

Figure 1: EAGLE Portal Liferay Configurations

The configurations are structured as shown in the



Document Title EAGLE OER Learning Platform

Figure 1, and consists of both the server side configurations, such as the *web.xml* and *portal-ext.properties* and also the individual static web content deployed on the various pages of the portal. The content are classified according the page they belong. Additionally, individual page templates and profile templates are also available.

### 4.1.3 Installation and Deployment Steps

#### **Download & Extract**

Download the copy of the Liferay Portal Tomcat bundle (version 6.2.5 GA6) from: <u>https://sourceforge.net/projects/lportal/files/Liferay%20Portal/6.2.5%20GA6/.</u> You may also choose other server bundles of your choice. Liferay v6.2.5 GA6 also come with tomcat, jetty, jboss and glassfish server bundles. Extract the server to the location of your choice.

#### **Configure**

Copy the portal-ext.properties and web.xml to ../liferay-portal-6.2-ce-ga6/ and ../liferay-portal-6.2-ce-ga6/tomcat-7.0.62/webapps/ROOT/WEB-INF respectively.

Liferay comes built in with the default HSQL database. The Liferay documentation explains that this data base is not for production use but only for demo purposes. The steps required for the configuration of the Liferay database is provided here: <u>https://web.liferay.com/de/community/wiki/-/wiki/Main/Database+Configuration</u>

Liferay supports the use of SMTP server in order to send emails. The steps required to step up SMTP server to work with Liferay is provided here: <u>https://web.liferay.com/de/community/wiki/-/wiki/Main/SMTP+Setup</u>

Liferay also supports the use of SSL for securing the data communication between the client and server. The steps required to configure SSL for your EAGLE portal are provided here:

https://web.liferay.com/de/community/wiki/-/wiki/Main/How+to+configure+https+feature

and

https://web.liferay.com/de/web/meera.success/blog/-/blogs/liferay-portal-ssl-configuration

#### **Deployment**

- 1. Copy the hook from /eu.fp7.eagle.portal.liferay.config/hook/ to the to ../liferay-portal-6.2-cega6/deploy folder
- 2. Copy the theme and layout from /eu.fp7.eagle.portal.liferay.config/theme/ and /eu.fp7.eagle.portal.liferay.config/layout/ to ../liferay-portal-6.2-ce-ga6/deploy folder.
- 3. Copy the latest version of the Profile page template (Profile-<timestamp>.lar) from eu.fp7.eagle.portal.liferay.config/pages/ to the ../liferay-portal-6.2-ce-ga6/deploy folder.
- 4. Start the Liferay server and login with the default admin credentials.
- 5. Under the Site Administration page, import the latest version of the EAGLE Public Pages (Eagle\_Public\_Pages-<timestamp>.lar) from eu.fp7.eagle.portal.liferay.config/pages/.
- 6. Apply the EAGLE theme.



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Document Title EAGLE OER Learning Platform

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#### FIGURE 2: EAGLE PORTAL - PUBLIC PAGES AND THEME SETUP

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es (2)

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• In

7. From the Control Panel, add the organization structure. More information regarding Liferay's organization management can be found here: <u>https://web.liferay.com/de/community/wiki/wiki/Main/Working+with+Organizations+and+Locations</u>

	+ Add - Export Users						Q. Keywords	Search	
	iete.								
ī	Name	Parent Organization	Туре	a City	Region	Country			
8	Administrative Organisation	EAGLE Ireland	Regular Organization				🔹 🥜 Actions		
3	City Administration	EAGLE Ireland	Regular Organization				🔹 🥜 Actions		
1	County Council	EAGLE Ireland	Regular Organization				🔹 🥜 Actions		
1	EAGLE Ireland		Regular Organization				• 🥜 Actions		
i	EAGLE Reviewer		Regular Organization				🔹 🥜 Actions		
1	EAGLE Team		Regular Organization				• 🥜 Actions		
							+- First Previous	Next Last	
<sup>2</sup> 9	ge 1 of 1 • 20 Items per Page • Showing 6 results.						- Filst Previous	Last -	1

#### FIGURE 3: EAGLE LIFERAY ORGANIZATION MANAGEMENT

8. Then go back to Site Administration > Users > Site Memberships and add all the organizations that you have created in previous step to the Eagle portal site. It is enough to add the root / parent organizations. All child organizations and users in each organization are then automatically added to the site.



#### Document Title EAGLE OER Learning Platform

Eagle Ireland - / Site	Administration				Admin 👻 My Sites 👻 0		
		Site Memberships					
iges	>	+ Add Members + + Add Site Roles to					
ontent Jers	>						
Sile Memberships		Summary Users Organizations User Gr					
Sile Teams		Q. Keywords Search					
nfiguration							
		Assign Users					
		Page 1 of 2• 20 Items per Page• Showing 1	- 20 of 25 results.		First Previous Next Last-		
		Name	Screen Name	a Site Roles and Teams			
		Violeta Damjanovic-Behrendt	violeta.damjanovic		• 🧬 Actions		
		Horst Friedrich	horst.friedrich		• J Actions		
		Juhi Gaba	juhi gaba		- 🥜 Actions		
		Thomas Gantenbein	tgantenbein		• 🤌 Actions		
		Dietmar Glachs	dietmar glachs		🕶 🧬 Actions		
		Thomas Gordon	thomas.gordon		🔹 🥜 Actions		
		Tripo Matijevic	tripo.matijevic		• 🥜 Actions		
		Helene Mayer	helene.mayer		• 🧬 Actions		
		Sabine Moebs	moebs		• 🤌 Actions		
		Jeanette Mueller	jmueller		- 🥜 Actions		

#### FIGURE 4: EAGLE PORTAL - LIFERAY SITE MEMBERSHIP

9. Now deploy the portlets from /eu.fp7.eagle.portal.liferay.config/portlets/ to ../liferay-portal-6.2ce-ga6/deploy folder. The portlets are automatically deployed and are available to use from the portlet addition page. All EAGLE specific portlets are classified under the EAGLE applications category.

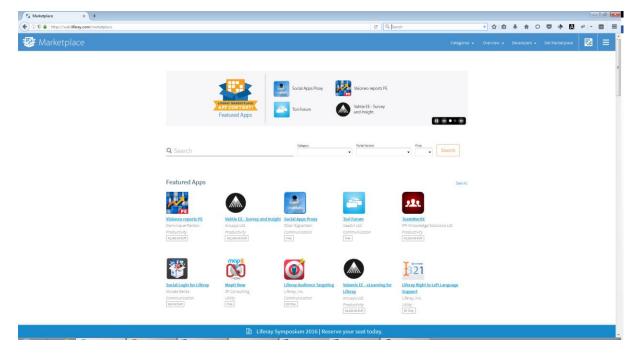
aa 🖓 👘	🕈 Add 🛛 🖵 Preview 🕼 Edit 👁 Edit Contro	ola	Admin • My Sites • 0	
.dd	121	Search		
ontent Applications Page	EAGLE	MY EAGLE 1	OPICS RESOURCES COMMUNITY ABOUT	
ghlighted		earning for local gover	nments	
Ilaboration		nade easier, more accessible and		
mmunity	e e			
ntent Management				
gle	Start	Learn	Engage	
Eagle Authoring Portlet Eagle Learn Eagle Login Portlet	Find our Quick Start G	ulde Keep track of your professional development	Post questions, find answers, and network with your colleagues.	
Eagle Menu Portlet Eagle Notes Portlet		<b>e</b> (		
Engle Process Map Engle Search Portlet				
Eagle Studio Eagle Vault Portlet		Contribute Se	arch	
nance			e or search through If your choice	
adgets		Contracting Parts of the		
rws		📑 Edit 🔁 Edit Template 🏟 Select Web Content 🚦	Add	
imple	NEWS & UPDATES	YESTERDAY 3:33 PM / WIKI	YESTERDAY 2:34 PM / WIKI	
opping	See all announcements	Sonja Trapp wrote a new wiki page, How to create a test.	Arun Prakash moved a wiki page, test, to the Recycle Bin.	
ctal		YESTERDAY 2:34 PM / WIKI	YESTERDAY 2:33 PM / WIKI	
ols		Arun Prakash moved a wiki page, Wiki Test, to the	Arun Prakash wrote a new wiki page, Wiki Test.	
adin		Recycle Bin.		
ki		YESTERDAY 2:29 PM / WIKI Arun Prakash updated a wiki page, test.		Ind

FIGURE 5: EAGLE PORTAL - PORTLETS DEPLOYMENT

10. Additional new third-party portlets can be added to your EAGLE portal through the Liferay Marketplace.



Document Title EAGLE OER Learning Platform



#### FIGURE 6: LIFERAY MARKETPLACE

- 11. Specific workflows or other portal and sever configurations such as email templates, etc can be managed under: Control Panel > Configuration
- 12. Your portal is now ready for testing and production use.

### 4.2 EAGLE Knowledge Base

The EAGLE Knowledge Base (short EAGLE KB) represents the backbone of the EAGLE Platform. It manages the metadata of the information collected in the EAGLE Platform. The EAGLE KB builds on and extends the Linked Data Plattform<sup>1</sup> Apache Marmotta<sup>2</sup>.

The EAGLE KB benefits from the built-in services from Marmotta but also provides tailored services for managing OER related metadata within the EAGLE Platform.

#### 4.2.1 General Prerequisites

The following software is required as prerequisite for building, installing and running the EAGLE Knowledge Base

- Java version JDK 1.8u92
- Git distributed version control system.
- m2e Maven for Eclipse for Development
- For deployment any machine that supports deployment of Java Enterprise Applications
- Apache Tomcat (version 7.x or above) as the runtime system
- PostgreSQL as the relational database backend system for Apache Marmotta

<sup>&</sup>lt;sup>1</sup> https://www.w3.org/TR/ldp/

<sup>&</sup>lt;sup>2</sup> <u>http://marmotta.apache.org/</u>

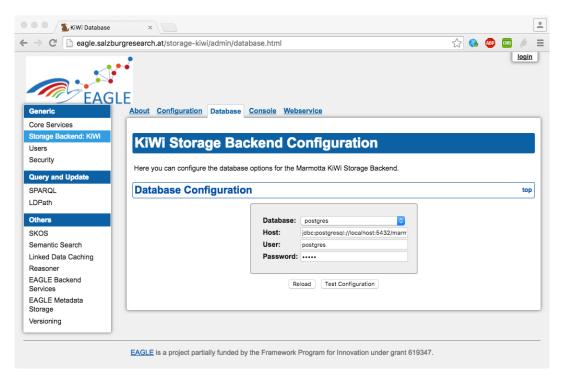


Document Title EAGLE OER Learning Platform Deliverable Nature P Dissemination level PU Version 1.0

- Machine Requirements
  - No. of CPUS # 4
  - RAM Memory: Minimum 8GB
  - Hard disk: Minimum 20GB

#### 4.2.2 Configurations

Apache Marmotta provides an administration page where all the deployed modules are shown. A basic installation of Apache Marmotta shows the Core Services, Storage Backend, Users & Security which comprise the basic runtime modules of Marmotta. The most important configuration setting is the used Marmotta Backend<sup>3</sup>. While the basic setting must be configured during deployment of the EAGLE KB, the database of choice may be configured after deployment by using the administrative interface. The EAGLE KB uses the default triple store KiWi<sup>4</sup> that runs on top of relational databases (currently H2, PostgreSQL or MySQL). Figure 7 outlines the configuration page for the used database.



#### FIGURE 7 KIWI STORAGE BACKEND CONFIGURATION

Each of the Apache Marmotta modules provides it's own configuration page. However, the Apache Marmotta Core Configuration Page (see Figure 8) allows managing of all configuration values at a single page.

<sup>&</sup>lt;sup>3</sup> http://marmotta.apache.org/platform/backends.html

<sup>&</sup>lt;sup>4</sup> <u>http://marmotta.apache.org/kiwi/</u>



Document Title EAGLE OER Learning Platform

Core Module Config	juration ×			
🕂 $ ightarrow$ C 🗋 eagle.salzburg	gresearch.at/core/admin/configuration.html		s 🚯 ।	ABP CORS 🤌
EAGL	<b>;</b> F			login SAVE
Generic	_	oort Data Views Context Manager Prefix Mana	ger <u>System</u>	Webservice
Core Services				
Storage Backend: KiWi	Marmotta Core Configuration	010		
Users	Marmolla Core Conngulation	0M		
Query and Update SPARQL LDPath	The configuration contains: Configurator:			
Others	Filter:			
SKOS Semantic Search	<pre>\${moduleKey}.enabled this is a demo property of \${moduleName}</pre>			remove
Linked Data Caching Reasoner	caching.bnode.size size of BNode lookup cache	10000	• +	remove
EAGLE Backend Services EAGLE Metadata Storage Versioning	caching.expiration Maximum minutes of inactivity before a cache entry expires from the in-memory caches	30	- +	remove
	caching.literal.size size of literal lookup cache	100000	• +	remove
	caching.maximum_size Maximum number of entries for in-memory caches used by the Marmotta Platform	10000	- +	remove

FIGURE 8 MARMOTTA CORE CONFIGURATION

Important values with respect to the EAGLE KB are

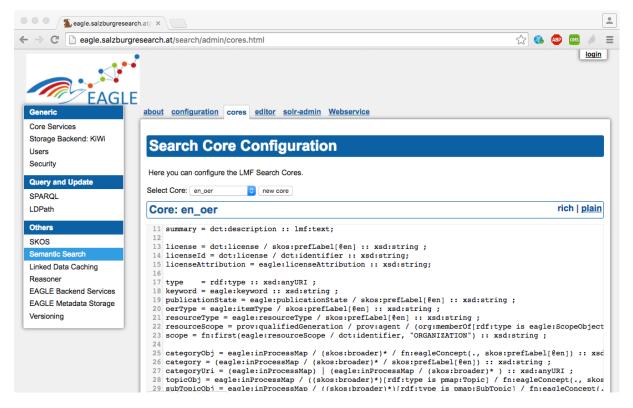
- marmotta.home: This configuration value points to the home directory of the EAGLE KB. It finally
  contains the configuration files, the search indexes and unless changed the H2 database
  files.
- kiwi.context: This setting denotes the prefix for the URI generation when new meta data is stored. This value must be set to *http://knowledge.eagle-learning.eu/*
- kiwi.host: This value denotes the internet address of the host running the EAGLE KB. For the production environment of the EAGLE platform, his value must be set to <u>http://eagle.salzburgresearch.at/</u>

#### **Search Configuration**

The EAGLE KB maintains the metadata in a graph-oriented database. The retrieval of data however is executed by means of semantic search facilities that must be configured for each running instance of the EAGLE KB. A search program constitutes on one hand the configuration of the index itself and on the other hand the access methods to retrieve the required information when filling the search index with data. Figure 9 outlines the search program for the OER search.



