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Large-scale Integrated Project (IP)



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1 Executive Summary

This version of the deliverable "FI-CoDE Basic Framework" outlines updated information for the FIWARE project in the third and last release of the tools. Moreover, this document reflects both the tools that have been added and the ones that have been updated from the previous version. The main purpose of the tools collected in this document is to support the developers by providing all the necessary information on: how do the Generic Enablers implementations work (FIWARE Catalogue, FIWARE Academy); how to create an environment that support the application development (myForge); how to remotely interact with the forge from the IDE.

A description of the developed and selected tools, by the Tools chapter, is given in detail.

2 About This Document

The original purpose of this document was to build a *new generation forge specifically designed for managing the development of FI Applications*. Since the first months of the project this initial goal has been changed and turned into a supporting environment, integrated into the IDE, that enables developers to interact with a selected forge features directly from the IDE. This change has been discussed with the FIWARE project Coordinator, and accepted by the project coordination and the EC. This version of the document is also completed by the descriptions of the FIWARE Catalogue and FIWARE Academy, being complementary tools to support the pure development of Future Internet applications.

2.1 Intended Audience

The tools described within this document are mainly oriented to developers and system architects. In general, the intended audience of this deliverable includes who wants to take benefits from working with an environment centred in the IDE.

2.2 Chapter Context

The Tools chapter in the context of FIWARE project is in charge of providing a set of tools and practices to support the development of Future Internet applications based on a FIWARE Platform instance. More precisely, Future Internet applications will benefit from the services made available by the FIWARE Platform (Generic Enablers instances).

To support the various activities, composing the lifecycle of Future Internet applications, the Tools chapter provides support for collaboration, development, test and training.

2.3 Structure of this Document

The document is generated out of a set of documents provided in the public FIWARE wiki. For the current version of the documents, please visit the public wiki at <http://wiki.fi-ware.org>.

The following resources were used to generate this document:

[Tools.FI-CoDE Basic Framework](#)

[Tools.Catalogue](#)

[Tools.Learning Platform](#)

[How to create a SCORM course](#)

[Tools.myForge](#)

[Tools.FusionForge User Project Management](#)

[Tools.FIA Project Management](#)

2.4 Typographical Conventions

Since October 2012 the FIWARE project improved the quality and streamlined the submission process for deliverables, generated out of the public and private FIWARE wiki. The project is currently working on the migration of as many deliverables as possible towards the new system.

This document is rendered with semi-automatic scripts out of a MediaWiki system operated by the FIWARE consortium.

2.4.1 Links within this document

The links within this document point to the wiki pages where the content was rendered from. These links can be browsed in order to find the "current" status of the particular content.

Due to technical reasons, not all pages that are part of this document can be linked document-local within the final document. For example, if an open specification references and "links" an API specification within the page text, this link will firstly point to the wiki, although the same content is usually integrated within the same submission as well.

2.4.2 Figures

Figures are mainly inserted within the wiki as the following one:

```
[[Image:...|size|alignment|Caption]]
```

Only if the wiki-page uses this format, the related caption is applied on the printed document. Since currently this format is not used consistently within the wiki, please understand that the rendered pages have different caption layouts and different caption formats in general. Due to technical reasons the caption can't be automatically numbered.

2.4.3 Sample software code

Sample API-calls may be inserted like the following one.

```
http://[SERVER_URL]?filter=name:Simth*&index=20&limit=10
```

2.5 Acknowledgements

The current document has been elaborated using a number of collaborative tools, with the participation of Working Package Leaders and Architects as well as those partners involved in their teams.

2.6 Keyword list

FIWARE, PPP, FI-CoDE, Future Internet, Collaboration, Catalogue, Academy, training, eLearning, Development, FusionForge, Eclipse, Mylyn, Developers Community and Tools, ICT

2.7 Changes History

Release	Major changes description	Date	Editor
v1	Created docx version from the content of the wiki	03/10/2014	ENG
v2	First review of the docx version	14/10/2014	UPM
v3	Check new references, added figures numbering and table of figures	16/10/2014	ENG
v4	Final review and text formatting	5/11/2014	ENG
V5	Implementation of final comments after final review by TID	20/11/2014	ENG

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3 FI-CoDE Basic Framework

3.1 Introduction

The aim of the FI-CoDE Basic Framework is to provide a supporting environment, integrated into the IDE, enabling developers to interact with a selected forge features directly from the IDE.

3.2 Software Components

Detailed information on the tools of this Framework, together with how to obtain them, is available from each tool-specific section.

[Catalogue](#)

The catalogue is a container for assets (e.g. GEs) published by asset providers; developers can browse, search and get access to those assets.

[Learning Platform](#)

The FIWARE Learning platform is used to provide training on FIWARE Generic Enablers usage and Tools adoption to the end users. This section includes also the manual on how to create a training course and publish it to the eLearning platform (How to create a SCORM course).

[myForge](#)

The myForge is the cloud-based environment that a developer (or a team) can use to set up the resources to support the development of software applications. Through this web interface it's easy to create a personal software code repository (SVN) with a dedicated, and web based, administration UI, within a single virtual machine.

[FusionForge User Project Management](#)

This Eclipse plug-in offers wizards to create, manage and delete Fusion Forge projects and users within the FIWARE IDE.

[FIA Project Management](#)

This Eclipse plug-in offers wizards to create and manage FIA projects within the FIWARE IDE.

4 Catalogue

4.1 Introduction

The Developer Community and Tools Chapter of FIWARE are responsible for providing tools and facilities supporting the developers of Future Internet Applications and new implementations of Generic Enablers based on their Open Specifications. To this end we offer a "Catalogue" for making it easy for developers to find, navigate and understand what is offered by FIWARE project in terms of Generic Enablers and FIWARE Instances (think of the "One-Stop-Shop" metaphor). In fact, the FIWARE Catalogue will contain information about: Generic Enablers Open Specifications, Generic Enablers reference implementations (API, interfaces, source code, executable, etc.), the Generic Enablers reference implementations clients (if any), Generic Enablers reference implementations tutorial and any other information that may be useful for a developer that wants to use these. In addition, the Catalogue will also contain the reference to the FIWARE Instances (e.g. FIWARE Testbed at least) where the Generic Enablers implementations have been deployed. Thanks to the FIWARE Catalogue APIs and the FIA Project Management plugin, it's possible for developers to browse FIWARE Generic Enablers (Open Specifications and implementations) directly from the IDE, thus making usage and interaction even easier. This is also an opportunity to market FIWARE to the Eclipse community.

It may be worth to know that the FIWARE Catalogue has nothing to do with the Apps Marketplace released by Apps and Service Ecosystem Chapter! The catalogue intends to host only outcomes of the FIWARE project and only based on the Generic Enablers Open Specifications, Generic Enabler Instances and Tools.

4.1.1 Information

Name: Catalogue

Version: 1.0

License: Drupal part: GPLv2

Source Code and documentation: http://forge.fi-ware.org/frs/?group_id=15

Website: <http://catalogue.fi-ware.org/> (FIWARE Catalogue)

Scope: The main goal for the catalogue is to provide a common place (website) where users can browse, search and get access to Generic Enablers.

4.1.2 Components

The catalogue is based on the Drupal content management system. It is running on the testbed at <http://catalogue.fi-ware.org>. This site is live and publicly available; users can register and start browsing for, or for adding, content.

4.2 Architecture

The catalogue will be deployed as part of the FIWARE Testbed and exposes the assets available in this testbed. The catalogue enables users (such as e.g. FI-App or GE implementations developers) to browse and interact with content as well as with FIWARE GE and instances providers. The users can, in addition, publish new GE implementations, get info about GE Implementations and edit them.

The CMS/portal includes a publishing system and stores published content making it available for browsing. It is role based and it is possible to configure different roles and provide them different rights to the catalogue.

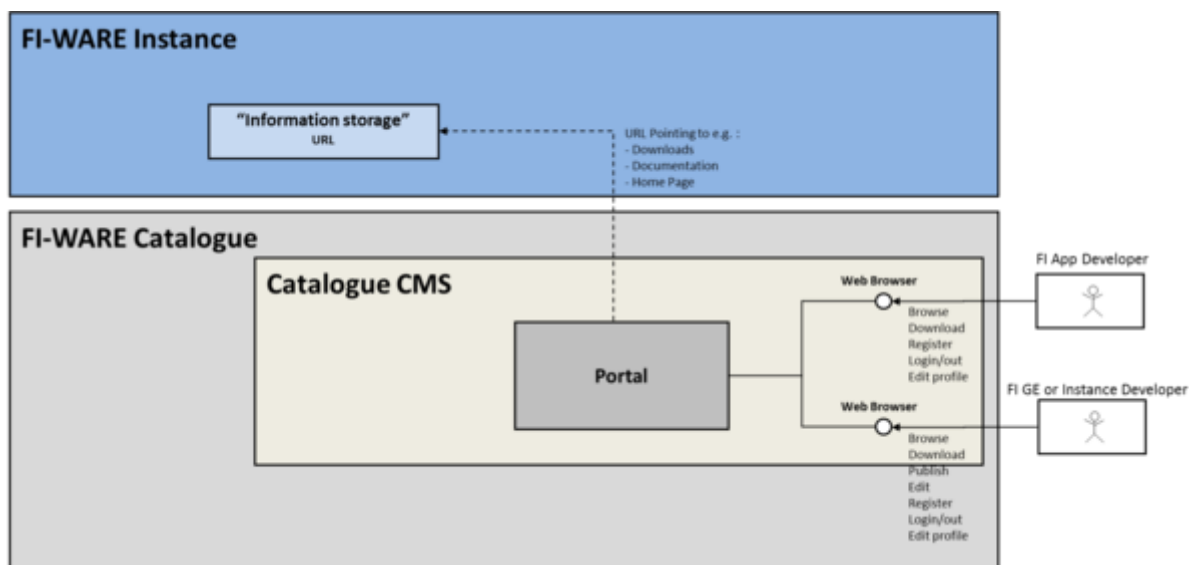


Figure 1 - Catalogue Architecture

4.3 Browsing the FIWARE Catalogue

4.3.1 Introduction

The FIWARE Catalogue provides publicly available information about the Generic Enablers, Generic Enabler Instances and Tools developed within the FIWARE project. This section describes how users can browse the Catalogue and find the information they need to develop their application.

4.3.2 Home Page

In this screenshot we can see the front-page of the Catalogue displayed to all the visitors. The top menu provides links to the sections available.