Document Title EAGLE OER Learning Platform



#### FIGURE 9: SEARCH CORE CONFIGURATION

Any search program is executed whenever metadata is created, stored or deleted. Using the changed resource as a starting point and traversing the semantic relationships stated in the search program identifies the information relevant when searching the changed resource. During the search program execution locally stored resources are processed the same way as remote resources out of a publicly available catalogue.

The distinct search programs are part of D5.5.

#### 4.2.3 Installation and Deployment Steps

#### **Deploy binary distribution**

The EAGLE KB builds on Apache Marmotta which in turn requires Apache Tomcat as its runtime environment. Deployment of the EAGLE KB is therefore the provision of the binary distribution of the EAGLE KB, e.g. the assembled WAR (Web Archive) file, to the hosting Tomcat installation by copying the file to the *webapp*-folder of Tomcat. Tomcat recognizes the provision of the WAR file and will unpack and activate the EAGLE KB.

Upon first start of EAGLE KB, the marmotta.home configuration value is verified and the corresponding directory is created unless already present.

#### **Build & Deploy EAGLE from source**

In order to build the EAGLE KB from source, the prerequisites outlined in section 4.1.1 are required. The following steps will help to assemble the EAGLE KB ready for deployment on Apache Tomcat.



Document Title EAGLE OER Learning Platform

#### Step 1: Checkout Apache Marmotta

Apache Marmotta is an open source project. The source-code is available from *http://marmotta.apache.org* or from it's mirror site *https://github.com/apache/marmotta.* 

For obtaining the source code issue the command

git clone https://github.com/apache/marmotta.git

or download the source code as a ZIP file. Once the source code is downloaded and unpacked, Apache Marmotta must be installed into the local Maven Repository by running the command

mvn clean install -DskipTests=true

#### Step 2: Check-Out/Download required dependencies

EAGLE KB uses Maven as it's build tool. Maven will resolve all required packages which are not part of the source-code distribution and download them. However, some of the dependencies of the EAGLE KB are neither part of the source-code distribution nor part of the

The EAGLE KB uses other open source projects that are related to Apache Marmotta but not directly part of the source code distribution of Apache Marmotta. These components have been developed at Salzburg Research

- 1. skosjs: A Java-Script based editor for SKOS Thesauri
- 2. marmotta-search: The search component for using Apache SOLR

#### Step 3: Check-Out EAGLE KB Source

The source code of the EAGLE KB is available at *https://git.list.lu/eagle/knowlede-space*. Issue the command

#### git clone https://git.list.lu/eagle/knowledge-space.git

This will clone the repository and create a copy on the local machine in the current directory. The subdirectories of the knowledge-space are

- **eagle-marmotta-backend**: The Server-Side component including the required bundles (Apache Marmotta Modules). This folder again contains a subdirectory named "eagle" which contains the eagle service itself.
- **eu.fp7.eagle.knowledge:** This holds the knowledge model as well as some functions used by the "old" Knowledge-Adapter in Liferay
- **third-party**: This holds the required packages which are not part of the source-code distribution of Apache Marmotta

#### Step 4: Build Dependencies - SKOSJS

Go to the third-party/skosjs directory and issue the command

mvn package



Document Title EAGLE OER Learning Platform

#### Step 5: Build Dependencies – marmotta-search

Go to the third-party/skosjs directory and issue the command

mvn clean install -DskipTests=true

#### Step 5: Build Marmotta 3.4.0 - Snapshot

Go to the eagle-marmotta-backend/eagle directory and issue the command

mvn clean install -DskipTests=true

This will compile all the distinct components of the EAGLE KB create a sub-directory named target in the directory and finally place the assembled distribution file (eagle.war) in the target directory.

#### Step7: Running EAGLE KB

Go to ./knowlege-space/eagle-marmotta-backend/eagle and run

mvn tomcat7:run

This will download the Apache Tomcat runtime and finally deploy the eagle.war. Note: This is the preferred mode during development. For production purposes, deployment of the binary distribution in an existing Apache Tomcat environment is recommended.

#### 4.3 EAGLE AIG Tool

The AIG tool is composed of three components. The first is TAO which functions as item bank, test authoring tool, and test taking tool. TAO also manages results. However, the functionalities needed for EAGLE are not supported out of the box. TAO is built modularly which allowed us to extend it with custom modules to implement the functionality needed in EAGLE. The second component is a REST service endpoint, SIREN, that exposes the third component, the AIG core libraries.

#### 4.3.1 General Prerequisites

#### 4.3.1.1 TAO

TAO<sup>5</sup> is an open source e-Testing platform developed by Open Assessment Technologies S.A.<sup>6</sup>. The requirements listed below are for the recommended respectively minimum versions required to run TAO (3.0) as used in the EAGLE project:

- PHP 5.6,
- Apache 2.4.7,
- MySQL 5.5.

On the client-side, TAO can be run in any modern web browser running JavaScript. Mobile devices are supported as well but the quality of the user experience depends on screen size. This in turn also holds

<sup>&</sup>lt;sup>5</sup> <u>https://en.wikipedia.org/wiki/TAO\_%28e-Testing\_platform%29</u>

<sup>&</sup>lt;sup>6</sup> <u>http://www.taotesting.com</u>



true for displaying TAO in an iFrame which sometimes sees clipping issues. For specific client-side requirements we recommend to check the OAT requirements page<sup>7</sup>.

#### 4.3.1.1 AIG services and libraries

SIREN is packaged as a web application archive (WAR). You will need a Java Application Server to run SIREN. You can install a new webserver or reuse an existing one. We have actively tested the application on Apache Tomcat 8. The WAR itself requires Java 8.

SIREN built as a WAR contains all dependencies and does not feature any other requirement. However, users can tweak some parameters by altering some of the properties set in a properties file. The file contains documentation but we discourage that users modify these without a good grasp of the consequences.

#### 4.3.2 Installation and Deployment Steps

#### 4.3.2.1 TAO and custom modules

The team at OAT has compiled an installation guide for TAO on Ubuntu which we would like to recommend. It details the installation steps and specificities for Apache, PHP, and MySQL as well as their configuration. For this project, we have used Ubuntu 14.04.2 LTS (64 bit). Visit <a href="http://forge.taotesting.com/projects/tao/wiki/InstallUbuntuApacheMySQL">http://forge.taotesting.com/projects/tao/wiki/InstallUbuntuApacheMySQL</a> for a complete guide. We also recommend that you always install TAO with the English (en-US) default language. This will assure that, should a translation be missing, the default the localization module falls back to exists (as English is supported by default).

The provided custom TAO package for EAGLE contains all extensions to existing modules and newly developed modules. To install these modules, it is sufficient to install the modules from the TAO Extension manager once TAO has installed successfully. For the more technical users, extensions can also be installed by an installation script. То read more we recommend http://forge.taotesting.com/projects/tao/wiki/How to manage your Extensions.

As some of the custom modules need to address SIREN, please be aware that you need to provide the modules with the location of SIREN. The *taoAigFacade* folder which contains the Façade module code contains a *constants.php* file located under *taoAigFacade/includes*. The properties *TAO\_AIG\_FACADE\_SIREN\_HOST* and *PORT* respectively will need to be modified with the correct address and port number to be able to address the deployed SIREN endpoint.

#### 4.3.2.2 AIG services and libraries

To install the AIG services it suffices to compile SIREN as a WAR (the compilation requires the inclusion of its AIG dependency), respectively, retrieve an already compiled WAR and deploy it on your Java Application Server. Once deployed, SIREN will automatically start to listen for incoming traffic and will handle it accordingly to its specification. Should any modification be made to the properties file that resides within the WAR (you can open it as you can any other archive like ZIP or RAR), you will need to redeploy SIREN. In case the modification has been made directly on the server, the application server will require to be restarted. No templates are deployed by default.

<sup>&</sup>lt;sup>7</sup> <u>http://www.taotesting.com/get-tao/system-requirements</u>



Document Title EAGLE OER Learning Platform

### 4.4 EAGLE Process Maps and Argumentation Tool

The installation and developer guide for the EAGLE Process Maps and Argumentation Tool are documented as part of deliverables D6.9 and D6.10 respectively.



Document Title EAGLE OER Learning Platform

## 5 Developer Guidelines

The following developer guidelines have been prepared for developing EAGLE Portlets for Liferay 6.2.5 CE GA6+ with Vaadin 7.5.0 using Eclipse Luna IDE.

### 5.1 EAGLE Portlet development

#### Step 1: Installing appropriate Java on your system.

Install JDK 1.8 update 92 from:

http://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html

#### Step 2: Download and install the Eclipse IDE

Download the Eclipse Modelling Luna Package from the Eclipse download site.

http://www.eclipse.org/downloads/packages/eclipse-modeling-tools/lunasr2

#### Step 3: Create a new workspace to the directory of your choice.

Once the workspace is successfully created, you should get a screen similar to Figure 10.

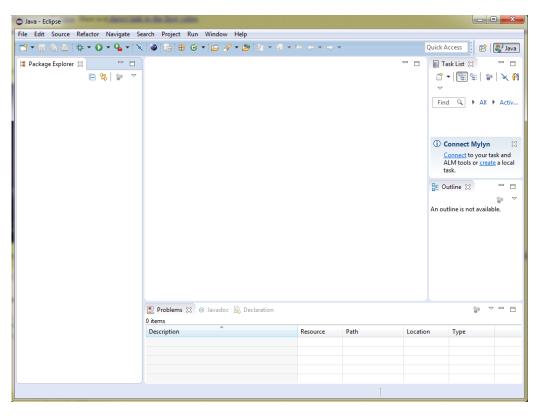
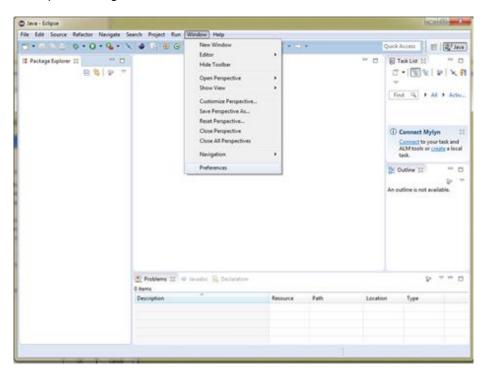


FIGURE 10 ECLIPSE WORKSPACE

Step 4: Configure Java in your eclipse workspace.



• In the Eclipse menu go to: Window->Preferences



**Document Title** 

**EAGLE OER Learning Platform** 

FIGURE 11: ECLIPSE PREFERENCES

• Select Java category and expand it.

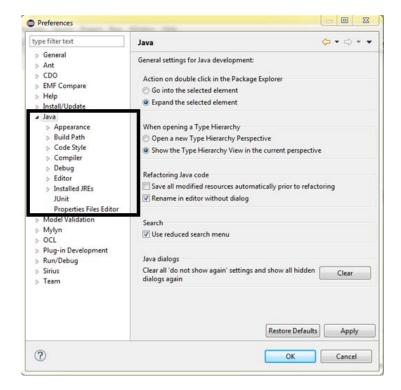


FIGURE 12 PREFERENCES DIALOG BOX



Document Title EAGLE OER Learning Platform

• Select the Installed JREs option from the expanded view under java category. Click on the Add button. Select Standard VM as the type of JRE n go next.

Preferences	Add JRE	
type filter text ▷ General ▷ Ant	JRE Type Select the type of JRE to add to the workspace.	<ul><li>→ ⇒ →</li><li>build path of</li></ul>
⊳ CDO	Installed JRE Types:	
▷ EMF Comp ▷ Help ▷ Install/Upc	Standard 1.1.x VM	Add
⊿ Java		Edit
<ul> <li>&gt; Appea</li> <li>&gt; Build P</li> <li>&gt; Code S</li> <li>&gt; Compig</li> <li>&gt; Debug</li> <li>&gt; Editor</li> <li>&gt; Installe</li> <li>JUnit</li> <li>Proper</li> <li>&gt; Model Vali</li> </ul>		Duplicate Remove Search
⊳ Mylyn ⊳ OCL ⊳ Plug-in De ⊳ Run/Debu	(?) < Back Next > Finish Cancel	
⊳ Sirius ⊳ Team	Conflicting compliance settings can be changed on the <u>Compiler</u> page.	
?	OK	Cancel

#### FIGURE 13: JRE TYPE

 In the next window, Click on the Directory button and navigate to: Computer > Windows C: > Program Files > Java > jdk1.8.0\_92, then click Ok

Preferences	C Add JRE	A DESCRIPTION OF THE OWNER OF THE	- <b>X</b>	
type filter text ▷ General ▷ Ant	JRE Definition Specify attributes for a	JRE		← □ → →     →
▷ CDO ▷ EMF Comp	JRE home:	C:\Program Files\Java\jdk1.8.0_92	Directory	
⊳ Help	JRE name:	jdk1.8.0_92		Add
⊳ Install/Upc ⊿ Java	Default VM arguments:		Variables	Edit
Appear	JRE system libraries:			
▷ Build P	🕞 🔤 C:\Program File	es\Java\jdk1.8.0_92\jre\lib\resources.jar	Add External JARs	Duplicate
⊳ Code S ⊳ Compi		es\Java\jdk1.8.0_92\jre\lib\rt.jar es\Java\jdk1.8.0_92\jre\lib\jsse.jar	Javadoc Location	Remove
⊳ Debug ⊳ Editor		≥s\Java\jdk1.8.0_92\jre\lib\jce.jar ≥s\Java\jdk1.8.0_92\jre\lib\charsets.jar	Source Attachment	Search
⊳ Installe JUnit	C:\Program File	es\Java\jdk1.8.0_92\jre\lib\jfr.jar	Remove	
Proper	, <u> </u>	es/Java\jdk1.8.0_92\jre\lib\ext\cldrdata.jar	Up	
⊳ Model Vali ⊳ Mylyn		es\Java\jdk1.8.0_92\jre\lib\ext\dnsns.jar es\Java\jdk1.8.0 92\jre\lib\ext\jaccess.jar	Down	
⊳ OCL			Restore Default	
Plug-in De Run/Debu				
▷ Sirius	?	< Back Next > Finish	Cancel	
▷ Team				
ļ (	Comm	enny compnance seconds can be enouged on	trie compiler pager	
?			ОК	Cancel

FIGURE 14: JRE DEFINITION



• Now you should see the installed JRE, select it and click OK.

Preferences				- • ×
type filter text	Installed JREs			↔ • ↔ • •
<ul> <li>▷ Ant</li> <li>▷ CDO</li> <li>▷ EMF Compare</li> </ul>	Add, remove or edit JR newly created Java pro Installed JREs:	E definitions. By default, the checke jects.	d JRE is added to	the build path of
▷ Help ▷ Install/Update	Name	Location	Туре	Add
/ Java	📝 🛋 jdk1.8.0_9	C:\Program Files\Java\jdk1.8	Standard	Edit
▷ Appearance ▷ Build Path				Duplicate
<ul> <li>Code Style</li> <li>Compiler</li> </ul>				Remove
<ul> <li>Debug</li> <li>Editor</li> </ul>				Search
Installed JREs				
JUnit Properties Files Editor				
Model Validation				
b Mylyn b OCL				
Plug-in Development				
Run/Debug Sirius	<			
⊳ Team				
?		[	ОК	Cancel

#### FIGURE 15: INSTALLED JRES

Step-5: Installing Liferay.

• In the Eclipse menu go to Help > Install New Software...

Java - Eclipse		
File Edit Source Refactor Navigate Search		
📑 • 🖩 🐚 🗁 🕸 • 🖸 • 🂁 • 🔍 📽	🕼 🖶 🚱 🕶 😰 🚀 🚳 Welcome	
12 Package Explorer 23 😑 😵 😤	Rep Contents       Rep Contents	
	Key Assist     Ctol+Shift+L       Tips and Ticks     @       @ Report Bug or Enhancement     Chards Sheets	
	Check for Updates	
	Installation Details     Installation Details     Installation Grouponents	
	Fig. Eclipse Marketplace	
	About Eclipse	

FIGURE 16: HELP > INSTALL NEW SOFTWARE...

• Click "Add..." button to open Add Site dialog.



Document Title EAGLE OER Learning Platform

Contract Number 619347

O Install		
Available Software Select a site or enter the location of a site.		
Work with:	Find more software by working with the " <u>Available Software</u>	Add
here filtrated	Find more software by working with the <u>Avaluatic Software</u>	protototes.
type filter text		
Name	Version	
O There is no site selected.      Select All      Details		12
Show only the latest versions of available software	Hide items that are already installed	
Group items by category	What is already installed?	
Show only software applicable to target environment		
Contact all update sites during install to find required software		
0	< Back Next > Finish	Cancel

FIGURE 17: OPEN ADD SITE DIALOG

• Type in "Liferay IDE" (version 2.2.2, ga3) for name, and add the following update site as Location and select OK.

https://sourceforge.net/projects/lportal/files/Liferay%20IDE/2.2.2%20GA3/updatesite/

🖨 Install	
Available Software Select a site or enter the location of	a site.
Work with: type or select a site	Add Find more software by working with the <u>"Available Software Sites"</u> preferences.
Name	Version
There is no site selected.     Select All     Deselect All	Add Repository  Add Repository  S Name: Liferay IDE Local Location: ge.net/projects/lportal/files/Liferay%20IDE/2.2.2%20GA3/ Archive  OK Cancel
Show only the latest versions of a	vailable software
Group items by category	What is <u>already installed</u> ?
Show only software applicable to	-
?	< Back Next > Finish Cancel

FIGURE 18: ADD LIFERAY UPDATE SITE



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Contract Number 619347

• Select Liferay IDE from the combo selection box and go Next.

Install	
Available Software	
Check the items that you wish to install.	
Work with: https://sourceforge.net/projects/lportal/files/Liferay%20IDE/2.2.2%20	-
	Find more software by working with the <u>"Available Software Sites"</u> preferences.
type filter text	
Name	Version
▲      ♥ 100 Liferay IDE     ♥      ♥ Liferay IDE     ♥      ♥      ↓ Liferay IDE     ♥      ♥      ♥      ♥      ↓ Liferay IDE     ♥      ♥      ♥      ♥      ■      ₩      ■-Liferay AlloyUI     ♥      ♥      ■      ₩      ■-Liferay Mobile SDK	2.2.2.201501300730-ga3 2.2.2.201501300730-ga3 2.2.2.201501300730-ga3
Select All Deselect All 3 items selected	
Details	
	12
Show only the latest versions of available software	Hide items that are already installed
Group items by category	What is <u>already installed</u> ?
Show only software applicable to target environment	
Contact all update sites during install to find required software	
3	< Back Next > Finish Cancel

FIGURE 19: INSTALL LIFERAY IDE

• In the next window you will see the install details, go next.

Install			
Install Details Review the items to be installed.			
Name	Version	Id	
<ul> <li>▶ ♣ Liferay IDE</li> <li>▶ ♣ Liferay IDE AlloyUI</li> <li>▶ ♣ m2e-liferay - Maven Integration for Liferay IDE</li> </ul>	2.2.201501300730-ga3 2.2.2.201501300730-ga3 2.2.2.201501300730-ga3	com.liferay.ide.eclipse.tools.featur com.liferay.ide.alloy.feature.group com.liferay.ide.maven.feature.group	
Size: Unknown			
- Details			4
0	< Back	Next > Finish	Cancel

FIGURE 20: LIFERAY INSTALLATION DETAILS



• Accept the terms of the license agreements, click Finish.

Install		_ O X
Review Licenses Licenses must be reviewed before the software can be installed. This includes licenses for	software required to complete the install.	
icenses:	License text:	
<ul> <li>Apache License</li> <li>Eclipse Foundation Software User Agreement</li> <li>Eclipse Foundation Software User Agreement</li> <li>Eclipse Public License - v1.0</li> <li>Eclipse Public License - v1.0</li> <li>Liferay IDE is free software distributed under the terms of the Lesser GNU Public Licens</li> </ul>	<ul> <li>I accept the terms of the license agreements</li> <li>I do not accept the terms of the license agreements</li> </ul>	5
0	< Back Next > Finish	Cancel

**Document Title** 

**EAGLE OER Learning Platform** 

#### FIGURE 21: ACCEPT LICENSE TERMS

- After plugins download and install, restart eclipse.
- After you restart, go to Help > About Eclipse and you should see an Icon badge for Liferay IDE that shows you have it properly installed.



FIGURE 22: LIFERAY IDE INSTALLATION CONFIRMATION



Document Title EAGLE OER Learning Platform

#### Step 6: Liferay Plug-ins SDK Setup.

- Open Eclipse with installed Liferay IDE.
- Download the Liferay Plug-ins SDK bundle from <u>https://sourceforge.net/projects/lportal/files/Liferay%20Portal/6.2.5%20GA6/liferay-</u> plugins-sdk-6.2-ce-ga6-20160112152609836.zip/download
- In the Eclipse menu go to Window->Preferences
- Select Liferay category and expand it.
- Select the Installed SDks option from the expanded view . Click on the Add button which brings up the Add SDK Dialog.

/pe filter text		🖉 Installed Plu	ıgin SDKs			← - ⇒ -
<ul> <li>▷ General</li> <li>&gt; Ant</li> <li>▷ CDO</li> <li>▷ EMF Compare</li> </ul>		Add, remove or ea Plugin projects. Installed Liferay F		ns. By default, the checke	d SDK is used	for new Liferay
FreeMarker Editor		Name	Version	Location		Add
Help Install/Update	L					Edit
> Ivy > Java	L					Remove
<ul> <li>Java EE</li> <li>JavaScript</li> <li>Liferay         <ul> <li>Debug</li> <li>Installed Plugin SDK</li> <li>Maven</li> <li>Plugin Validation</li> <li>XML Search</li> </ul> </li> <li>Model Validation</li> <li>Mylyn</li> <li>OCL</li> <li>Plug-in Development</li> <li>Run/Debug</li> </ul>	E					Open in Eclips
Server Sirius Team Validation	Ŧ	<ul> <li>Update "build.jg</li> <li>O Always ○ N</li> </ul>		in fore SDK is used?	4	

FIGURE 23: INSTALLED PLUGIN SDK VIEW



#### Document Title EAGLE OER Learning Platform

• Browse to the location of your Plug-ins SDK installation.

Preferences		
type filter text	🖉 Installed Plugin SDKs 🛛 🗢	• => • •
<ul> <li>&gt; General</li> <li>&gt; Ant</li> <li>&gt; CDO</li> </ul>	Add, remove or edit SDK definitions. By default, the checked SDK is used for n Plugin projects.	ew Liferay
EMF Con FreeMark New Liferay PI	ugin SDK	
<ul> <li>&gt; Help</li> <li>&gt; Install/U</li> <li>&gt; Ivy</li> <li>&gt; Java</li> </ul>	ray Plugin SDK location.	Add Edit Remove
▷ JavaScrip ▲ Liferay Debu	orial\programs\liferay-plugins-sdk-6.2-ce-ga6-2016011215 Browse plugins-sdk-6.2 Eclipse .project file (if it does not exist). n in Eclipse	n in Eclipse
Plugi XML ▷ Maven ▷ Model Va	OK Cancel	
Mylyn     OCL     OCL     Plug-in Development     Run/Debug     Server     Sirius     Team     Validation     Validation     TI     ►	< III → Update "build.jga.properties" before SDK is used?	
?	ОК	Cancel

FIGURE 24: ADD LIFERAY PLUGIN SDK

• Select OK and you should see your SDK in the list of Installed SDKs and Select it.

e filter text		🔏 Installed Plugin	SDKs		← → → →
General Ant CDO		Plugin projects.		ns. By default, the checked SDK is used	l for new Liferay
MF Compare reeMarker Editor		Installed Liferay Plugin			
elp		Name	Version	Location	Add
stall/Update		🔽 🗾 liferay-plug	6.2.0	D:\Tutorial\programs\liferay-plugi	Edit
/a					Remove
a EE					
Script					Open in Eclips
ray	=				
Debug					
Installed Plugin SDK					
Maven					
Plugin Validation					
XML Search					
aven					
odel Validation					
lyn					
L					
g-in Development					
/Debug					
ver		•		III •	
us		Undate "build ins use	portion" h-	fore SDK is used?	
am	-	Update "build.jga.pro		fore SUK is used:	
idation N		Always O Never			

FIGURE 25: INSTALLED SDK



Document Title EAGLE OER Learning Platform

### Step 7: Liferay Portal Tomcat Runtime / Server Setup.

- Download the copy of the Liferay Portal Tomcat bundle (version 6.2, ga6) from: <u>https://sourceforge.net/projects/lportal/files/Liferay%20Portal/6.2.5%20GA6/</u>
- In the Eclipse menu go to Window > Preferences > Server > Runtime environments

Preferences			
type filter text	Server Runtime Enviro	onments	← → □> → →
General	Add, remove, or edit serv	er runtime environments.	
⊳ Ant			
⊳ CDO	Server runtime environme	ents:	
<ul> <li>EMF Compare</li> <li>FreeMarker Editor</li> </ul>	Name	Туре	Add
FreeMarker Editor Help			
▷ Heip ▷ Install/Update			Edit
Instany opdate Ivy			Remove
b Java			
Java EE			Search
JavaScript			Jearchin
Liferay			Columns
Maven			
Model Validation			
⊳ Mylyn			
▷ OCL			
> Plug-in Development			
Run/Debug			
⊿ Server			
Audio			
Launching			
Overlays			
Profilers			
<b>Runtime Environments</b>			
⊳ Sirius			
▷ Team			
Validation			
<ul> <li>Web</li> <li>Web Services</li> </ul>			
> Web services > XML			
P AWE			
?			OK Cancel

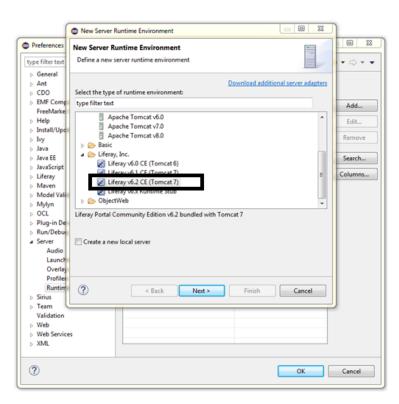
FIGURE 26: SERVER RUNTIME ENVIRONMENT VIEW

- .Click Add to add a new Liferay runtime
- In the Dialog box find Liferay v6 Tomcat under the Liferay, Inc. category and click Next.



619347

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• In the next step browse to the location of the liferay-portal-6.0.2 directory and click finish.

(	New Server Runtime Environment	
Preferences           type filter text	Liferay Tomcat Runtime Specify the installation directory of the Tomcat configured with Liferay.	23 • • •
type filter text           > General           > Ant           > CDO           > EMF Comp.           rereMarke           > Help           > Install/Upc           > Java           > Java EE           > Java Script           > Liferay           > Maven           > Model Vali           > Plug-in De           > Run/Debu.           > Server           Audio           Launch           Overlay           Profile           Runtim	Specify the installation directory of the Tomcat configured with Liferay.	d it ivve ch nns
<ul> <li>▷ Sirius</li> <li>▷ Team</li> <li>Validation</li> <li>▷ Web</li> <li>▷ Web Servic</li> </ul>	es	J
> XML	OK Car	ncel

FIGURE 28: LIFERAY TOMCAT DIRECTORY LOCATION



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#### Step 8: Install Vaadin Plugin for Eclipse

- In the Eclipse menu go to Help > Install New Software...
- Click "Add..." button to open Add Site dialog.
- Type in "Vaadin Plugin" for name, and add the following update site as Location. <u>http://vaadin.com/eclipse</u> and select OK.