Figure 2 - Catalogue Enabler List

The sections are:

- Home: the front page
- Enablers: A list of the available Generic Enabler Implementations available in the Catalogue.
- Tools: A list of the available tools to develop new GEs.
- Forum: A forum where registered users can interact.
- Login/Register: The login/register screen.

4.3.3 Enablers

The Enablers option in the menu shows the Generic Enablers list where can be seen the Generic Enablers published in the FIWARE Catalogue, a short description, the Chapter they belong to, and the average rating the users have given that GE.

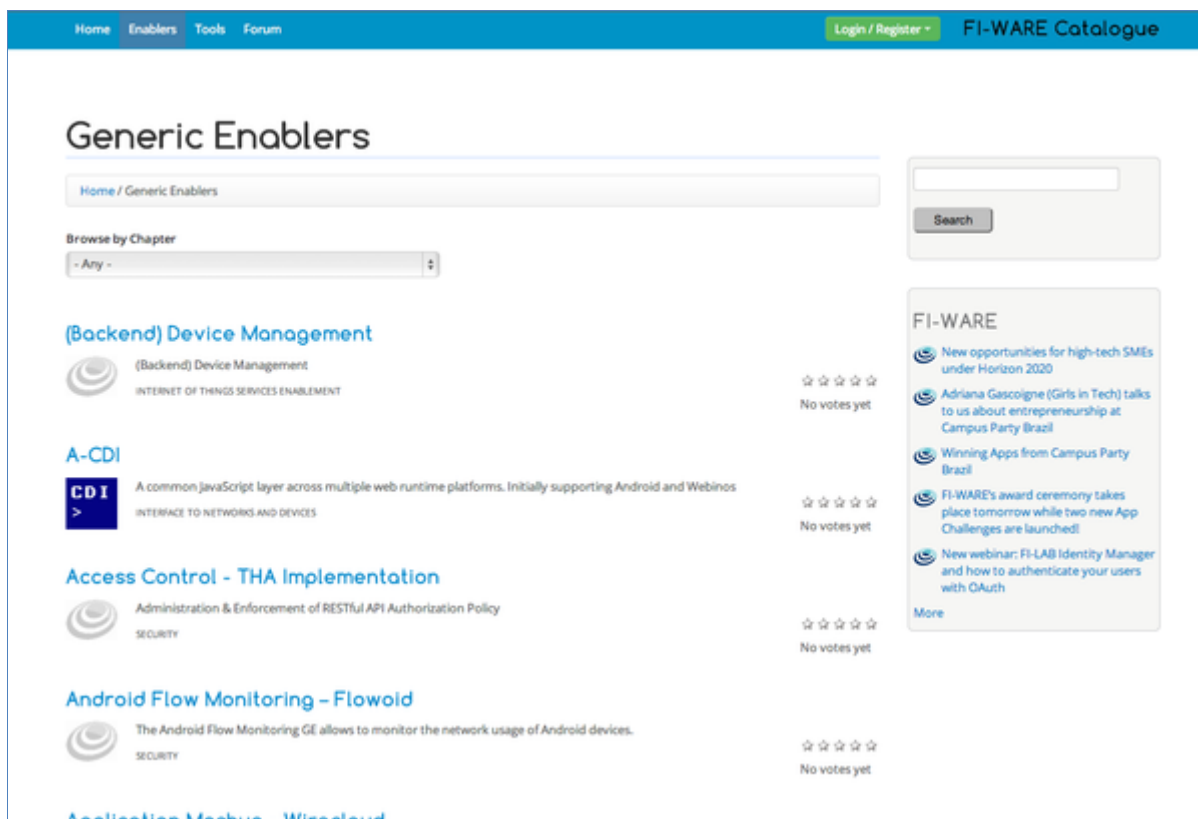


Figure 3 - Catalogue Home Page

4.3.3.1 *Browsing by Chapter*

All the GEIs available in the Catalogue are grouped according to the FIWARE technical chapters, namely:

- Applications/services ecosystems and delivery framework
- Cloud hosting
- Data/context management
- Advanced middleware and interfaces to network and devices
- Internet of things services enablement
- Security
- Tools
- Advanced web-based user interface

You can use the Browse by Chapter dropdown menu to filter the list of enablers by the selected chapter.

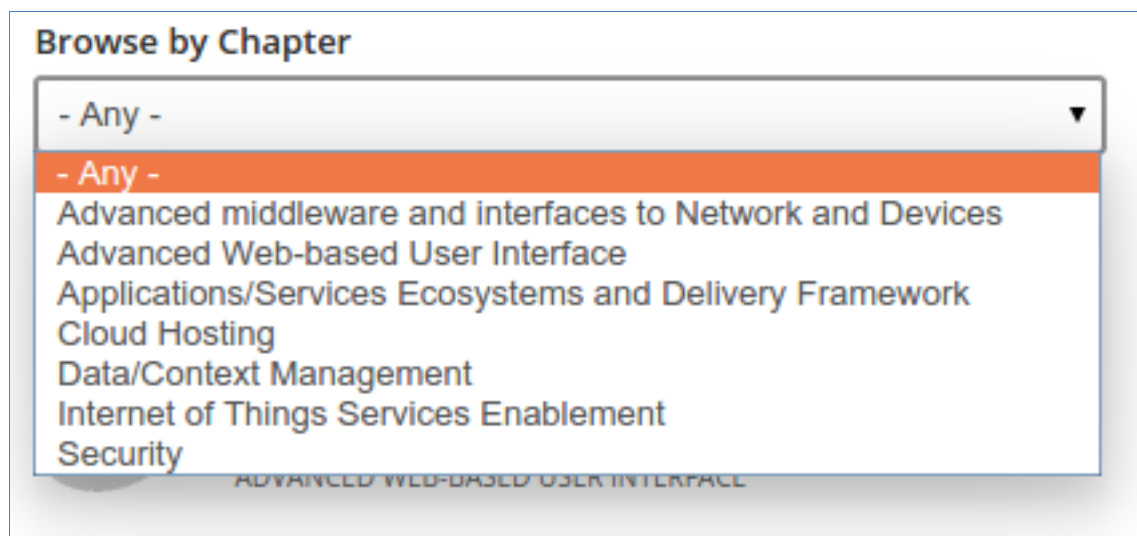


Figure 4 - Select Chapter

For instance, if you select the Data/Context Management chapter, the outcome will be:

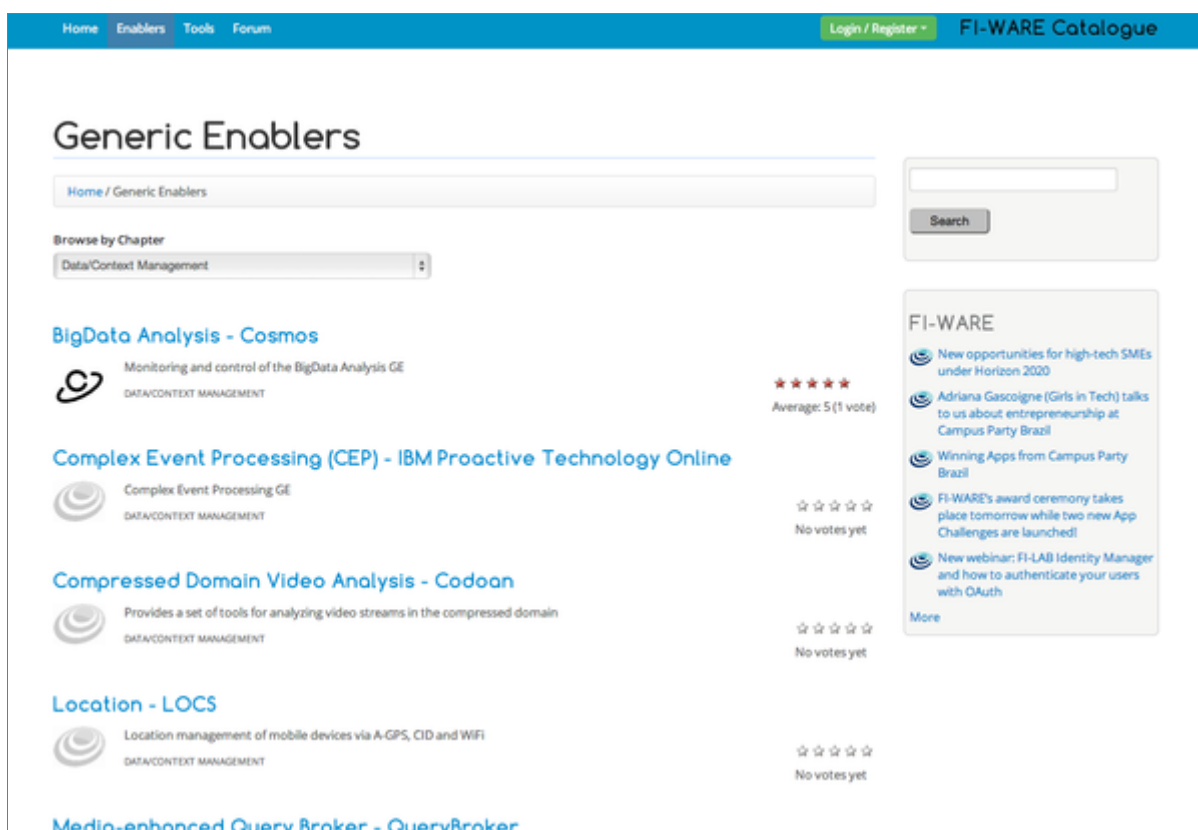


Figure 5 - Browsing a Chapter

4.3.3.2 *Search*

Users here can also use the search box to find the type of enabler they need. For instance, in the following screenshot the user has searched for “identity” trying to find an identity management Generic Enabler, by clicking on any of them, the user will be directed to the selected Enabler’s Implementation page.