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**EAGLE OER Learning Platform** 

🖨 Install	
Available Software Select a site or enter the location of a	e site.
Work with: type or select a site	Add  Find more software by working with the <u>"Available Software Sites"</u> preferences.
type filter text	
Name	Version
Select All Deselect All Details	Add Repository  Add Repository  Name: Vaadin plugin Local Location: http://vaadin.com/eclipse  OK Cancel
$\blacksquare$ Show only the latest versions of ava	ilable software 🕼 Hide items that are already installed
Group items by category	What is <u>already installed</u> ?
Show only software applicable to ta	-
Contact all update sites during inst	
0	< Back Next > Finish Cancel

#### FIGURE 29: ADD VAADIN UPDATE SITE

• Select everything from the combo selection box and click Next.



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● Install	_ = X
Available Software Check the items that you wish to install.	
Work with: Vaadin - http://vaadin.com/eclipse/	Add  Find more software by working with the <u>"Available Software Sites"</u> preferences.
type filter text	
Name	Version
P 200 Vaadin     Vaadin (Legacy)  Select All Deselect All 1 item selected	
Details	2
Show only the latest versions of available software	Hide items that are already installed
Group items by category	What is <u>already installed</u> ?
Show only software applicable to target environment	
Contact all update sites during install to find required software	
0	< Back Next > Finish Cancel

#### FIGURE 30: SELECT VAADIN SOFTWARE

- In the next window you will see the install details, go next.
- Accept the terms of the license agreements, click Finish.

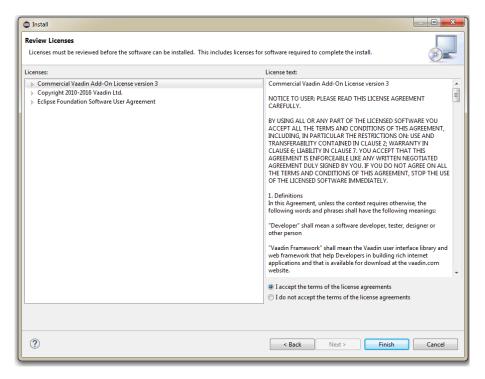


FIGURE 31: VAADIN REVIEW LICENSE



• After the plugins download and install, restart eclipse.

#### Step 9: Install Resource Bundle Editor

• In the Eclipse menu go to Help > Eclipse Marketplace

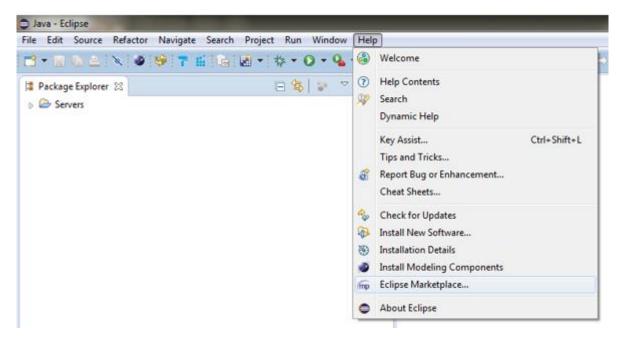


FIGURE 32: HELP > ECLIPSE MARKETPLACE

• In the dialog box type in "resource" in the search field



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Contract	Number
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Eclipse Marketplace       Select solutions to install. Press Finish to proceed with installation.         Press the information button to see a detailed overview and a link to more information.       Select solutions to install. Press Finish to proceed with installation.         Search       Recent       Popular       Installed I use Newsletter (Neon)         Find:       resourceBundle Eclitor 1.0.5       Image: Comparison of the difficult of	Eclipse Marketplace			
Search       Recent       Popular       Installed       June Newsletter (Neon)         Find:       resource       Installed       Installed       Installed       Installed         Find:       resourceBundle Editor 1.0.5       Eclipse plugin for editing Java resource bundles. Lets you manage all localized properties files in one screen. Some features: sorted keys, warning icons on more info       by null, Apache 2.0         resource Bundle iBm multilanguages       Installs       Installs       1.79K (889 last month)       Install         M2E Connector for maven-remote-resources-plugin 0.0.1       M2E Connector for the maven-remote-resources-plugin The connector is designed to execute the process and bundle goals of the maven-remote-resources-plugin       Install         Image:       Image: Installs: 12.8K (130 last month)       Install         Image:       Image: I	Select solutions to in:	tall. Press Finish to proceed with inst		
Find: resource All Markets All Categories Ge ResourceBundle Editor 1.0.5 Eclipse plugin for editing Java resource bundles. Lets you manage all localized properties files in one screen. Some features: sorted keys, warning icons on more info by null, Apache 2.0 resource bundle iBm multilanguages ME Connector for maven-remote-resources-plugin 0.0.1 MEE Connector for the maven-remote-resources-plugin 0.0.1 MEE Connector for the maven-remote-resources-plugin 0.0.1 MEE Connector for the maven-remote-resources-plugin The connector is designed to secure the process and bundle goals of the maven-remote-resources-plugin mith more info by CoderPlus, EPL m2e maven m2e-connector maven-remote-resources-plugin Trema 0.3.2 Trema is an Eclipse plugins that allows you to manage your test resources and translation; Is allows you to manage your test resources and translation; Is allows you to manage your test resources and translation; Is necessure bundles Internationalisation fileExtension trm translation; Is necessure bundles Internationalisation fileExtension trm internal: Intells: 173 (12 last month) intells Marketplaces Marketplaces				
Eclipse plugin for editing Java resource bundles. Lets you manage all localized         .properties files in one screen. Some features: sorted keys, warning icons on         .wore info         by null, Apache 2.0         resource bundle jiBn multilanguages         Image: Some features: sorted keys, warning icons on         Marketplace         Image: Some features: sorted keys, warning icons on         Image: Some features: sorted keys, warning icons on </th <th></th> <th></th> <th></th> <th>s 🔹 Ga</th>				s 🔹 Ga
Eclipse plugin for editing Java resource bundles. Lets you manage all localized         .properties files in one screen. Some features: sorted keys, warning icons on         .wore info         by null, Apache 2.0         resource bundle jiBn multilanguages         Image: Some features: sorted keys, warning icons on         Marketplace         Image: Some features: sorted keys, warning icons on         Image: Some features: sorted keys, warning icons on </td <td>Pas</td> <td>ourceBundle Editor 1.0.5</td> <td></td> <td></td>	Pas	ourceBundle Editor 1.0.5		
resource bundle ilân multilanguages	Eclip .prop more	e plugin for editing Java resource bu erties files in one screen. Some featu <u>: info</u>		rning icons on
image: stalls: 4.79K (889 last month)       Install:         image: stalls: 4.79K (889 last month)       Install:         image: stalls: 4.79K (889 last month)       Install:         image: stall: stall: 4.79K (889 last month)       Install:         image: stall: stall: stall: stall: stall       Image: stall: stall: stall:         image: stall: stall: stall: stall: stall: stall:       Image: stall: stall: stall:         image: stall: st				
M2E Connector for the maven-remote-resources-plugin The connector is designed to execute the process and bundle goals of the maven-remote-resources-plugin with more info         by CoderPlus, EPL         m2e maven m2e-connector maven-remote-resources-plugin         image: installs: 12.8K (130 last month)         image: installs: 11.8K         image: installs: 12.8K (130 last month)         image: installs: 11.8K         image: install         image: im				Install
designed to execute the process and bundle goals of the maven-remote-resources-plugin with <u>more info</u> by CoderPlus, EPL <u>m2e maven m2e-connector maven-remote-resources-plugin</u> installs: 12.8K (130 last month) Install <b>Trema 0.3.2</b> Trema is an Eclipse plugins that allows you to manage your text resources and translations. It allows you to keep all text resources and translations in a single <u>more info</u> by Netcetera, MIT translation ju& resource bundles Internationalisation fileExtension trm installs: 173 (12 last month) Install <b>Marketplaces</b>	m20	e-connector for maven-rem	ote-resources-	plugin 0.0.1
mixen	desig	ned to execute the process and bunc	lle goals of the	connector is
installs: 12.8K (130 last month)       Install         Trema 0.3.2       Trema is an Eclipse plugins that allows you to manage your text resources and translations in a single more info         by Netcetera, MIT       translation 118n resource bundles Internationalisation fileExtension trm         installs: 173 (12 last month)       Install			te-resources-plugin	
Trema is an Eclipse plugins that allows you to manage your text resources and translations. It allows you to keep all text resources and translations in a single more info by Netcetera, MIT translation ji&n resource bundles Internationalisation fileExtension trm installs: 173 (12 last month) Install *			te resources pragm	
Trema is an Eclipse plugins that allows you to manage your text resources and translations. It allows you to keep all text resources and translations in a single more info by Netcetera, MIT translation ji&n resource bundles Internationalisation fileExtension trm installs: 173 (12 last month) Install *	Tree	na 0 3 2		
Image: standard start       Image: start         Image: start       Image: start	Trem	a is an Eclipse plugins that allows yo ations. It allows you to keep all text r		
Marketplaces			ionalisation fileExter	nsion trm
	±1 🔺	Installs: 173 (12 last month)		Install
(7) < Back Install Now > Finish Cancel	Marketplaces			
	🦲 🚼 🧠	)		
	?	< Back Install Now	v > Finish	Cancel

FIGURE 33: RESOURCE BUILDER EDITOR
------------------------------------

Eclipse Marketplace				_ <b>0</b> X
Confirm Selected Featur				3
Confirm the features to inc more solutions to install.	lude in this provisio	oning operation. O	r go back to choos	•
<ul> <li>Image: A second s</li></ul>		/raw.githubuserco	ntent.com/essiemb	ore/eclipse-rbe/n

FIGURE 34:INSTALLING RESOURCE BUILDER EDITOR

- Install the Resource Builder Editor
- In the next window, click on the confirm button
- Select the terms of the license agreement and click finish



#### Document Title EAGLE OER Learning Platform

Deliverable Nature P Dissemination level PU Version 1.0

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Eclipse Marketplace	
Review Licenses Licenses must be reviewed and accepted before the software can be installed.	
License text (for ResourceBundle Editor 1.0.5):	
Apache License Version 2.0, January 2004 http://www.apache.org/licenses/	
TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION	=
1. Definitions.	
"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.	
"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.	
"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.	
"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.	
"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.	
"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.	
"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).	Ŧ
<ul> <li>I accept the terms of the license agreement</li> <li>I do not accept the terms of the license agreement</li> </ul>	
? < Back Next > Finish	Cancel

FIGURE 35: AGREE TO LICENSE AGREEMENT

#### Step 10: Importing branch from git.

- Switch to the Git view in your workspace.
- For creating a portlet, one must have the projects from Services, Knowledge, Portal Build, Plugins, Cache and Hook.
- Cloning the projects from service branch
  - Select the Clone a Git Repository option.



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Document Title EAGLE OER Learning Platform

 Git - Eclipze
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 File
 Edit
 Navigate
 Search
 Project
 Run Window
 Help

 Image: Search
 I

#### FIGURE 36: CLONE GIT REPOSITORY

 In the dialog box, add the following URI for getting the projects from git and click Next ssh://git@git.list.lu/eagle/services.git

😑 Clone Git Reposit	tory		
Source Git Reposi Enter the location of	<b>tory</b> of the source repository.		GIT
Location			
URI:	ssh://git@git.list.lu/eagle	/services.git	Local File
Host:	git.list.lu		
Repository path:	/eagle/services.git		
Connection Protocol: ssh Port: Authentication	•		
User:	git		
Password:			
Store in Secure St	ore		
?	< Back Ne	xt > Finish	Cancel

FIGURE 37: SOURCE REPOSITORY LOCATION



o From the next dialog box, Select Master as Branch

Clone Git Repository	
Branch Selection Select branches to clone from remote reposit will be created to track updates for these bran	
Branches of ssh://git@git.list.lu/eagle/services	.git:
type filter text	
☐ & dev ☑ & master	
Select All Deselect All           ?         < Back	xt > Finish Cancel

Document Title

**EAGLE OER Learning Platform** 

#### FIGURE 38: BRANCH SELECTION

 $\circ$  In the next step, Browse to the desired directory, where you want to save it.

Destination				
Directory:	D:\Tutorial\git\service	s		Browse
Initial branch:	master			•
Clone subr	nodules			
Configuration				
Remote name	origin			
Projects Import all e	xisting projects after clon	e finishes		
-Working set				
🔲 Add proj	ect to working sets			
Working set	5:		▼ S	elect

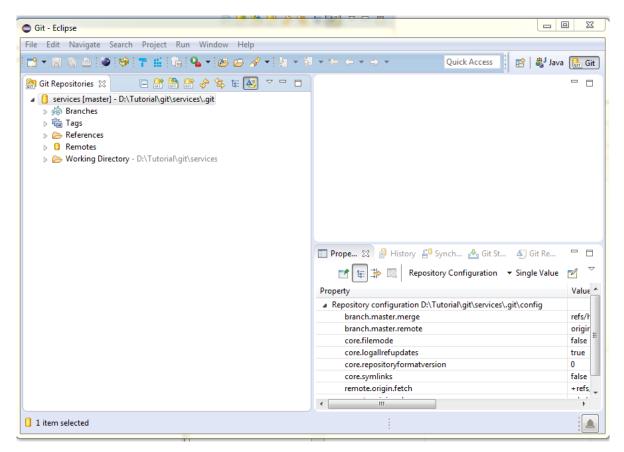
FIGURE 39: SELECT LOCAL DIRECTORY



Document Title EAGLE OER Learning Platform

Contract Number 619347

- o Click Finish.
- You will get the following repository



#### FIGURE 40: CLONED REPOSITORY

<u>Note</u>: You should follow same steps as mentioned in Step 9 above, to clone the Other Repositories. Following are the URI that should be used.

- Knowledge : ssh://git@git.list.lu/eagle/knowlede-space.git
- Portal Build, Portal Plugins and Hook is all under the "portal" repository in git. So please use the URI: ssh://git@git.list.lu/eagle/portal.git
- Cache: ssh://git@git.list.lu/eagle/cache.git



Document Title EAGLE OER Learning Platform

Contract Number 619347

# Step 10: Importing projects from git.

• Under package Explorer, Right click > Import.

Import			
Select Choose import source.			Ľ
Select an import source:			
type filter text			
<ul> <li>General</li> <li>CVS</li> <li>EJB</li> <li>Git</li> <li>Java EE</li> <li>Java EE</li> <li>Liferay</li> <li>Plug-in Development</li> <li>Plug-in Development</li> <li>Remote Systems</li> <li>Run/Debug</li> <li>Tasks</li> <li>Tasks</li> <li>Team</li> <li>Web</li> <li>Web</li> <li>Web services</li> <li>XML</li> <li>Other</li> </ul>			
?	< Back Nex	t > Finish	Cancel

## FIGURE 41: IMPORT DIALOG BOX

• Select Maven category and expand it. Under Maven, select the Existing maven Projects Option and click next.



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) Import			23
<b>elect</b> Import Existing Maven Projects		Ľ	5
Select an import source:			
type filter text			
<ul> <li>Central</li> <li>CVS</li> <li>EJB</li> <li>Git</li> <li>Finstall</li> <li>F</li></ul>	ects artifact to a Maven repository		E
?	< Back	Next > Finish Cancel	

**Document Title** 

**EAGLE OER Learning Platform** 

#### FIGURE 42: MAVEN CATEGORY

- In the next Window, browse to the location where you saved the git branches, while cloning them.
- The figure below shows the import from services branch. Select the projects you want to import.



Document Title EAGLE OER Learning Platform Deliverable Nature P Dissemination level PU Version 1.0

Import Maven Projects	- 0 X			
Maven Projects				
Select Maven projects				
Root Directory: D:\Tutorial\git\services	Browse			
Projects:				
<ul> <li>Q. /eufp? aagle.freay.group.services/pomzml eufp?.aagle.lifeay.group.services.pontlet.pomzml eufp?.aagle.lifeay.group.services.pontlet.pomzml eufp?.aagle.lifeay.group.services.pontlet.pomzml eufp?.aagle.lifeay.group.services.pontlet.pomzml eufp?.aagle.lifeay.group.services.pontlet.pomzml eufp?.aagle.lifeay.group.services.pontlet.pomzml eufp?.aagle.service.ponzml eufp?.aagle.service.pomzml eufp?.aagle.service.pomzml eufp?.aagle.service.pomzml eufp?.aagle.service.pomzml eufp?.aagle.service.pomzml eufp?.aagle.service.aig.pomzml eufp?.aagle.service.aig.pomzml eufp?.aagle.service.aig.pomzml eufp?.aagle.service.aig.pomzml eufp?.aagle.service.aig.pol.pomzml eufp?.aagle.service.aig.pomzml eufp?.aagle.service.service.pomzml eufp?.aagle.service.service.pomzml eufp?.aagle.service.eufp?.aagle.service.service.pomzml eufp?.aagle.service.eufp?.aagle.service.pomzml eufp?.aagle.service.eufp?.aagle.service.pomzml eufp?.aagle.service.eufp?.aagle.service.pomzml.eufp?.aagle.service.pomzml eufp?.aagle.service.eufp?.aagle.service.pomzml.eufp?.aagle.service.potal.00.1-SNAPSHOTjar</li> <li>/ eufp?.aagle.service.model/pomzml eufp?.aagle.service.eufp?.aagle.service.potal.00.1-SNAPSHOTjar</li> <li>/ eufp?.aagle.service.potal.fifeay.joomzml eufp?.aagle.service.eufp?.aagle.service.potal.SON_SNAPSHOTjar</li> <li>/ eufp?.aagle.service.potal.fifeay.joomzml eufp?.aagle.service.eufp?.aagle.service.potal.SON_SNAPSHOTjar</li> <li>/ eufp?.aagle.service.potal.fifeay.group.service.potal.SNAPSHOTjar</li> <li>/ eufp?.aagle.service.potal.fifeay.group.service.potal.SNAPSHOTjar</li> <li>/ eufp?.aagle.service.eptotal.fifeay.group.service.eufp?.aagle.service.eufp?.aagle.service.eufp?.aagle.service.eufp?.aagle.service</li></ul>	Select All Deselect All Select Tree Deselect Tree Refresh			
Add project(s) to working set				
Advanced				
? < Back Next > Finish				

FIGURE 43: MAVEN PROJECTS FROM SELECTED DIRECTORY

- Next, click on the Add project(s) to working set check box.
- Give "services.plugins" as the working set name and click Finish.



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€ Import Maven Projects	
Maven Projects	
Select Maven projects	
Root Directory: D:\Tutorial\git\services	Browse
Projects:	
<ul> <li>Ø /eufp7.eagle.liferay.group.services/pom.xml eufp7.eagle.liferay.group.serviceseufp7.eagle.liferay.group.services-pontlet.0.0.1-SNAPSHOT.war</li> <li>@ eufp7.eagle.liferay.group.services-pontlet.service/pom.xml eufp7.eagle.liferay.group.services-pontlet.group.group.services-pontlet.group.group.services-pontlet.service.group.services-pontlet.group.group.services-pontlet.group.group.services-pontlet.group.group.services-pontlet.group.group.services-pontlet.group.group.services-pontlet.group.group.services.grou</li></ul>	Select All Deselect All Select Tree Deselect Tree Refresh
Add project(s) to working set	
services.plugins   Advanced	
?       < Back	Cancel

#### FIGURE 44: ADD WORKING SET NAME

• This will import all the projects under Services branch in the workspace.

**NOTE:** Using the same steps, import all the projects from other repositories also.

#### Step 11: Package Structure

• The Package structure after importing all the projects should be structured as follows under corresponding working set.

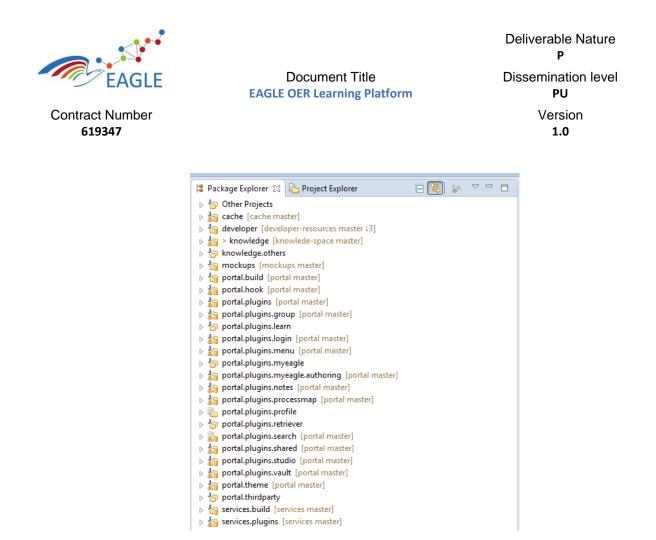


FIGURE 45: PACKAGE STRUCTURE

- In order to build the workspace, launch the maven run configuration located at: \eu.fp7.eagle.portal.releng\eu.fp7.eagle.portal.releng.all.launch
  - Make sure that the run configuration is launch in the online mode the first time, so as to allow maven to download all the required libraries from the maven central and the other repositories defined in the releng pom.xml

rpe filter text	Name and									
rpe filter text		.eagle.p	ortal.releng.a	all						
				🧤 Source) 📧 Er		• 🗖 Common				
Generic Server			o Nerresir	source marei	wironiner					
Generic Server(External Launch)	Base director									
HTTP Preview	S{workspace	e_loc:/eu	.fp7.eagle.pc	ortal.releng}						
J2EE Preview								Browse Workspace	Browse File System	Variables
Java Applet	Goals:	clean	package							Select
Ju JUnit	-	_								
式 JUnit Plug-in Test	Profiles:	develo	oper-login, d	eveloper-authorin	ng, develop	per-menu, develo	oper-note	s, developer-studio, dev	eloper-vault, developer	-search, deve
Liferay Server (Remote)	User settings									File
Liferay v6.0 CE (Tomcat 6) Liferay v6.1 CE (Tomcat 7)		🔲 <u>O</u> ffli	ine	🔽 Update Snap	shots					
Liferay v6.2 CE (Tomcat 7)		📃 Deb	ug Output	Skip Tests	Non-r	ecursive				
Liferay v6.2 CE GA6 (Tomcat 7)		📃 Reso	olve Workspa	ce artifacts						
m2 Maven Build		1 Threads								
m2 eu.fp7.eagle.cache m2 eu.fp7.eagle.knowledge.releng	Parameter		Value							<u>A</u> dd
m2 eu.fp7.eagle.knowledge.reieng m2 eu.fp7.eagle.liferay.group.servi	Parameter	lame	Value							<u>A</u> aa
m2 eu.fp7.eagle.liferay.group.servi										E <u>d</u> it
m2 eu.fp7.eagle.portal.releng										Remove
m2 eu.fp7.eagle.portal.releng.all										Leniove
m2 eu.fp7.eagle.portal.ui.layout										
m2 eu.fp7.eagle.portal.ui.theme m2 eu.fp7.eagle.portal.ui.widgets.r										
m2 eu.fp7.eagle.portal.ui.widgets.i										
m2 eu.fp7.eagle.service.releng	Maxim Prost		PEDDED (2.1	.1/1.5.1.20150129-	1102)					Configure
m2 eu.scionubo.portal.ui.activities	waven Kunu	THE. EIVI	000000 (5.1.	.1/1.5.1.20150129-	1102)				•	configure
A OSGi Framework										
ter matched 44 of 45 items									Apply	Revert

FIGURE 46: RUN CONFIGURATION FOR MAVEN BUILD



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## Step 12: Creating maven project using Liferay Vaadin archetype

• Under package Explorer, Right click > New > Other.

Liferay - Eclipse	The second secon		and the second sec	
Edit     Source     Refactor     Navigate     Search     Project       ▼     ■     ●     ■     ■     ■     ■     ■				
- a d Dixine a sub baile.	an tage tage tage and an an an an			
Package Explorer 🙁 🏠 Project Explorer 📃	🛐 😜 🗢 🗖			
5 Other Projects				
👌 cache [cache master]				
developer [developer-resources master 13]				
> knowledge [knowlede-space master]				
by knowledge.others				
mockups [mockups master] portal.build [portal master]	New	•	Liferay Plugin Project	
portal.hook [portal master]	Go Into		Liferay Project from Existing Source	
portal.plugins [portal master]	of and		Project	
portal.plugins.group [portal master]	Show In	Alt+Shift+W ►	Project	
portal.plugins.learn	Сору	Ctrl+C	Liferay Hook Configuration	
portal.plugins.login (portal master)	Copy Qualified Name		🖬 Liferay Layout Template	
portal.plugins.menu [portal master]			C Liferay Portlet	
😓 portal.plugins.myeagle	The Paste	Ctri+V	Liferay JSF Portlet	
portal.plugins.myeagle.authoring [portal master]	💥 Delete	Delete	Liferay Vaadin Portlet	
portal.plugins.notes [portal master]	📐 Import		,	
portal.plugins.processmap [portal master]	Export		Liferay Service Builder	
늘 portal.plugins.profile 🕞 portal.plugins.retriever	Export		Package	
portal.plugins.retriever portal.plugins.search [portal master]	🔗 Refresh	F5	Class	
portal plugins.shared [portal master]	Open Project		😯 Interface	
portal.plugins.studio (portal master)	Close Project		If Untitled Text File	
portal.plugins.vault [portal master]	Close Unrelated Projects		G Folder	
portal.theme [portal master]	crose officiated Projects		File	
portal.thirdparty	Team	•		
a services.build [services master]	Maven	+	📸 Example	
services.plugins [services master]	toy Ivy	•	Ctrl+N	
	Properties	Alt+Enter		
	riopenes	Part criter	1	

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**EAGLE OER Learning Platform** 

#### FIGURE 47: RIGHT CLICK > NEW > OTHER.

• Select Maven > Maven Project from the dialog box and click Next.

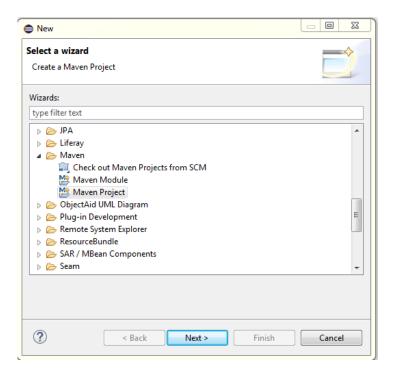


FIGURE 48: SELECT MAVEN PROJECT



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• In the next dialog box, make sure that the option for creating simple maven project is unchecked.

**Document Title** 

**EAGLE OER Learning Platform** 

• Add this project to the desired working set using the drop down option and click Next.

New Maven Project		
New Maven project		
Select project name and locati	on	M
Create a simple project (skip	archetype selection)	
🔽 Use default Workspace locat	tion	
Location:		- Browse
Add project(s) to working se	t	
Working set:		▼ More
Advanced		
(?)	< Back Next >	Finish Cancel

FIGURE 49: NEW MAVEN PROJECT

• In the next step, type in Liferay in the filter box, and select vaadin-architype-liferay-portlet (version 7.5.0) as an archetype and click Next.

	n <b>ven project</b> n Archetype		1	M
Catalog:	All Catalogs		▼ Cor	nfigure
ilter:	liferay			X
Group I	Id	Artifact Id	Version	
	eray.maven.archetypes eray.maven.archetypes	liferay-servicebuilder-archetype liferay-theme-archetype	6.2.5 6.2.2	
com.va	adin	vaadin-archetype-liferay-portlet	7.5.0	
		d Vaadin Liferay portlet. It packages all Vaa ake use of portal-provided resources. Lifer		
(widget // Show	tset, theme etc.) and doesn't m the last version of Archetype o	ake use of portal-provided resources. Life	ray-specific proper	ties 🕌
(widget	tset, theme etc.) and doesn't m the last version of Archetype o	ake use of portal-provided resources. Life	ray-specific proper	ties 🕌

FIGURE 50: SELECT ARCHITYPE



Document Title EAGLE OER Learning Platform

- In the next step, specify the Archetype parameter (give name which suits your requirement).
- Group Id must contain "eu.fp7.eagle.portal.ui.portlet" as prefix and then the name of portlet you are working on. For example, if I am creating a test portlet, my Group Id will be "eu.fp7.eagle.portal.ui.portlet.test".
- Edit the properties available from the archetype accordingly.
- Version must be [6.2.2,0]
- UiClassName can be given with a prefix Eagle (example, EagleDashboardUI), or just the portlet you are working on (example, DashboardUI). Just give some meaningful name.
- Theme must be "eagle".
- LiferayCategoryName must be "Eagle".