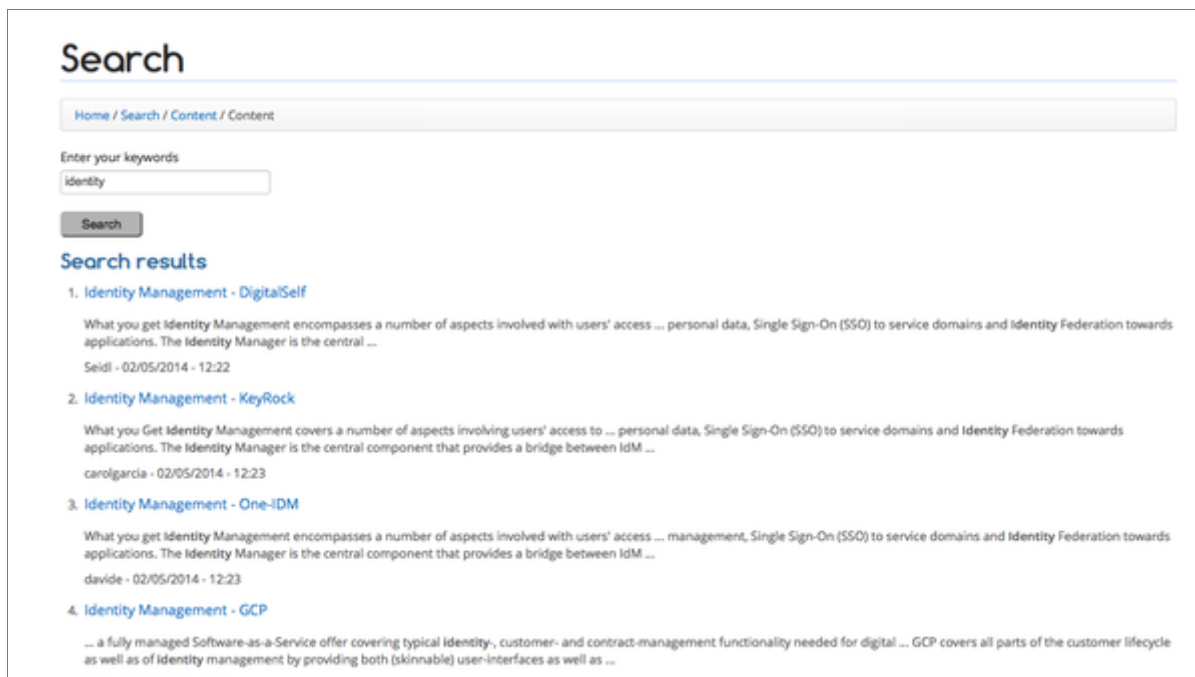


Figure 6 - Search Results

4.3.3.3 *The Generic Enabler Implementation page*

By selecting the Generic Enabler Implementation will be shown the Generic Enabler Implementation detailed view, to know more about it, as depicted in the following screenshot.

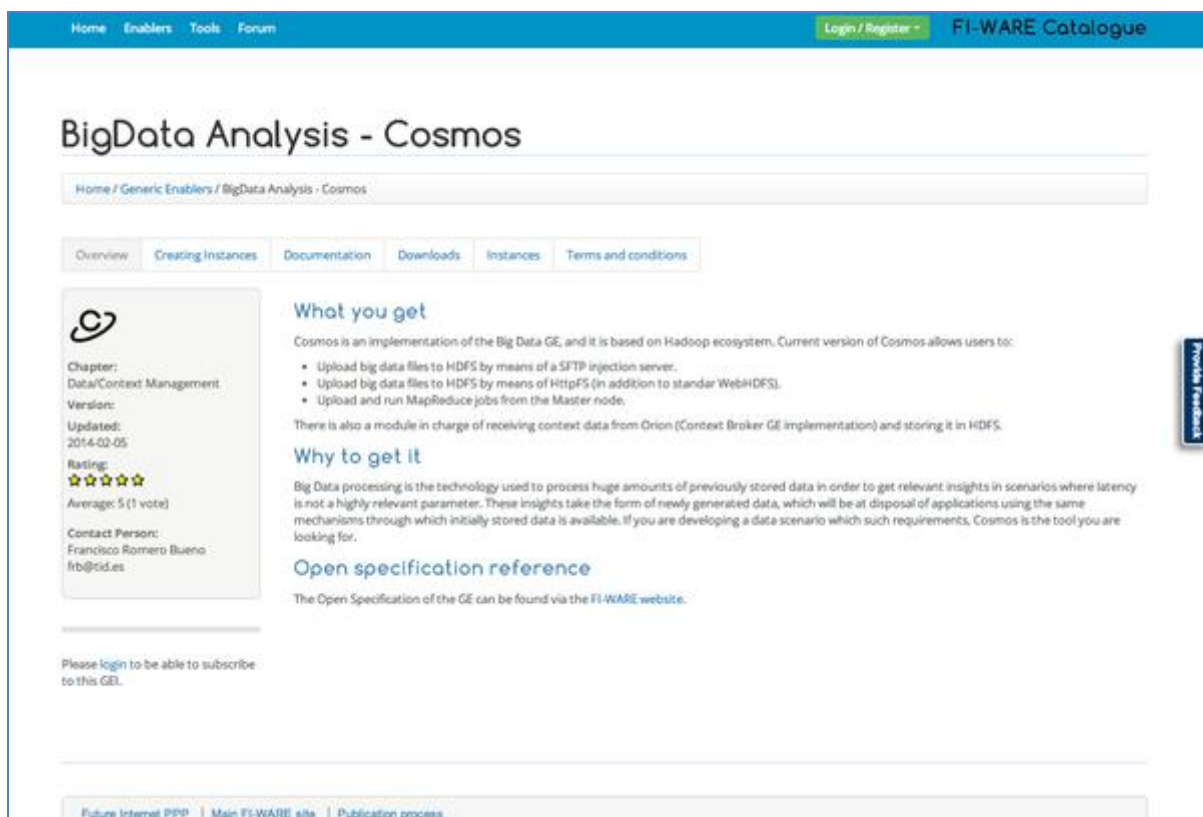


Figure 7 - A Generic Enabler Implementation View

In the Generic Enabler Implementation View page it's possible to find general information about the GEi entry in the Catalogue, such as: the person to contact in charge of the implementation; the reference Chapter; an introduction to the Implementation and the Open Specification Reference that has been implemented. Additionally, in this page there is a menu providing links to other relevant information for this Catalogue entry, as listed below:

- Overview: the main page of this GEi;
- Creating Instances: information on how to create new instances, when possible, for this GEi;
- Documentation: additional documentation for the GEi;
- Downloads: downloads related to this GEi such as manuals, source code, examples, etc;
- Instances: a list of the GEis available (this screen is detailed below);
- Terms and Conditions: information about when, where and how this GEi can be used. This information is divided into environments, scopes where the terms and conditions apply.

4.3.3.3.1 *Instances List*

Many GEis have publicly available instances that can be used as long as their Terms and Conditions are complied. In the Instances List page, a list of available instances can be seen, grouped by the environment they belong to. Before using them, the Terms and Conditions, corresponding to their environment, must be checked and agreed (detailed in the Terms and Conditions tab).

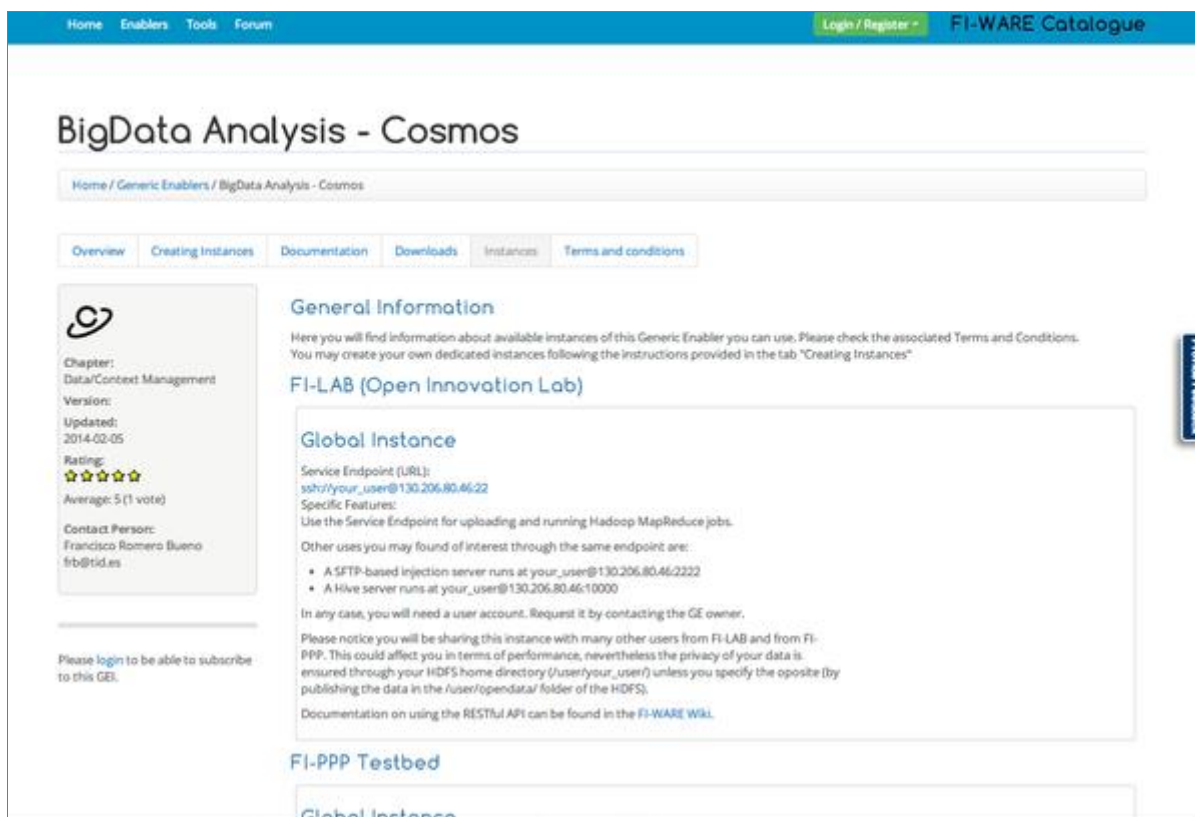


Figure 8 - Instances List

4.3.3.3.2 *Providing Feedback*

In any page of a Generic Enabler, the Provide Feedback tab (see figure below) can be used to send a message to the developers of the GEi, using the dedicated form presented in the pop-up window.