						_	_	
	<b>en project</b> chetype para	meters				IV	N	
Group Id:	pld: eu.fp7.eagle.portal.ui.portlet.test							
Artifact Id:	eu.fp7.eagle.portal.ui.portlet.test							
/ersion:		0.0.1-SNAPSHOT						
ackage:		e.portal.ui.portlet.test						
properties a	available from	n archetype:						
Name		Value				A	Add.	
liferayVer	sion	[6.2.2,)				Re	emo	
uiClassNa	ime	TestPortletUI				(Rei	emo	
theme		eagle						
portletTit		Eagle Test portlet						
portletSho		Hello World						
portletKey		Vaadin 7						
portletDe		This is a test portlet						
portletNa		Eagle Test portlet						
	playName	Eagle Test portlet						
liferayCat	egoryName	Eagle						
Advance	ed							
?				< Back	lext > Finis	h Cance	cel	



• After the project is successfully created, you should get the structure as in Figure 52.



Document Title EAGLE OER Learning Platform

<b>619347</b> 1
<ul> <li>portlet.test</li> <li>ist.portlet.demo</li> </ul>
B src/main/java
B is src/main/resources
JRE System Library [JavaSE-1.6]
Maven Dependencies
Src
b 🗁 target
pom.xml

#### FIGURE 52: PROJECT STRUCTURE

- Start the Liferay server, and drag and drop the portlet project to deploy it to the server.
- After successfully deploying the portlet into the server, open the Liferay portal in web browser.
- Sign in using the correct credentials.
- Click + Add, It will open a window on the left side of the screen.

→ C f Dicalhost:8080/web/guest/dashboard			5
Bookmarks 👔 Local-EAGLE 🎦 Web-Zeb 🎦 vaadin course 🎦 Deut	tsche Bank 📋 FH Kiel 📋 Credit Card 🜘 Git version control 🗤 🥫 HTML & CSS   Codeca 👗 Learn Germa	an Easily   🔩 Google Translate 📋 Liferay, serviceBuilder 📋 Maven repository arc 💶 Liferay Tutonals 4u - 🗋 dance 🚺	Other bookma
Asset Publisher     Documents and Media Display	+ Add 🖵 Preview 🕼 Edit 👁 Edit Controls	Admin 🕶 My Sites 🕶 🚺 📃 Test Test 🕶	
Navigation			
III OpenSocial Gadget	- · · · · ·	Search Q EN - Q SIGN OUT	
Collaboration	EAGLE	MY EAGLE TOPICS RESOURCES COMMUNITY ABOUT	
Community			
Content Management		Dashboard	
Eagle			
Finance	Dashboard		
Gadgets	🖌 Studio		
News	My Resources		
Alerts	■ My Tests		
Announcements			
RSS .	🔦 My Cases		
Sample	My Network		
Contour Dispatch Hello Velocity	S My Groups		
Hello World	ing my droups		
I Frame	My Forums		
Test Vaadin portlet Add			
eu.fp7.eagle.liferay.group.services	My Blogs		
Shopping	W My Wiki		
Social	4 CONTOUR DISPATCH		
Activities			
Group Statistics			
Notifications	This project has received funding from the European Union's Seve	enth Home Features	
Requests	Framework Programme for research, technological development		
User Statistics	demonstration under grant agreement N° 619347.	Topics News	
Fools		Resources Team	
Viki		Community Contact Us	Feedl
Wiki	Copyright © 2016 EAGLE Project. All rights reserved. Disclaimer Terms of	Use Privacy Sitemap	
Wiki Display			

#### FIGURE 53: LIFERAY PORTAL VIEW

• Look for the portlet you deployed and add it to the page you wish to add in.



# 5.2 EAGLE Knowledge Base Development

The EAGLE Knowledge Base makes extensive use of Apache Marmotta and it's extensible architecture. Figure 54 shows an overview of the general architecture of EAGLE KB.

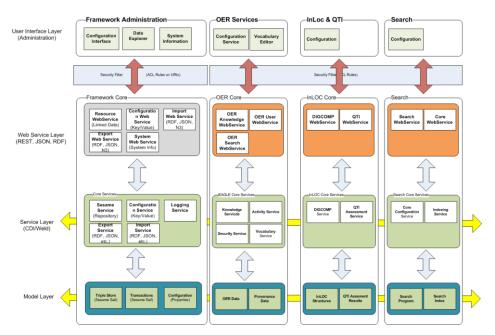


FIGURE 54: EAGLE KB ARCHITECTURE OVERVIEW

As shown Figure 54, the EAGLE KB uses the core of Apache Marmotta, thus receives standardized services, storage capabilities. Thus, the management of OER metadata is possible at triple-level out of the box. In order to add higher-level OER related functionality, such as adding, updating and adapting OER's, additional functional modules are provided and assembled to comprise the EAGLE KB.

The remainder of this section shows the required development steps when adding a new module to the EAGLE KB.

# Step 1: Download Source Code

Follow the steps in section 4.2.3 in order to obtain the source code.

# Step 2: Prepare Development Workspace

Note: Development of EAGLE KB follows the principles of Apache Maven, therefore any Java development environment with Apache Maven support (Eclipse, Netbeans, IntelliJ) may be used. However, for the subsequent steps, the Eclipse IDE has been used.

Open Eclipse and create a new workspace, or use the workspace from section 5.1, step 3. Choose "Import ..." menu item from the "File" menu. In the Import Wizard, as shown in Figure 55, choose "Existing Maven Projects" and click "Next".

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ontract Number 619347	·	Version 1.0
Import	Import Maven Projects	
elect	Maven Projects	
Import Existing Maven Projects	Select Maven projects	
	Root Directory: /Users/dglachs/git/eagie/knowlede-space/eagi	Browse
Select an import source:		biolidani
type filter text	Projects:	
🕨 🦢 General	<ul> <li>✓ v/pom.xml eu.p/.eagle:marmotra-backerd:o.o. I-SNAPSHOT:wai</li> <li>✓ eagle/pom.xml eu.fp7.eagle:eagle:1.0.0-SNAPSHOT:wai</li> </ul>	
🕨 🦢 EJB	✓ ▼bundles/pom.xml eu.fp7.eagle:bundles:0.0.1-SNAPSHO	Decelect All
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🕨 🗁 Gradie	knowledge-space/pom.xml eu.fp7.eagle:knowledge- eagle-skos/pom.xml eu.fp7.eagle:eagle-skos:0.0.1-S	
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▼ > Maven	object-repository/pom.xml_eu.fp7.eagle.knowledg	
Check out Maven Projects from SCM     Existing Maven Projects	store-blob/pom.xml eu.fp7.eagle.knowledge:eu.fp     eu.fp7.eagle.knowledge.core/pom.xml eu.fp7.e	
Academic and a strategy of the strategy		
Remote Systems	Add project(s) to working set	
► De Run/Debug		
► Contraction of the second o	marmotta-backend	
▶ 🗁 Team	Advanced	
	· Parandua	

#### FIGURE 55: IMPORT MAVEN PROJECTS

Use the "Browse..." button to select the source code directory named "eagle-knowledge-backend" from the file system. The pom.xml file lists all dependencies and thus will ensure, all listed projects are created in the workspace. The "Project Explorer" will show the distinct projects as outlined in Figure 56.

😫 Package Explorer 🔀	E	8	69	~ "	-		
bundles [knowlede	-space master]						
▼ 😽 > eagle [knowlede-	space master]						
Stroppediction	es						
src/test/resource	s						
🕨 🛋 JRE System Libra	ary [JavaSE-1.7]						
🕨 🛋 Maven Depender	ncies						
🕨 🚮 src							
🕨 🧀 target							
pom.xml							
eagle-skos [knowle							
eu.fp7.eagle.knowle							
eu.fp7.eagle.knowle							
eu.fp7.eagle.knowle							
eu.fp7.eagle.knowle							
eu.fp7.eagle.knowledge.alibaba.store-blob [knowlede-space							
eu.fp7.eagle.knowledge.core [knowlede-space master]							
knowledge-model [knowlede-space master]							
knowledge-space [knowlede-space master]							
marmotta-backen				]			
Marmotta-search [	knowlede-space	mast	er]				

#### FIGURE 56: EAGLE KNOWLEGE BASE WORKSPACE

The project holding the service runtime is named "eagle".

#### Step 3: Execute Knowledge Backend

Right-Click the "*eagle*" project and choose "*Run As* ...  $\rightarrow$  *Maven Build* ..."! The Eclipse Run Wizard as shown in Figure 57 appears.

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EAGL	E Document Title EAGLE OER Learning Platform	Dissemination level PU
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	Edit Configuration	
	Edit configuration and launch.	
	Name: eagle	1
	Main       Main       Main       Main       Common         Base directory:       Base directory:       Common       Common	
	/Users/dglachs/git/eagle/knowlede-space/eagle-marmotta-backend/eagle	
	Browse Workspace Browse File System Variables	
	Goals: tomcat7:run	
	Profiles:	
	User settings:	
	Offline     Update Snapshots     Debug Output     Skip Tests     Non-recursive	
	Resolve Workspace artifacts	
	1 O Threads	
	Parameter Name Value Add	
	Edit	
	Remove	
	Maven Runtime: EMBEDDED (3.3.3/1.6.2.20150902-0001)  Configure	
	Revert Apply	
		1

FIGURE 57: RUN CONFIGURATION

Enter "tomcat7:run" in the Goals field and choose "Run". This will cause Apache Maven to

- 1. download all other dependencies, including Apache Marmotta (unless already present),
- 2. download Apache Tomcat as the runtime environment,
- 3. compile and assemble the EAGLE KB Web Archive ,
- 4. start Apache Tomcat, and to
- 5. finally deploy & start the EAGLE Knowledge Base

When executed for the first time, this process might take some time depending on the internet connection when downloading.

To stop the tomcat server, the process in the Console View of Eclipse must be terminated.

#### Step 4: Add a new functional module to the knowledge base

The actual main functionality is contained in the following modules

- knowledge-model: Holds the basic service to access the object connection required to provide high-level object access rather than low-level "triple access" and also adds the EAGLE Ontology contained in "eu.fp7.eagle.knowledge.core" as a dependency.
- knowledge-space: Provides the service layer and the Web-Interface layer as outlined in Figure 54, in particular for the OER services.
- marmotta-search: Provides the search capabilities and connects with the Apache Marmotta Event Mechanism to get informed on relevant resource updates.
- eagle-skos: Provides the editor for SKOS vocabularies.



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When adding a new functional module to the EAGLE KB it is best practice to use the provided Apache Marmotta Archetypes. For this, the "File  $\rightarrow$  New  $\rightarrow$  Other ..." menu option is used. This will show the "Create" Wizard from Eclipse. Choose the option "Maven Module" and click "Next". Enter the desired module name, and choose the "bundles" project as the parent project.

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**EAGLE OER Learning Platform** 

Select a wizard Create a Maven module		New Maven Module Select the module name and parent					
Wizards:	Create a sim	ple project (skip archetype selection)					
type filter text	Module Name:	eagle-module	~				
▶ 🧽 Java EE ▶ 🗁 Java Emitter Templates ▶ 🎘 JavaScript	Parent Project:	bundles	Browse				
JAXB	Add project	s) to working set					
▶ 🦢 JPA ▶ 🔁 Liferay	Working set:	marmotta-backend	More				
Aaven     Geck out Maven Projects from SCM	Advanced						
Maven Module							
ObjectAid UML Diagram							
Domph							
Compare System Explorer							
(2) < Back Next > Cancel	Finish (?) <	Back Next > Cano	cel Finish				

#### FIGURE 58: EAGLE KNOWLEGE BACKEND MODULE CREATION

Ensure, the "Create a simple project" option in the second page of the wizard is unchecked and proceed to the next page to select the Apache Marmotta Web Module Archetype.

New Maven Module	New Maven Module
New Maven Module Select an Archetype	New Maven Module Specify Archetype parameters
Catalog:       All Catalogs       Configure         Filter:       Group Id       Artifact Id       Version         org.apache.marmotta       marmotta-archetype-module       3.4.0-SN       org.apache.marmotta         org.apache.marmotta       marmotta-archetype-archetype       1.0       org.apache.marwen.archetypes maxen-archetype-schetype       1.0         org.apache.maxen.archetypes maxen-archetype-plugin       1.2       org.apache.maxen.archetypes maxen-archetype-plugin is 1.0       1.0.1         org.apache.maxen.archetypes maxen-archetype-portiles       1.0.1       org.apache.maxen.archetypes maxen-archetype-portiles       1.0.4         org.apache.maxen.archetypes maxen-archetype-portiles       1.0.2       org.apache.maxen.archetypes maxen-archetype-portiles       1.0         org.apache.maxen.archetypes maxen-archetype-portiles       1.0       1.0       org.apache.maxen.archetypes maxen-archetype-portiles       1.0         org.apache.maxen.archetypes maxen-archetype-portiles       1.0       1.0       org.apache.maxen.archetypes       Marmotta         This Maven Archetype allows creating the basic structure for an Marmotta Module       Include snapshot archetypes       Add Archetype         V       Advanced       Include snapshot archetypes       Add Archetype	Group Id: eu.fp7.eagle   Artifact Id: module   Version: 0.0.1-SNAPSHOT   Package: eu.fp7.eagle.knowledge.module   Properties available from archetype: Name Value   May New EAGLE Module   Add Remove  Addunne
c Back Next > Cancel Finish	Cancel Finish

#### FIGURE 59: EAGLE KNOWLEGE BACKEND MODULE ARCHETYPE SELECTION & CONFIGURATION

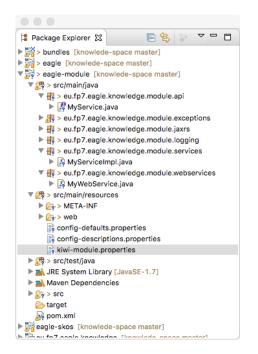
The wizard lists all available archetypes. Ensure the "Include snapshot archetypes" option is checked since EAGLE contributed bug fixes and source code to Apache Marmotta and these contributions are available only in the latest snapshot releases. The wizard will show the Apache Marmotta Archetypes and choose the "marmotta-archetype-module" from the list and proceed to the last page where additional parameters must be provided:



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- The moduleKey denotes the URI part in the context of the EAGLE Knowledge Base. This name must not contain special characters!
- The moduleName is used to identify the module in the admin page of the EAGLE Knowledge Base.