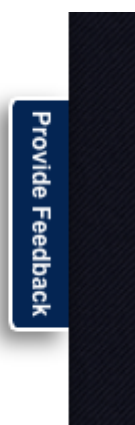
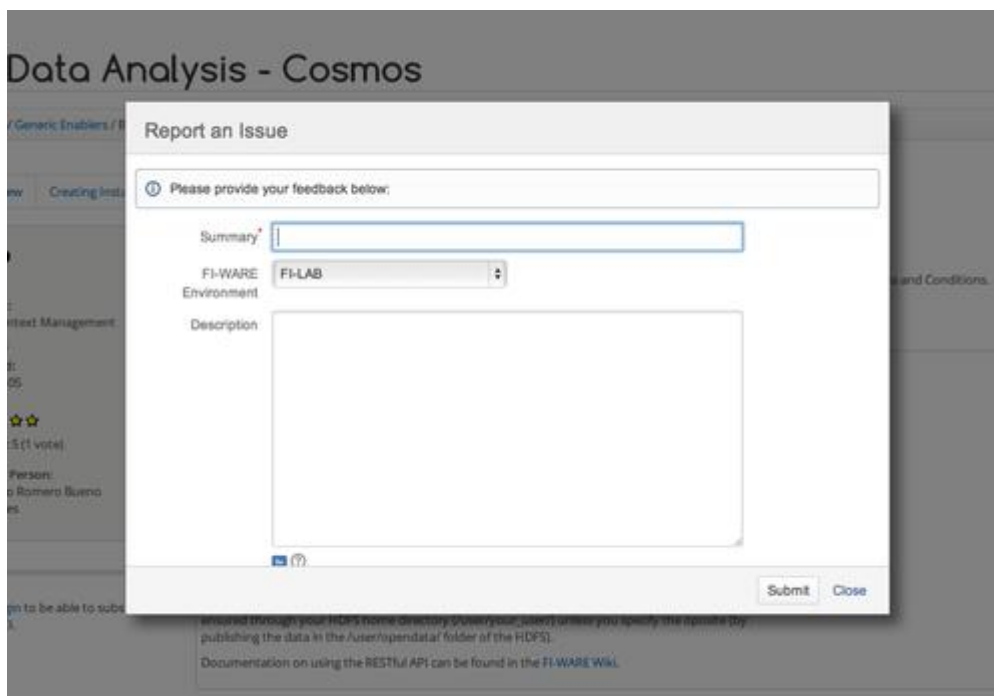


Figure 9 - Provide Feedback tab

The Provide Feedback pop-up window is represented in the next screenshot.



The screenshot shows a web application titled "Data Analysis - Cosmos". A modal window titled "Report an Issue" is open. It contains a text input field for "Summary", a dropdown menu for "FI-WARE Environment" with "FI-LAB" selected, and a larger text area for "Description". At the bottom of the modal are "Submit" and "Close" buttons. The background shows a sidebar with navigation links like "Generic Enablers / FI", "Creating Inst...", "Context Management", and "Person: o Romero Buena es".

Figure 10 - Provide Feedback Box

The submitted request is added to a JIRA tracking system that helps the FIWARE team to properly provide the support activity.

4.3.4 Tools

This section deal with the Tools developed within the FIWARE project. These Tools can be used to develop new GEIs or can help to build new applications that make use of those GEIs. The main list of Tools is shown in the figure below; each entry in the list consists in a Tool together with a brief description.

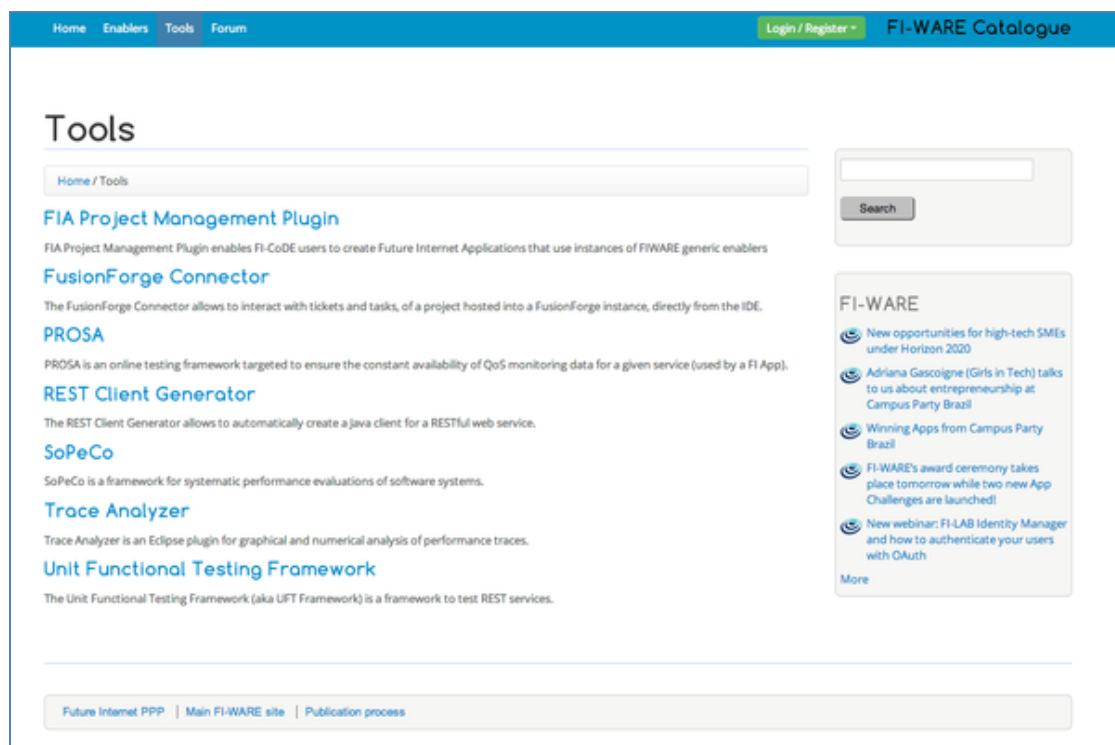


Figure 11 - Tools List

Of course, tools can be found through the search function, just like GEIs. More details about each Tool can be found in its details page.

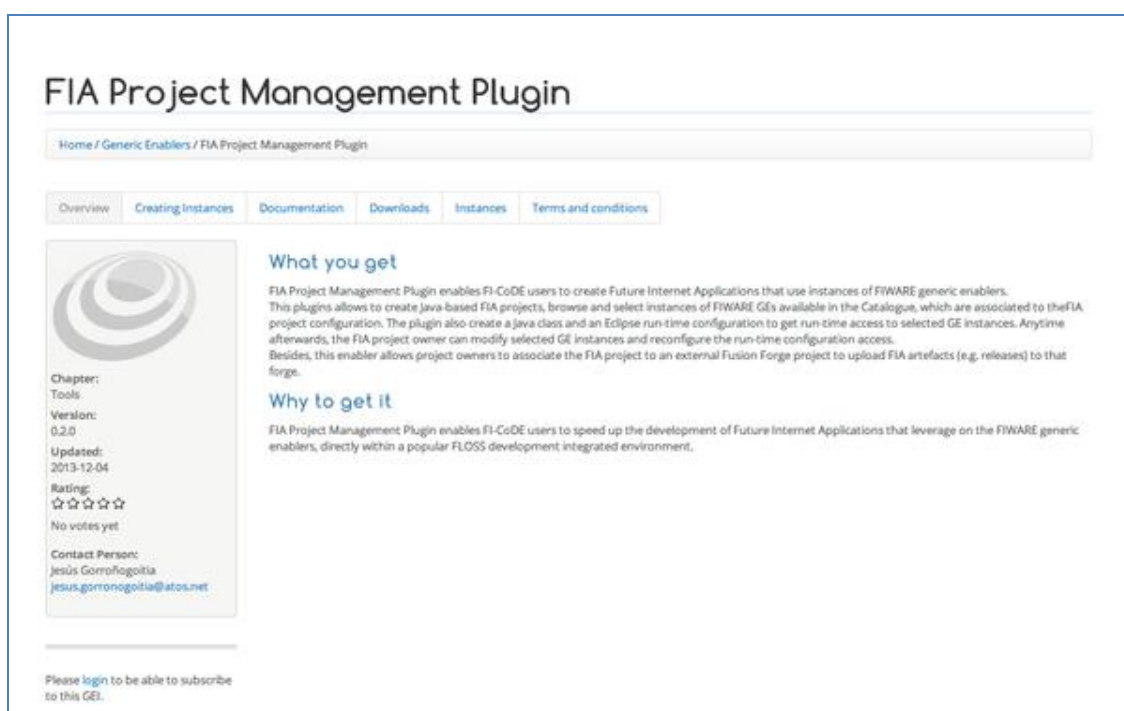


Figure 12 - Tools Detail View

The Detail View of a Tool has the same sections and information as the GEi page, structured in the same page. Refer to the GEi Browsing section of this guide for more details.

4.4 Catalogue API

The FIWARE Catalogue provides publicly available information about the Generic Enablers, Generic Enabler Instances and Tools developed within the FIWARE project. This section describes the API for accessing the contents of the FIWARE Catalogue.

4.4.1 Information Available

The API provided by the Catalogue allows access to the following structured information:

- Generic Enablers and Tools.
- General Description.
- Short Description – Description that appears in the Enablers/Tools List.
- Long Description – Information that appears in the GE/Tool Page.
- Contact Person – Name of the Contact Person.
- Contact Details – E-mail or additional contact information.
- Icon – Link to the image describing the Enabler/tool.
- Rating – HTML code containing the rating system.
- Open Specification Reference – Link to the Open Specification Reference.
- Creating Instances – Information on how to create new instances if possible.
- Documentation – Additional documentation and information about the GEi.
- Downloads.
- Files – Each of the Files added to the Downloads.
- Instances.
- Generic Enabler Instances – Available instance of a Generic Enabler implementation.
- Description – General information about the instance.
- Service End-point URL – URL to access the Instance when applicable.
- Instance Environment – The environment where the instance is deployed, currently there are three options:
 - FI-PPP Testbed
 - FI-LAB (Open Innovation Lab)
 - Other Environments
- Terms and Conditions – Terms and conditions for using the Generic Enabler implementation and/or the instances.

4.4.2 The API

4.4.2.1 *Resources*

The API has only one resource: /enabler_list.

Adding the Catalogue URL:

http://CATALOGUE_URL/rest_node_api/enabler_list

An HTTP call to that URL dumps all the information available in the Catalogue in XML format. Additionally, ".json" can be added to obtain the information in JSON format:

http://CATALOGUE_URL/rest_node_api/enabler_list.json

From now on will be used XML examples for readability purposes but the names of the fields and the structure are the same in JSON format. The skeleton of a response is this:

```
<result is_array="true">
<item>
<node_type/>
<node_title/>
<nid/>
<Chapter/>
<Body/>
<Short_Description/>
<Description/>
<Contact_Person/>
<Contact_Details/>
<Icon/>
<Rating/>
<File/>
<Open_Specification_reference/>
<Service_Endpoint__URL/>
</Instance_Environment>
<og_node_gid/>
<og_membership_node_gid/>
</item>
...
</result>
```

Where:

Field	Description
node_type	The type of content piece.
node_title	The title.
Nid	Unique identification number. Can also be used to access the original Catalogue entry with http://CATALOGUE/node/nid
Chapter	The FIWARE chapter
Body	Main content of the entry.
Short_Description	Brief Description of the content
Description	Full description
Contact_Person	Name of the contact person for this GE
Contact_Details	Details for the contact person (email, phone, etc.)
Icon	A link to the Icon image for this GE
Rating	HTML code for the rating system
File	Link to the File
Open_Specification_reference	Link to the Open Specification Reference
Service_Endpoint__URL	The Endpoint URL for a Generic Enabler Instance when applicable
Instance_Environment	The environment where the Generic Enabler Instance is running
og_node_gid	Group id for the node (applies to enablers)
og_membership_node_gid	Group id of the group that owns the node (applies to all but enablers)

All content is classified by the node_type:

node_type	Description
Enabler	Generic Enabler Implementations
enabler_instance	Generic Enabler Implementation Instances

enabler_sub_page	Additional contents tied to a GEi: Creating Instances Terms and Conditions Documentation
File	Files related to a GEi

In the following table are listed fields relevant for each node_type, green means it is applicable to that type, with notes when needed; red means that that field does not contain information for that type.

Field / node_type	enabler	enabler_instance	enabler_sub_page	file
node_type				
node_title	Name of the enabler	Name of the instance	Type of enabler sub-page	Number of the file
nid				
Chapter				
Body	General GEI information	Description of the Instance	Main Content of the sub-page	
Short_Description				
Description				File Description
Contact_Person				
Contact_Details				
Icon				
Rating				
File				
Open_Specification_reference				
Service_Endpoint_URL				
Instance_Environment				
og_node_gid				
og_membership_node_gid				

Figure 13 - Catalogue API Resources per node_type

The fields *og_node_gid* and *og_membership_node_gid* are not important outside of the Catalogue, they are used to tie together *enablers* with the *enabler_sub_pages*, *instances* and *files*. This relationship is explained in the figure below.

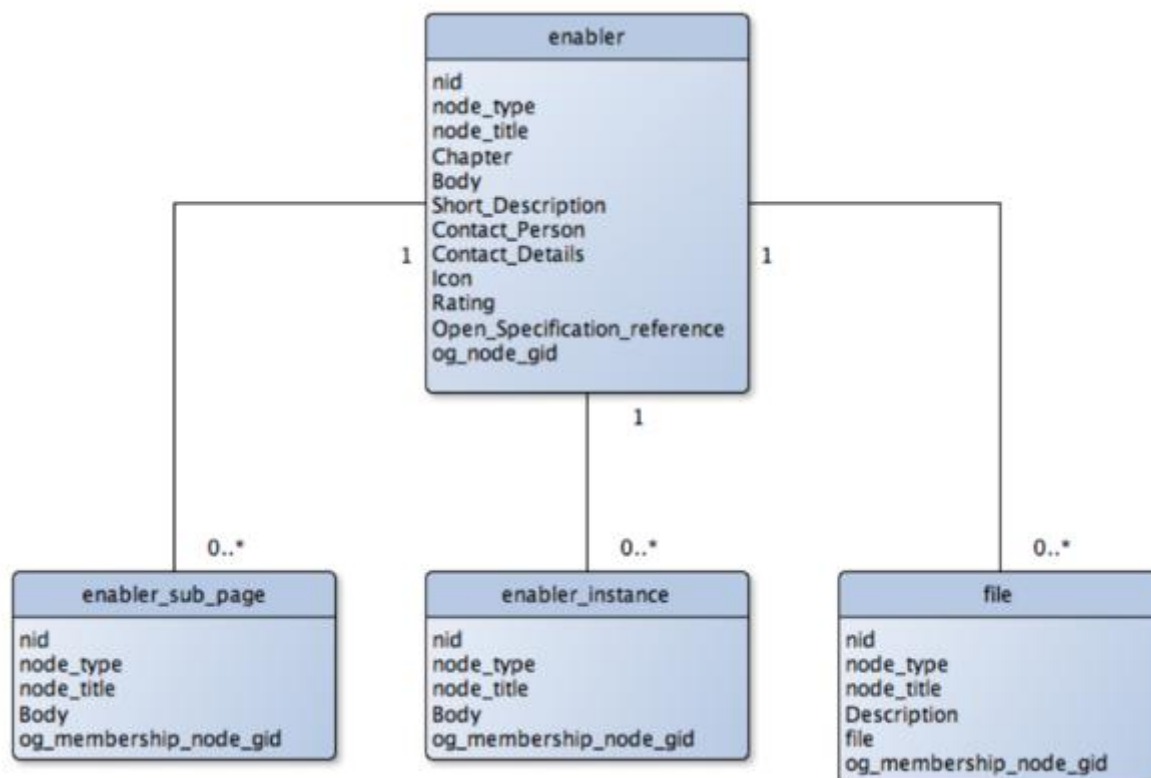


Figure 14 - Nodes relationships

Each enabler has an `og_node_gid`. All the content related to that GE will have the `og_membership_node_gid` equal to that `og_node_gid`. **Note, the `og_node_gid` is not related to the `nid`.**

4.4.3 Filters

Filters can be used to refine the requests to the API. The syntax for using filters is:

http://CATALOGUE_URL/rest_node_api/enabler_list?filter1=value1&filter2=value2-
http://CATALOGUE_URL/rest_node_api/enabler_list?filter1=value1&filter2=value2

As in the example, filters can be combined to get more accurate results. There are four filters in the FIWARE Catalogue API: `Nid`, `Chapter`, `Type` and `Group`.

4.4.3.1 Nid Filter

The `Nid` filter retrieves the element of the FIWARE Catalogue with a given `Nid` field. The keyword for the filter is *nid*. For example, to retrieve the element with 19 as `Nid`:

http://CATALOGUE_URL/rest_node_api/enabler_list?nid=19-
http://CATALOGUE_URL/rest_node_api/enabler_list?nid=19]

4.4.3.2 *Chapter Filter*

The Chapter filter can be used to select a single Chapter to retrieve information of GEIs. Remember that the Chapter field is only present in GEIs. The keyword is *field_api_chapter_tid* and a number represents each chapter:

- 1: Applications/Services Ecosystems and Delivery Framework
- 2: Cloud Hosting
- 3: Data/Context Management
- 4: Advanced Middleware and Interfaces to Network and Devices
- 5: Internet of Things Services Enablement
- 6: Security
- 7: Tools
- 12: Advanced Web-Based User Interface

Tools is a special Chapter here, it can be used to retrieve information about FIWARE Tools even though those are not strictly GEIs. To get all GEIs from the security Chapter, the request would be:

```
http://CATALOGUE_URL/rest_node_api/enabler_list?field_api_chapter_tid=6-  
http://CATALOGUE_URL/rest_node_api/enabler_list?fchapter_tid=6
```

4.4.3.3 *Type Filter*

This filter selects a single type of content from the ones explained above (*enabler*, *enabler_instance*, *enabler_sub_page* and *file*). The keyword is *type*. For instance, to retrieve only GEIs from the Catalogue:

```
http://CATALOGUE_URL/rest_node_api/enabler_list?type=enabler
```

4.4.3.4 *Environment Filter*

This filter only applies to *enabler_instance* so, in order to be effective it has to be used with the previous filter (?type=enabler_instance) the keyword is *instance_environment*. There are three possible values for the filter corresponding with the three environments available: "FI-PPP Testbed" "FI-LAB (Open Innovation Lab)" "Other Environments" Example:

```
http://CATALOGUE_URL/rest_node_api/enabler_list?type=enabler_instance&instance_environment="FI-PPP  
Testbed"
```

4.4.3.5 *Group Filter*

This filter allows retrieving all the information (enabler page, sub-pages, instances and files) from a particular GEI. The keyword is *group*. Here will be used the *og_node_gid* of an Enabler to retrieve the associated pages. In this example, consider that this enabler has been previously retrieved:

```

<item>

<node_title>A Test Enabler</node_title>

<nid>632</nid>

<node_type>enabler</node_type>

<og_node_gid>93</og_node_gid>

<Chapter>

  <a href="/chapter/security" typeof="skos:Concept" property="rdfs:label skos:prefLabel"
datatype="">Security</a>

</Chapter>

<Contact_Details>

  <p> Ipsum ha sido el texto de relleno estándar de las industrias desde el año 1500,
cuando un impresor </p>

</Contact_Details>

<Contact_Person>me</Contact_Person>

<Icon>

</Icon>

<Short_Description>Testing</Short_Description>

<Body>

  <p>em Ipsum ha sido el texto de relleno estándar de las industrias desde el año</p>

</Body>

<Rating>

  <div class="clearfix fivestar-average-stars fivestar-average-text"><div
class="fivestar-static-form-item"><div class="control-group form-type-item">

    <div class="controls"> <div class="fivestar-default"><divclass="fivestar-widget-static
fivestar-widget-static-vote fivestar-widget-static-5 clearfix">

      <div class="star star-1 star-odd star-first"><span class="off">0</span></div><div
class="star star-2 star-even"><span class="off">

        </span></div><div class="star star-3 star-odd"><span class="off"></span></div><div
class="star star-4 star-even"><span class="off">

          </span></div><div class="star star-5 star-odd star-last"><span
class="off"></span></div></div></div> <p class="help-block">

```

```

<div class="fivestar-summary fivestar-summary-average-count"><span class="empty">No
votes yet</span></div></p> </div></div> </div></div>

</Rating>

<File/>

<Open_Specification_reference/>

<Service_Endpoint_URL_/_>

<Description/>

</item>

```

Notice that the *og_node_gid* field equals 93. In order to retrieve all the associated sub-pages, instances, etc., will be used the following request:

```

http://CATALOGUE\_URL/rest\_node\_api/enabler\_list?group=93

```

4.5 Support

Please report any bug, support request or comment at: fiware-catalogue@lists.fi-ware.org.

5 Learning Platform

5.1 Introduction

The FI-CoDE Platform provides an eLearning system in order to manage the offering in terms of education and training on FIWARE Generic Enablers and FI-CoDE itself. The modalities adopted for the content delivery are *on-demand* and *live*.

The *on-demand* modality is based on an asynchronous interaction where the end user can chose from a list of pre-packaged lessons. These lessons are produced to be [SCORM](#) compliant in order to collect information useful to improve the overall offering.