Click "Finish" to finalize the module creation wizard. A new project representing the new module is created and shown in the project explorer as shown in Figure 60.



# FIGURE 60: EAGLE KNOWLEDGE BACKEND MODULE STRUCTURE

The package structure of the module is divided into three main parts:

- API: This package holds interfaces that are used by other modules by means of dependency injection.
- Service: This package provides the implementation for the interfaces in the API package.
- Web Service: This package publishes RESTful interfaces to the outer world. For processing the requests, the web services will inject the functionality from the API package or from other dependent modules.

This corresponds to the horizontal layers in the architecture overview given in Figure 54.

#### Step 5: Add the new module as a dependency

The creation wizards of Eclipse automatically add the new module to the structure of the EAGLE KB. This however is not sufficient to have the module deployed along with the existing modules. To enable the new module, it is required to add the dependency to the "eagle" project (the project constituting the web archive). This may be done in the source tree of the pom.xml file or by using the graphical editor of the pom.xml file.

#### Step 6: Test the new Service



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In order to test the availability of the new service it is required to repackage the EAGLE Knowledge Base. This can be done by right clicking on the "eagle" project and choosing "Run as  $\rightarrow$  Maven install" from the context menu. Upon this, the service may be restarted as outlined in Step 3.

By pointing a browser to the URL <u>http://localhost:8080/eagle</u> the administration interface of the EAGLE KB appears. The new module is then listed as shown in Figure 61.

About My New EAGLE Mod ×						-
$\leftarrow$ $\rightarrow$ C i localhost:8080/eagle/r	mymodule/admin/about.html	☆ <b>《</b>	6 ABP	CORS	ø	≡
Apache Marmotta					<u>login</u>	1
Generic	about configuration Webservice					
Core Services						
Storage Backend: KiWi	Introduction on My New EAGLE Module					
Users						
Security	My New EAGLE Module aims at					
Query and Update						
SPARQL						e.
LDPath						
Others						
SKOS						
Semantic Search						
Linked Data Caching						
Reasoner						
EAGLE Backend Services						
EAGLE Metadata Storage						
My New EAGLE Module						
Versioning						
	Copyright © 2013-2015 The Apache Software Foundation					

FIGURE 61: ADMIN SECTION OF THE CREATED EAGLE MODULE

# 5.3 EAGLE AIG Development

All AIG components can be obtained from Git. These can be easily cloned into any local Git repository and modified at the developers' leisure. All TAO unrelated projects are written in Java 8 while the TAO extensions require PHP as specified above. How to install TAO has also been explained before. Their website also features a community which allows to work on TAO itself but this is out of the scope of this project.

The following are the current repositories to clone:

- git@git.list.lu:ASSESS/taoAigFacade.git
- git@git.list.lu:ASSESS/taoTestGeneration.git
- git@git.list.lu:eagle/AIG.git
- git@git.list.lu:eagle/SIREN.git

The instance of TAO we are working on and recommend can also be obtained from <u>https://git.list.lu/eagle/tao-for-eagle</u>.

To clone these projects, we recommend to follow the same procedure as outlined for the EAGLE portlet. The AIG and SIREN projects are also Maven projects and should be imported as such to ensure their dependencies are correctly resolved. A custom dependency regarding null annotations can be obtained from <u>git@git.list.lu:DKD/Null\_Annalysis\_Annotations.git</u> or switched to use, for example, Eclipse's own annotations for null analysis.



Document Title EAGLE OER Learning Platform

For working on TAO and the respective modules, we recommend the developer first to a running installation of TAO and then point their IDE to the location of the source files. This ensures that any changes the developer makes can be easily tested on a running instance. Please be sure to not do this on your production environment.

# 5.4 EAGLE Process Maps and Argumentation Tool Development

The installation and developer guide for the EAGLE Process Maps and Argumentation Tool are documented as part of deliverables D6.9 and D6.10 respectively.



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[6] A. Aldazabal, T. Baily, F. Nanclares, A. Sadovykh, C. Hein, M. Esser, and T. Ritter, *Automated Model Driven Development Processes*, ser. ISBN: 978-3-8167-7645-1, in Proceedings of the ECMDA workshop on Model Driven Tool and P. Integration, Eds. Fraunhofer IRB Verlag, Stuttgart, 2008.

[7] Eclipse. (2016) Remote application platform. [Online]. Available: <u>http://www.eclipse.org/rap/</u>

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# Appendix 1 – Resolving Git Conflicts with EGit

> 짧 knowledge [knowlede-space master] > 등 knowledge-others > 등 mockups [mockups master] > 등 portal.build [portal master]		6 HelpCompleteDesignIm; 7 HelpCompleteDesignIm; 8 9 HelpDesignImpl.buttor 10 HelpDesignImpl.buttor	l.lab	elMessage.value = You will receive a
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Ai portal.plugins.actioning (portal master)     So portal.plugins.crontent     Magnetial.plugins.group [portal master]     Magnetial.plugins.learn [portal master]     Ai > portal.plugins.learn [portal master]		Open in New Window Open Type Hierarchy F4 Show In Alt+Shift+W Copy Ctrl+C	<b>€</b> ⊲3	Commit     Ctrl+#       Push to Upstream     = Eagl       Fetch from Upstream     n = Answ       Push Branch     >
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K Servers ☆	9	Run As Coverage As Validate		Show in Repositories View Source Exp Show in History
		Team Compare With Replace With Restore from Local History Liferay Maven Java EE Tools	<ul> <li>ot</li> <li>rBa</li> <li>rBa</li> <li>rBa</li> <li>rBa</li> </ul>	Disconnect [ides/Java] [Catalir [
·		Configure Properties Alt+Enter		"

FIGURE 62: ALWAYS START WITH SYNCHRONIZE WORKSPACE



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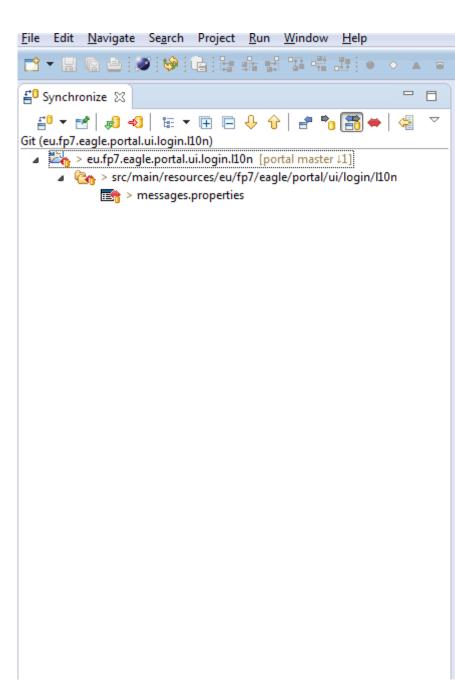


FIGURE 63: IF THERE ARE CONFLICTS, IT WOULD BE SHOWN AS FOLLOWS

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portal.plugins.icani (portal master +1) a 1/2 > portal.plugins.login (portal master 11)—			_			
Solution (portal master +1)	New	×				
▷ 🔄 eu.fp7.eagle.portal.ui.login.design [p	Open	F3	L .			
Eu.fp7.eagle.portal.ui.login.l10n [p Eu.fp7.eagle.portal.ui.login.l10n [p Eu.fp7.eagle.portal.ui.login.l10n [p	Open With	+	ι.			
▲ 🖶 > eu.fp7.eagle.portal.ui.login.	Show In	Alt+Shift+W ▶	ι.			
package-info.java	Сору	Ctrl+C	ι.			
📷 messages_de_DE.propertie 🖷	Copy Qualified Name		ι.			
📷 messages_ga_IE.properties 🧊	Paste	Ctrl+V	ι.			
messages_me_ME.propert	Delete	Delete	ι.			
□ > messages.properties ▶ JRE System Library [JavaSE-1.8]	Remove from Context	Ctrl+Alt+Shift+Down	L .			
Maven Dependencies	Mark as Landmark	Ctrl+Alt+Shift+Up	ι.			
⊳ 🔄 > src	Build Path	۱.	1	Commit Ct	rl+#	
target pom.xml	Source	Alt+Shift+S ►		Advanced		1
eu.fp7.eagle.portal.ui.login.service	Refactor	Alt+Shift+T ►				
b      b	Import		Ê	Merge Tool		
<ul> <li>b in portal.plugins.menu [portal master 1]</li> <li>b in portal.plugins.myeagle.notes [portal main in the second secon</li></ul>	Export			Show Local History		
portal.plugins.myeagle.vault [portal ma	Refresh	F5		Create Patch		
🗱 Servers 🖾	Assign Working Sets			Apply Patch		)ata So
⊳ 🔛 Liferay v6.2 CE GA6 (Tomcat 7) at localh	Validate		÷	Add to Index		
🚆 Tomcat v7.0 Server at localhost [Stoppe	Profile As	•	¢ <del>≥</del> >	Remove from Index		am File
	Debug As	•	8	Ignore		g exe TLDs
	Run As	•	a	Show in Repositories View		ine[C
	Coverage As	•	ð	Show in History		ine[C
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	Replace With	+		rBackgroundProcessor[Stand		
	Modelbus	•				
nessages.properties - eu.fp7.eagle.portal.ui.login	Properties	Alt+Enter				

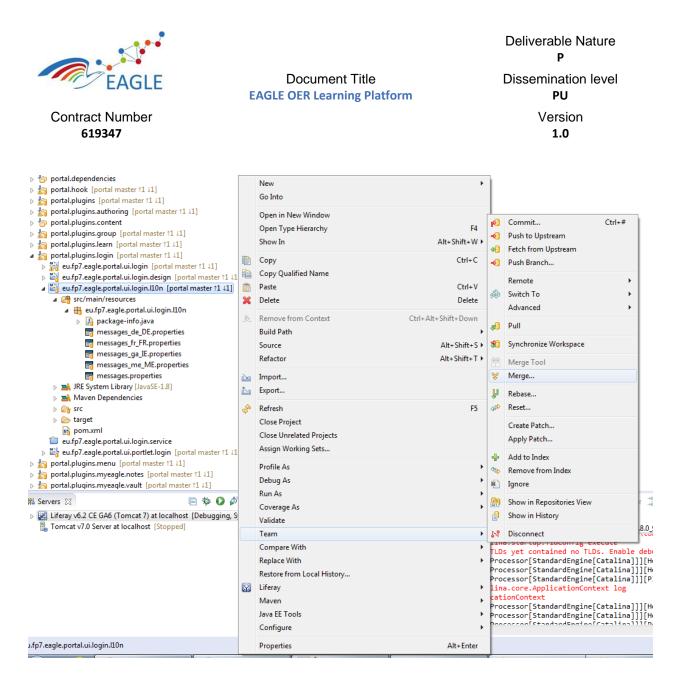
FIGURE 64: GO BACK TO THE CONFLICTING RESOURCE IN THE PACKAGE VIEW, AND CLICK COMMIT



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🖨 Commit C	hanges	<b>—</b> X—
Commit Ch	anges to Git Repository	GIT
Commit me	ssage	🧔 🦻 💺 🗸
♡commit lo	cally	
<u>A</u> uthor:	Arun Prakash <arun.prakash@fokus.fraunhofer.de></arun.prakash@fokus.fraunhofer.de>	
Committer:		
Files (1/1)		
type filter t	ext	
Status	Path	
	eu.fp7.eagle.portal.ui.login.l10n/src/main/resources/eu/fp7/eagle/portal/ui/login/	/l10n/messages.properties
?	Commit and <u>P</u> ush	) <u>C</u> ommit Cancel

#### FIGURE 65: COMMIT THE CHANGES LOCALLY



#### FIGURE 66: CLICK MERGE ON THE PROJECT HOLDING THE CONFLICTING RESOURCE



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➡ Merge 'master'
Merge 'master'
Select a branch or tag to merge into the 'master' branch
▲ Eocal master 3d15636 commit locally
Compared a compared of the compared of th
🚓 origin/eagledesign 97e3a09 Update banner image with purchased istock image
🚓 origin/master fb39304 dummy commit 19
File Tags
Merge options
<u>Commit (commit the result)</u>
No commit (prepare merge commit, but don't commit yet)
Squash (merge changes into working directory, but don't create merge commit)
Fast forward options
<ul> <li>If a fast-forward, only update the branch pointer</li> </ul>
If a fast-forward, create a merge commit
If not a fast-forward, fail
Merge Cancel

#### FIGURE 67: CLICK MERGE

C Merge Result	<b>—</b> ×
Result Conflicting	
Merge input	
3d156367: commit locally (Arun Prakash on 13 Jun, 2016 2:18 PM)	
4 fb393041: dummy commit 19 (Arun Prakash on 13 Jun, 2016 2:14 PM)	
	ОК