The *live* modality considers a more traditional webinar approach by publishing an event, at a specific date and time, to which users have to subscribe to.

5.1.1 Information

Name: eLearning Platform

Moodle Version: 2.4.3

Moodle License: GPLv3

Moodle Documentation: https://docs.moodle.org/24/en/Main_page

FIWARE Academy Instance: <http://edu.fiware.org>

Download: (code) <https://forge.fi-ware.org/scmrepos/svn/tools/tags/software/elearning/>

Scope: Learning Management System

5.2 Architecture

The eLearning platform architecture is described in this chapter, starting from the picture below where the most important components are represented.

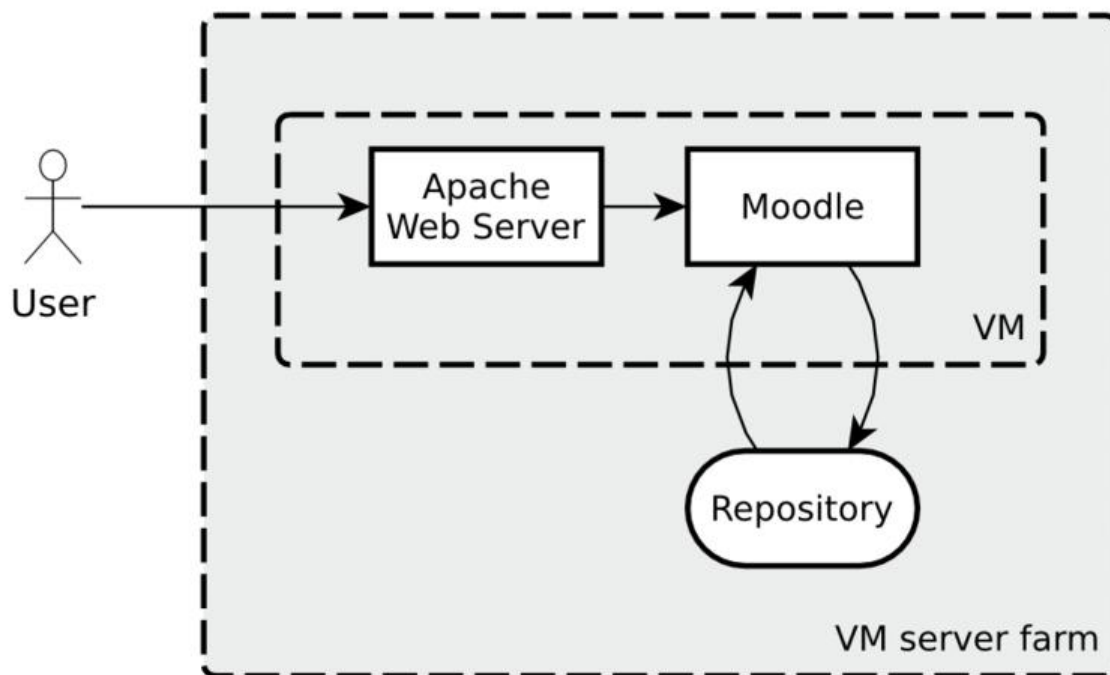


Figure 15 - Architecture

Moodle is the main component of this architecture and it's installed in a Linux virtual machine that is running in a VM server farm. The Moodle service is exposed to the users through an Apache web server. This choice helps to manage the different web domains that points to the contents of the training platform.

The Repository is the storage area for all the uploaded objects (e.g. web seminar packages, videos, presentations). This Repository is configured as an external file system that can be expanded accordingly to the capacity needs.

All the components adopted are open source and are installed without any structural modifications. Most of the work has been devoted to the configuration of the system as described in the next chapter.

5.3 Configuration

This chapter collects the most relevant configurations of the platform that are implemented in order to address technical and functional needs.

5.3.1 Categories

The training courses in the eLearning platform are mainly organized by technology (under the FIWARE top level category) and by operation (under the FIWARE Ops top level category).

The content under the FIWARE category is organized by Chapters, as done also in the FIWARE Catalogue. In this way, it's easier for a user to navigate and find the training material that they are interested in.

The home page of the platform presents a collapsed version of the entire content structure that stops at the second level of depth (Chapters in the case of FIWARE branch). In brackets the number of available courses for each second level. Here below a screen-shot that shows how this categories structure is published.

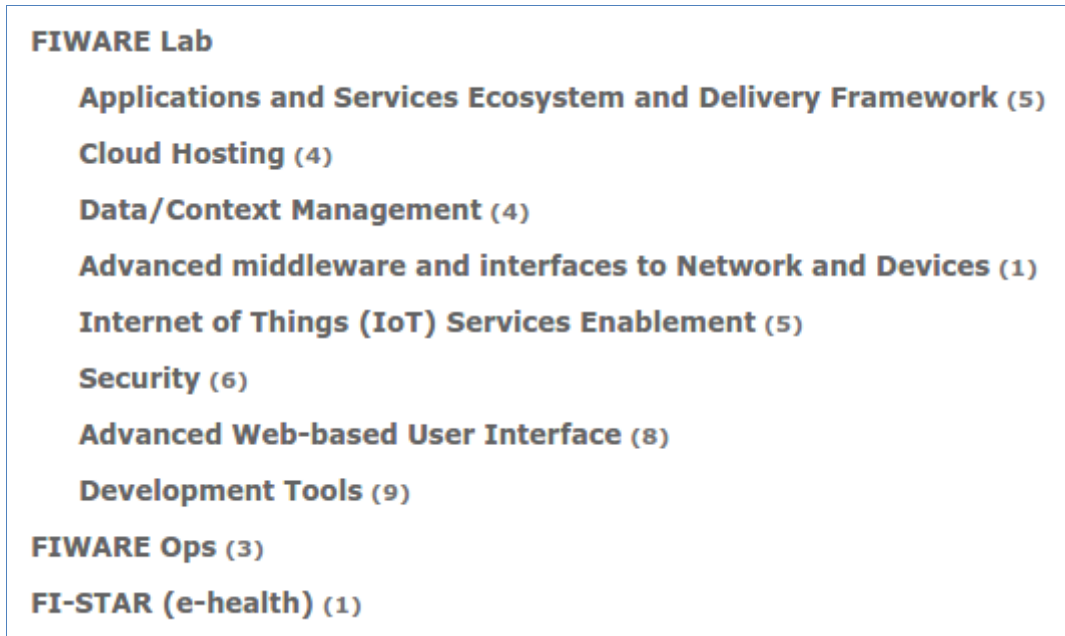
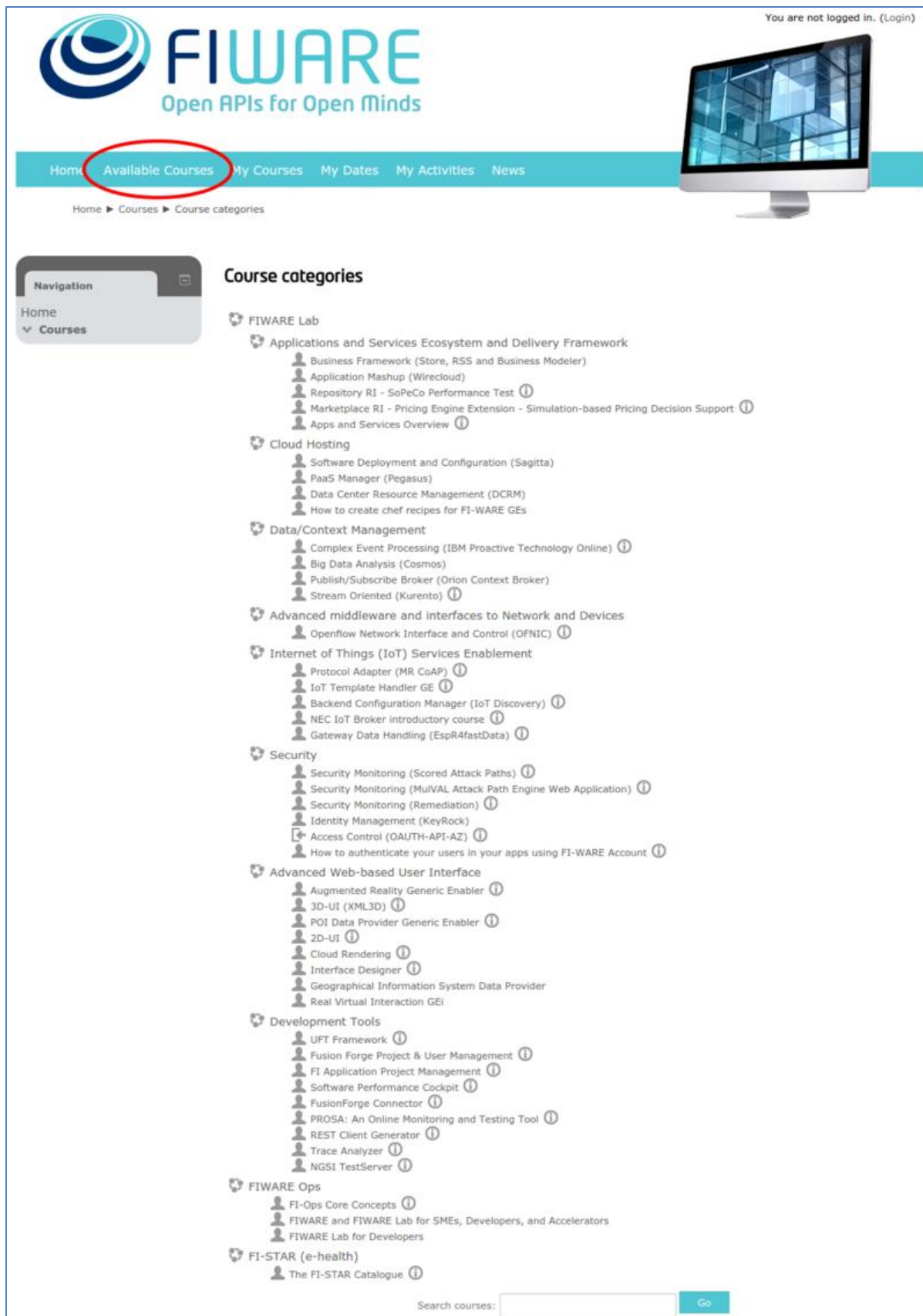


Figure 16 - Categories

From the top level menu (horizontal bar) the “Available Courses” entry, opens a page with the complete list of categories and courses providing a direct access to each one of those.



FIWARE
Open APIs for Open Minds

You are not logged in. (Login)

Home Available Courses My Courses My Dates My Activities News

Home ► Courses ► Course categories

Navigation

- Home
- ▼ Courses

Course categories

- FIWARE Lab
 - Applications and Services Ecosystem and Delivery Framework
 - Business Framework (Store, RSS and Business Modeler)
 - Application Mashup (Wirecloud)
 - Repository RI - SoPeCo Performance Test ⓘ
 - Marketplace RI - Pricing Engine Extension - Simulation-based Pricing Decision Support ⓘ
 - Apps and Services Overview ⓘ
 - Cloud Hosting
 - Software Deployment and Configuration (Sagitta)
 - PaaS Manager (Pegasus)
 - Data Center Resource Management (DCRM)
 - How to create chef recipes for FI-WARE GEs
 - Data/Context Management
 - Complex Event Processing (IBM Proactive Technology Online) ⓘ
 - Big Data Analysis (Cosmos)
 - Publish/Subscribe Broker (Orion Context Broker)
 - Stream Oriented (Kurento) ⓘ
 - Advanced middleware and interfaces to Network and Devices
 - Openflow Network Interface and Control (OFNIC) ⓘ
 - Internet of Things (IoT) Services Enablement
 - Protocol Adapter (MR CoAP) ⓘ
 - IoT Template Handler GE ⓘ
 - Backend Configuration Manager (IoT Discovery) ⓘ
 - NEC IoT Broker introductory course ⓘ
 - Gateway Data Handling (EspR4fastData) ⓘ
 - Security
 - Security Monitoring (Scored Attack Paths) ⓘ
 - Security Monitoring (MulVAL Attack Path Engine Web Application) ⓘ
 - Security Monitoring (Remediation) ⓘ
 - Identity Management (KeyRock)
 - Access Control (OAUTH-API-AZ) ⓘ
 - How to authenticate your users in your apps using FI-WARE Account ⓘ
 - Advanced Web-based User Interface
 - Augmented Reality Generic Enabler ⓘ
 - 3D-UI (XML3D) ⓘ
 - POI Data Provider Generic Enabler ⓘ
 - 2D-UI ⓘ
 - Cloud Rendering ⓘ
 - Interface Designer ⓘ
 - Geographical Information System Data Provider
 - Real Virtual Interaction GEI
 - Development Tools
 - UFT Framework ⓘ
 - Fusion Forge Project & User Management ⓘ
 - FI Application Project Management ⓘ
 - Software Performance Cockpit ⓘ
 - FusionForge Connector ⓘ
 - PROSA: An Online Monitoring and Testing Tool ⓘ
 - REST Client Generator ⓘ
 - Trace Analyzer ⓘ
 - NGSI TestServer ⓘ
- FIWARE Ops
 - FI-Ops Core Concepts ⓘ
 - FIWARE and FIWARE Lab for SMEs, Developers, and Accelerators
 - FIWARE Lab for Developers
- FI-STAR (e-health)
 - The FI-STAR Catalogue ⓘ

Search courses:

Figure 17 - Available Courses

Both lists, the one in the home page and the one in the Available Courses page, present the contents accordingly to the permissions of the current user. Guest users can only see publicly available courses while Authors and Contributors can also see hidden entries that they are allowed to work with.

Top level categories (FIWARE and FIWARE Ops) have associated two different themes, in order to follow the brand identity that has been developed and established for them.

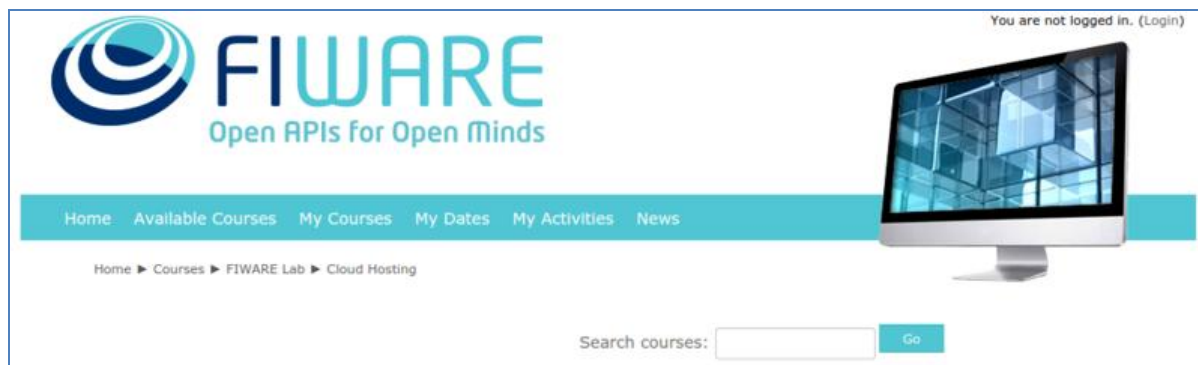


Figure 18 - FIWARE theme

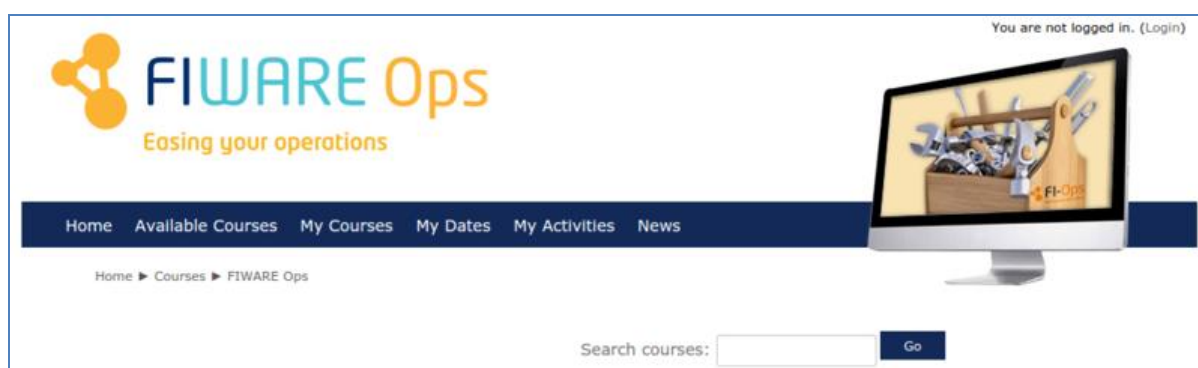


Figure 19 - FIWARE Ops theme

5.3.2 Users Management

All the training courses are intended to be publicly available, then, it's not required for the end users to create a personal account in the platform. At the same time there is a set of roles, configured in the platform, that enable to properly manage the maintenance of the platform, the editing and the publication of the courses.

Administrator: this is the role used to manage the overall configuration of the platform and to define the permissions for the other roles; create the structure of categories used to publish the training material; assign the author role to users; access the activity log for monitoring the activities on the platform. The number of users that have this role is kept restricted.

Author: the author role is assigned to the users that need the permissions to create and manage all the preferences of a training course. Usually this role is associated with a specific category (e.g. a FIWARE

Chapter) so that the author can create contents under that category and not elsewhere where this permission is not set.

Contributor: this role has been created in order to define a user that supports the author in a specific course. The author itself can set who are the contributors for a course. The contributors can access to edit only the courses they are allowed to but they cannot edit all the courses under the same category.

Registered: the platform enables the user to auto-register. There aren't specific actions associated to this kind of role because of all the training material is intended to be published without restrictions.

Guest: this is the implicit role assigned to all the users that browse the platform in an anonymous mode (not logged in). This role enables all users to access to all the publicly available training courses.

All the users registered in the platform are stored in the default location provided by the platform itself (local database).

5.3.3 Content Storage

The various types of media contents that can be uploaded into the platform are stored in a dedicated virtual drive (Repository) as represented in the architecture diagram. This solution allows to easily resizing the capacity of the storage in order to follow the actual demand by the authors.

5.3.4 Statistics

In order to monitor the usage of the platform it has been configured a well known system to track user navigation and other interesting information that are used to better tune the promotional activities to increase the fruition of the platform and the user experience design.

The native configuration feature, available from the administration menu (Site Administration – Appearance – Additional HTML), enables to easily add and modify scripts to collect information.

Here below are reported some diagrams taken, at the time of writing, from the analytic tool that highlight the increasing traffic (Sessions), and interest (Users) over time.



Figure 20 - Sessions by Week



Figure 21 - Users by Week

5.3.5 URLs

The access to the main page of the training portal is done via edu.fi-ware.org (at the time of writing the configuration to use edu.fiware.org as main URL is in progress); in order to give access to the FIWARE Ops category it has been defined the dedicated URL edu.fi-xifi.eu.

5.3.6 Service Availability

The entire service (VM and Repository) is included in a disaster recovery strategy, based on periodic backups that prevent the data loss.

In detail the strategy is:

- Full backup – weekly;
- Incremental backup – daily;
- Full backup retention of one month.

5.4 How to create a SCORM course

5.4.1 Create the SCORM Course

5.4.1.1 Introduction

This manual is intended to provide support to all the FIWARE project partners that aim to produce training courses for the FIWARE eLearning platform.

This guide is based on the package that contains the *Web Seminar Player* available from the link below and stored in the *FIWARE Private* project (credentials required); it also refers to last version available:

[FI-WARE SCORM Packager](#)

The *Web Seminar Player* allows to gain access to lessons and seminars and to integrate informative content and material usually needed by this kind of learning platforms.

Note: when opening a course, either from the eLearning platform or from a local file, and pressing the *Start* button, this alert message could be shown: "*Connection to the tracking platform failed*". This is not a problem

for accessing the course, this only means that the SCORM information exchange between browser and server will not work due to compatibility issues. This SCORM information is collected for statistical reasons and will be used to report, for example, how many times a course has been accessed. Starting from v1.2.0 this message has been removed in order to simplify the interaction with the user.

This user guide illustrates all technical steps needed in order to integrate informative content through the *Web Seminar Player*.

The *Web Seminar Player* allows and requires to:

- Set the title of the teaching unit;
- Set the title of the lesson;
- Set the index of the lesson;
- Upload slides related to the lesson and set their title;
- Set the timing for audio/slides synchronization;
- Print the lesson.

Furthermore, the following features/controls are available by default:

- Help;
- Minimize;
- Notes;
- Print;
- Usage commands.



Figure 22 - Web Seminar Player Interface (Flash Player)

5.4.1.2 *Versions*

This part contains the list of available versions, reporting for each one the major changes and the steps to update a course made with the previous version.