#### FIGURE 68: MERGE RESULT

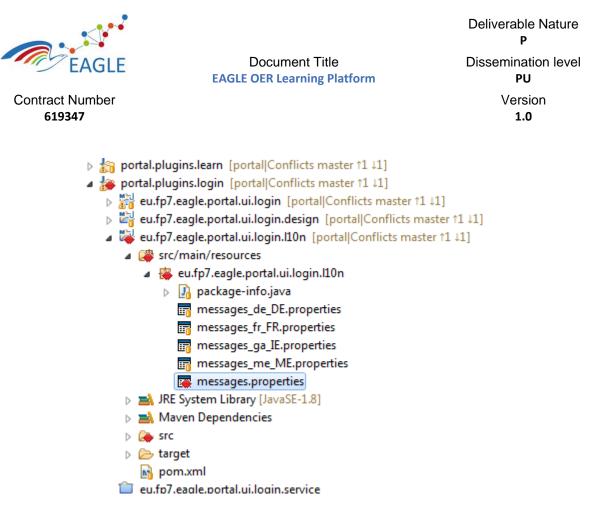


FIGURE 69: YOU WILL BE SHOWN CONFLICTS LIKE THIS

Contract Number 619347		Docume EAGLE OER Lea			Deliverable Nature P Dissemination level PU Version 1.0	
<ul> <li>portal.plugins.group [portal Conflicts</li> <li>portal.plugins.learn [portal Conflicts</li> <li>portal.plugins.login [portal Conflicts</li> <li>eu.fp7.eagle.portal.ui.login.design</li> <li>eu.fp7.eagle.portal.ui.login.llon [</li> <li>eu.fp7.eagle.portal.ui.login.group [</li> <li>messages_de_DE.proper [</li> <li>messages_ga_IE.proper [</li> <li>messages_me_ME.proper [</li> <li>messages_properties]</li> <li>messages_properties</li> <li>eu.fp7.eagle.portal.ui.login.servic:</li> <li>bip optal.plugins.menu [portal/Conflict:</li> <li>portal.plugins.menu [portal/Conflict:</li> <li>portal.plugins.myeagle.notes [portal]</li> <li>portal.plugins.myeagle.notes [portal]</li> <li>portal.plugins.myeagle.vault [portal]</li> <li>Errers S3</li> <li>E. Liferay v6.2 CE GA6 (Tomcat 7) at loc</li> <li>Tomcat v7.0 Server at localhost [Stop</li> </ul>	In astu In ast	er 11 11] New Open Open With Show In Copy Copy Qualified Name Paste Delete Remove from Context	F3 Alt+Shift+W Ctrl+C Ctrl+C Ctrl+Alt+Shift+Down Ctrl+Alt+Shift+Down Ctrl+Alt+Shift+Down Ctrl+Alt+Shift+T Alt+Shift+T F5	<ul> <li>₽</li> <li>₽</li> <li>₽</li> <li>₽</li> <li>₽</li> <li>₽</li> <li>₩</li> <li>₩</li> <li>₩</li> <li>₩</li> </ul>		Da Da onC ngi ngi ngi ngi ont ui.po

## FIGURE 70: OPEN THE MERGE TOOL ON THE CONFLICTING FILE

Liferay - Repository 'portal': Merging 'dummy commit 19' into 'refs/heads/master' - Ecl	lipse	
File Edit Navigate Search Project Run Window Help		
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b b Other Projects	Structure Compare	Property Compare
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b b mockups [mockups master]	a 🌝 portal a 🏷 ui	-
b gortal.build [portal[Conflicts master 11:11]	a 🍃 or a 😂 login	E
b ortal.dependencies	4 😓 00m	
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portal.plugins [portal Conflicts master 11 41]	messages.propenies	*
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b b portal.plugins.content		
b portal.plugins.group [portal Conflicts master 11 11]	commit locally - 3d15636	dummy commit 19 - fb39304
b in portal.plugins.learn [portal[Conflicts master 11 11]	2 # Default localization messages for the EAGLE Login Web App.	2# Default localization messages for the EAGLE Login Web Application.
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b 🙀 eu.fp7.eagle.portal.ui.login [portal Conflicts master 11 41]	4	4
b 2 eu.fp7.eagle.portal.ui.login.design [portal[Conflicts master 11 41]	5 HelpCompleteDesignImpl.buttonContinue.caption - Continue	5 HelpCompleteDesignImpl.buttonContinue.caption - Continue
eu.fp7.eagle.portal.ui.login.II0n [portal Conflicts master 11 +1]	6 HelpCompleteDesignImpl.labelBanner.value - Eagle Password Recovery	6 HelpCompleteDesignImpl.labelBanner.value = Eagle Password Recovery
a 🔐 src/main/resources	7 MelpCompleteDesignImpl.labelMessage.value = You will receive an email shortly with instruct	7 HelpCompleteDesignImpl.labelMessage.value = You will receive an email shortly with ins
a 🙀 eu.fp7.eagle.portal.ui.login.l10n	9 HelpDesignImpl.buttonCheck.caption = Next	9 HelpDesignImpl.buttonCheck.caption = Next
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messages_de_DE.properties	11 HelpDesignImpl.labelBanner.value = Eagle Password Recovery	11 HelpDesignImpl.labelBanner.value = Eagle Password Recovery
messages_fr_FR.properties	12 HelpDesignImpl.panelHelpCard.caption =	12 HelpDesignImpl.panelHelpCard.caption =
messages_ga_IE.properties	13 HelpDesignImpl.textFieldEmailAddress.caption = Email address 14 HelpDesignImpl.textFieldEmailAddress.description = Enter your email address	13 HelpDesignImpl.textFieldEmailAddress.caption = Email address 14 HelpDesignImpl.textFieldEmailAddress.description = Enter your email address
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Maven Dependencies	18 HelpReminderQueryDesignImpl.textFieldReminderAnswer.caption = Answer	18 HelpReminderQueryDesignImpl.textFieldReminderAnswer.caption = Answer
b 🍋 sec	19 20 LOCALE.ME.displayLanguage = Montenegrin	19 20 LOCALE.ME.displayLanguage = Montenegrin
> 🕗 target	21	21
🙀 pom.xml	22 PasswordUpdateDesignImpl.buttonUpdate.caption = Submit	22 PasswordUpdateDesignImpl.buttonUpdate.caption = Submit
eu.fp7.eagle.portal.ui.login.service	23 PasswordUpdateDesignImpl.buttonUpdate.description =	23 PasswordUpdateDesignImpl.buttonUpdate.description =
b b and a state of the state	24 PasswordUpdateDesignImpl.labelBanner.value = Eagle Password Update 25 PasswordUpdateDesignImpl.labelErrorMessage.value =	24 PasswordUpdateDesignImpl.labelBanner.value = Eagle Password Update 25 PasswordUpdateDesignImpl.labelErrorMessage.value =
portal.plugins.menu [portal Conflicts master 11 41]	25 PasswordUpdateDesignImpl.labelPasswordHint.value = Minimum of 8 characters. 1 uppercase 10	
portal.plugins.myeagle.notes [portal[Conflicts master 11 41]	The same of the description of the same same same same same same same sam	· · · · · · · · · · · · · · · · · · ·
b in portal.plugins.myeagle.vault [portal]Conflicts master 11 i1]		
🦝 Servers 😂 📄 🏷 🖉 🔲 🕬 😤 🖻	🖹 Markers 🕙 Error Log 🖹 Problems 🔲 Console 🕄 🐵 Javadoc 🕌 Data Source Explorer 🍃 Call Hierarchy 🖷 Progre	
» kiferay v6.2 CE GA6 (Tomcat 7) at localhost [Debugging, Synchronized]	Liferay v6.2 CE GA6 (Tomcat 7) at localhost (Liferay v6.2 CE (Tomcat 7)) C:\Program Files\Java\jdk1.8.0_92\bin\javaw.exe (13-Jun-201	16 1:54:26 pm)
Tomcat v7.0 Server at localhost [Stopped]	Jun 13, 2016 2:21:45 PM org.apache.catalina.core.ApplicationContext log INFO: Closing Spring root WebApplicationContext	
	14:21:45,687 INFO [ContainerBackgroundProcessor[StandardEngine[Catalina]]][PluginPackageUtil:1016]	] Beading plumin parkage for ou for scale postal us postlet logic postlet
	Jun 13, 2016 2:21:45 PM org.apache.catalina.loader.WebapClassLoader validatelarfile	I wearing braden becauge too carrier too carrent bor carrier bor care
	INFO: validateJarFile(D:\projects\eagle\programs\liferay-portal-6.2-ce-ga6\tomcat-7.0.62\webapps\eu	u.fp7.eagle.portal.ui.portlet.login-portlet\WEB-INF\lib\servlet-api-2.5.jar) - jar not loaded. See Ser
	Jun 13, 2016 2:21:48 PM org.apache.catalina.startup.TldConfig execute	and the second
	INFO: At least one JAR was scanned for TLDs yet contained no TLDs. Enable debug logging for this lo 14:21:48,876 INFO [ContainerBackgroundProcessor[StandardEngine[Catalina]]][HotDeployEvent:145] Plu	ogger for a complete list of JARs that were scanned but no TLDs were found in them. Skipping unneeded
	14:21:48,876 INFO [ContainerBackgroundProcessor[StandardEngine[Catalina]]][HotDeployEvent:145] Pit 14:21:48,876 INFO [ContainerBackgroundProcessor[StandardEngine[Catalina]]][HotDeployEvent:145] Pit	by in europriegae, por tartar, por tartar, por tartar, por tartar, and the market partiet
	14:21:48,876 INFO [ContainerBackgroundProcessor[StandardEngine[Catalina]]][PluginPackageUtil:1016]	] Reading plugin package for eu.fp7.eagle.portal.ui.portlet.login-portlet
	e	•
Left: 2 : 40, Right: 2 : 1, conflicting change #1 (Left: 2 : 2, Right: 2 : 2)		



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Deliverable Nature P Dissemination level PU Version 1.0

# FIGURE 71: MANULLY MERGE THE CONFLICTS

ka portal.plugins.group [portal Conflicts ma     ka portal.plugins.learn [portal Conflicts mass     ka portal.plugins.login [portal Conflicts]	ter †1 ↓1] =		######################################	
<ul> <li>portal.plugins.meru</li> <li>portal.</li></ul>	New Open Open With	F3	<pre>mpl.buttonContinue.caption = Continue mpl.labelBanner.value = Eagle Pass mpl.labelMessage.value = You will r</pre>	
	Show In Copy	Alt+Shift+W ► Ctrl+C	onCheck.caption = Next onCheck.description = Click r 1Banner.value = Eagle F	
	Copy Qualified Name Paste Delete	Ctrl+V Delete	<pre>lHelpCard.caption = = FieldEmailAddress.caption = Email a FieldEmailAddress.description = Enter y</pre>	
	Remove from Context Mark as Landmark Build Path	Ctrl+Alt+Shift+Down Ctrl+Alt+Shift+Up	<pre>signImpl.buttonSendAnswer.caption signImpl.labelBanner.value signImpl.textFieldReminderAnswer.captic</pre>	
	Source Refactor	Alt+Shift+S ► Alt+Shift+T ►	p€ Commit Ctrl+# Advanced ► = St	
	Import Export		Merge Tool = E Show Local History = M	
	Refresh Assign Working Sets	F5	Create Patch Apply Patch Add to Index ogran	
	Validate Profile As Debug As	<b>}</b>	Add to Index     ogram       Image: Second Se	
	Run As Coverage As Team	+ +	Show in Repositories View     ngir       Image: Show in History     ngir       Image: Show Annotations     ngir	
	Compare With Replace With Modelbus	> > >	Show Annotations ingir org.apache.catalina.core.StandardConte with name [/eu.fp7.eagle.portal.ui.por	
essages.properties - eu.fp7.eagle.portal.ui.lo	Properties	Alt+Enter		

FIGURE 72: AFTER MANUALLY MERGING, ADD THE FILE TO THE INDEX

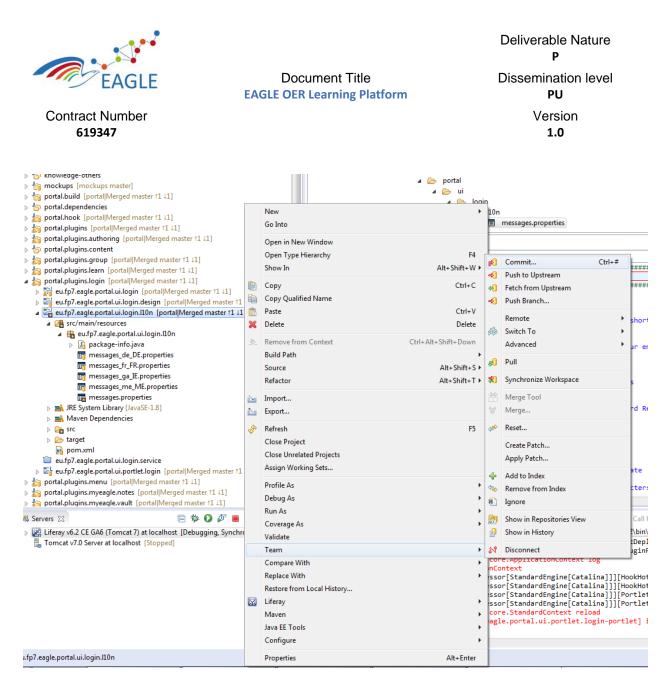


FIGURE 73: FINALLY COMMIT THE RESOURCE



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Commit C	Changes
Commit Ch	anges to Git Repository
Commit me	issage 🔬 👼 🖡 🔽
<sup>0</sup> Merge rem	mote-tracking branch 'origin/master'
Conflict: eu.fp erties	s: p7.eagle.portal.ui.login.l10n/src/main/resources/eu/fp7/eagle/portal/ui/login/l10n/messages.prop
<u>A</u> uthor: Committer:	Arun Prakash <arun.prakash@fokus.fraunhofer.de> Arun Prakash <arun.prakash@fokus.fraunhofer.de></arun.prakash@fokus.fraunhofer.de></arun.prakash@fokus.fraunhofer.de>
Files (1/1)	
type filter t	ext
Status	Path
	eu.fp7.eagle.portal.ui.login.l10n/src/main/resources/eu/fp7/eagle/portal/ui/login/l10n/messages.properties
?	Commit and Push Commit Cancel

FIGURE 74: COMMIT AND PUSH TO REMOTE REPOSITORY



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🖨 Push Results: portal - origin	
Pushed to portal - origin	
<ul> <li>master: master [796a17efb39304] (2)</li> <li>796a17e4: Merge remote-tracking branch 'origin/master' (Arun Prakash on 13 Jun, 2016 2:24 PM)</li> <li>3d156367: commit locally (Arun Prakash on 13 Jun, 2016 2:18 PM)</li> </ul>	[ [
Message Details Repository ssh://git@git.list.lu/eagle/portal.git	
<u>C</u> onfigure	. ОК

FIGURE 75: CONFLICT RESOLUTION END RESULT