5.4.1.3 *1.2.0*

This version contains the updated version of the FIWARE theme and initial check for SCORM support is silent and do not notify the user.

To update a v1.0.1 to v1.2.0 must be replaced (do not override) the "engine" folder using the one taken from v1.2.0 package.

5.4.1.4 *1.0.1*

This version contains a bug-fix for the behaviour of the left side menu.

To update a v1.0 to v1.0.1 must be replaced the "engine" folder using the one taken from v1.0.1 package.

5.4.1.5 *1.0*

First release.

5.4.2 Project Folder

The root directory has a tree structure, as follows:

- The "engine" folder, containing all files related to the Player and its support environments.
- A dedicated folder for each lesson (e.g. TU01_LO01 in the next figure), containing all those files strictly related to the specific learning object.
- The "imsmanifest.xml" file, which is the document defining the macro-structure of the learning course, based on SCORM¹ standard.
- A HTML file to launch each lesson (e.g. TU01_LO01.htm in the next figure), which runs the Player on the local machine.

¹ SCORM: <http://scorm.com>, Shareable Content Object Reference Model, the most important and widespread standard to build e-learning software.

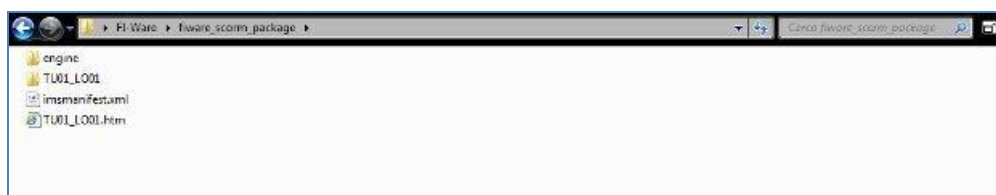


Figure 23 - Structure of the root folder

5.4.3 Lesson Folder

Each lesson (learning object) has a dedicated folder containing files strictly related to the specific learning object; this folder includes the following sub-folders:

- "contents": folder containing the .xml file (sco.xml) defining the structure of the lesson;
- "slide": folder containing the slides of the lesson in an image format file;
- "print": folder containing the .pdf file to print the content of the lesson (e.g.: TU01_LO01.pdf);
- "text": folder containing the xml file defining the title of each slide and visualization timing (e.g.: G1_M01_U01_S01.xml);
- "video": folder containing the file with the audio track related to the lesson, in an .flv format (the file name is: video.flv).

The folder of each lesson contains also the "AC_RunActiveContent.js" and the "object.htm" file, which must not be deleted or modified.

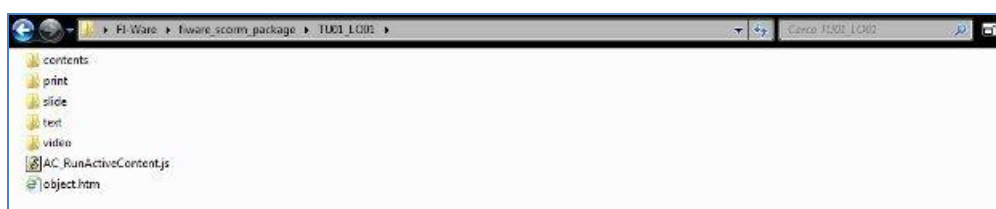


Figure 24 - Structure of the lesson folder

5.4.3.1 Audio Track

This section reports information on how to create the audio track to be used within the course. As already explained, it is required to create a specific file to be stored in the course package as *video.flv*. The instructions depend on the operating system that you are using.

Windows

The assumption is to start having different .mp3 files, one for each slide of the presentation. To create the final audio track in a single shot, it's possible to use Freemake Audio Converter (http://www.freemake.com/free_audio_converter/). The steps to be followed are:

- open all the mp3 files;

- flag the setting to concatenate all the mp3 files;
- convert them in AAC format (use default settings);
- rename the AAC file to *video.flv* and store it in the package.

Linux

Starting from the final audio track in mp3 (single parts already concatenated) it's possible to create the AAC file using SoundConverter (<http://soundconverter.org/>). Once created, rename the AAC file to *video.flv* and store it in the package.

5.4.3.2 Slides

The slides used during the presentation are visible from the player and it's possible to download them from the dedicated button "Print" available from the user interface of the player.

It is suggested to create one version of the slides **without** header (title, logo, ...) and footer as images for the player, in order to maximize the area for presenting contents; while another version **with** header and footer as pdf file for the printable option.

5.4.4 Ten Steps to Prepare the Package

This user guide is linked to the .zip package containing the whole structure in order to create a lesson by means of the *Web Seminar Player*.

To create a lesson the steps listed below must be followed:

1. Unzip the package "fiware-scorm-packager-[X.Y].zip"
2. Open the folder "TU01_L01"
3. Open the folder "contents"
 - Open the "sco.xml" file, by using an xml editor
 - Write the title of the teaching unit in the row nr. 5
 - Write the title of the lesson in the row nr. 8
 - Save the "sco.xml" file after these modifications
4. Open the folder "slide" (sub-folder of "TU01_L01")
 - Copy in this folder the slides related to the lesson. Images must be:
 - saved in a .jpg format. Width: 670 pixels; height: 503 pixels; resolution: 72 dpi; colour representation: RGB
 - named by using a numerical sequence (e.g.: n°.jpg) to give the sequential order in which the slides will be shown during the lesson (e.g.: 1.jpg; 2.jpg; 3.jpg; ...)
 - the file extension **must** be lowercase (.jpg). The player is case sensitive.
5. Open the folder "video" (sub-folder of "TU01_L01")
 - Copy in this folder the file with the audio component of the whole lesson in a .flv format, the file must be named "video.flv"
6. Open the folder "text" (sub-folder of "TU01_L01")
 - Open the "G1_M01_U01_S01.xml" file by using a xml editor
 - In this file must be added, between the opening tag <texts> and the closing tag </texts>, as many rows <text cuepoint="0.00" name="Title Slide"></text> as the number of slides of the lesson to be shown. For each row inserted, the player engine will show, in

progressive order, the slide images (e.g.: 1.jpg; 2.jpg; 3.jpg; ...) that are in the "slide" folder (see step 4).

- For each row inserted it must be specified the timing (in seconds), when each slide must be shown, giving a value to the attribute "cuepoint" (0.00) with the needed one (e.g.: 25.00). Each slide image (e.g.: 1.jpg; 2.jpg; 3.jpg; ...) will be shown at the given second specified for the attribute "cuepoint" in the row related to that slide.
 - For each row inserted it must be specified the title of the related slide, giving a value to the attribute "name" (Title of the Slide) and writing the appropriate one. For each slide, the value of the attribute "name", in the related row, will be shown as title of the slide in the index (see Figure: *Web Seminar Player Interface*).
 - For example the slide image 1.jpg in the "slide" folder will be shown with the title given to the attribute "name" at the second defined for the attribute "cuepoint" (e.g. in the first row: `<text cuepoint="0.01" name="Title Slide nr 1"></text>`); the slide image 2.jpg will be shown with the title given to the attribute "name" at the second defined for the attribute "cuepoint" (e.g. in the second row: `<text cuepoint="60.00" name="Title Slide nr 2"></text>`); and so on.
 - Save the "G1_M01_U01_S01.xml" after these modifications
7. Open the "imsmanifest.xml" file (in the root folder) by using an xml editor
 - Write the title of the learning course in the row nr. 5
 - Write the title of the teaching unit in the row nr. 7
 - Write the title of the lesson in the row nr. 9
 - Save the "imsmanifest.xml" file
 8. Open the folder "print" (sub-folder of "TU01_L01")
 - Copy in this folder the print document, in a .pdf format, containing the content of the lesson, the file must be named "TU01_LO01.pdf"
 9. Create again the package by compressing all the folders and files in a .zip format, please note that the "imsmanifest.xml" file must be in the root directory of the *[course package].zip*
 10. Publish the course in the *[course package].zip* archive to the eLearning platform, following the indications reported in the proper manual.

At any time during the course creation it's possible to test it locally opening the *TU01_LO01.htm* file located in the root folder.

Note: The eLearning platform enables to upload files of no more than 100M. It is suggested to split the course and upload the different packages as *Topics* under the same course configuration.

5.4.5 FAQ

Q: I can't run the course locally because the Flash player is blocking it for "*potentially unsafe operation*".

A: This is Flash player configuration. It's possible to change it by opening the configuration² web page and by setting the "always allow" option.

² http://www.macromedia.com/support/documentation/en/flashplayer/help/settings_manager04.html

Q: When I open a course (locally or from the eLearning platform), after the loading step, I get this message "Connection to the tracking platform failed". What's the problem?

A: You're using a browser that's not supported by the Web Seminar Player for exchanging SCORM messages. This does not impact your access to the course, just click on "Proceed without tracking".

Q: When I upload the course package (.zip) into the platform I get the message "Incorrect file package - missing imsmanifest.xml or AICC structure". What should I have to do?

A: You have to carefully read the manual :-). The `imsmanifest.xml` file has to be located in the root of the archive and not in an internal folder. If you build your course into a folder "MyCourse" you have to package the **content** of this folder and not the "MyCourse" folder itself. Starting from v1.2.0 this message has been removed.

Q: When I play the course (locally and from the platform), I don't see some slides (white page) even if the track audio and the transitions work as expected.

A: Check the file name of the images into the *slide* folder. They must be all lowercase, name and extension (e.g. 1.jpg, 2.jpg ...).

5.5 HTML Web Seminar Player

The HTML Web Seminar Player allows to gain access to lessons and seminars and to integrate informative content and material usually needed by this kind of learning platforms. This player is developed as intermediate version between the full Flash based player and a full HTML5 player. This version, already mostly implemented in HTML, makes use of Flash only for audio playback. This user guide illustrates all technical steps needed in order to integrate informative content through the Player Web Seminar.

It's possible to download the package to develop a course from: https://forge.fi-ware.org/frs/?group_id=15 (under the eLearning section).

The current version (V0.1.0) of Player Web Seminar allows and requires to:

- set the title of the teaching unit;
- set the title of the lesson;
- set the index of the lesson;
- upload slides related to the lesson and set their title;
- set the timing for audio/slides synchronization;
- print the lesson.

Furthermore, the following features/controls are available by default:

- print;
- play, pause and stop the player;
- use the progress bar audio to jump slides or/and audio time;

- close popup window.

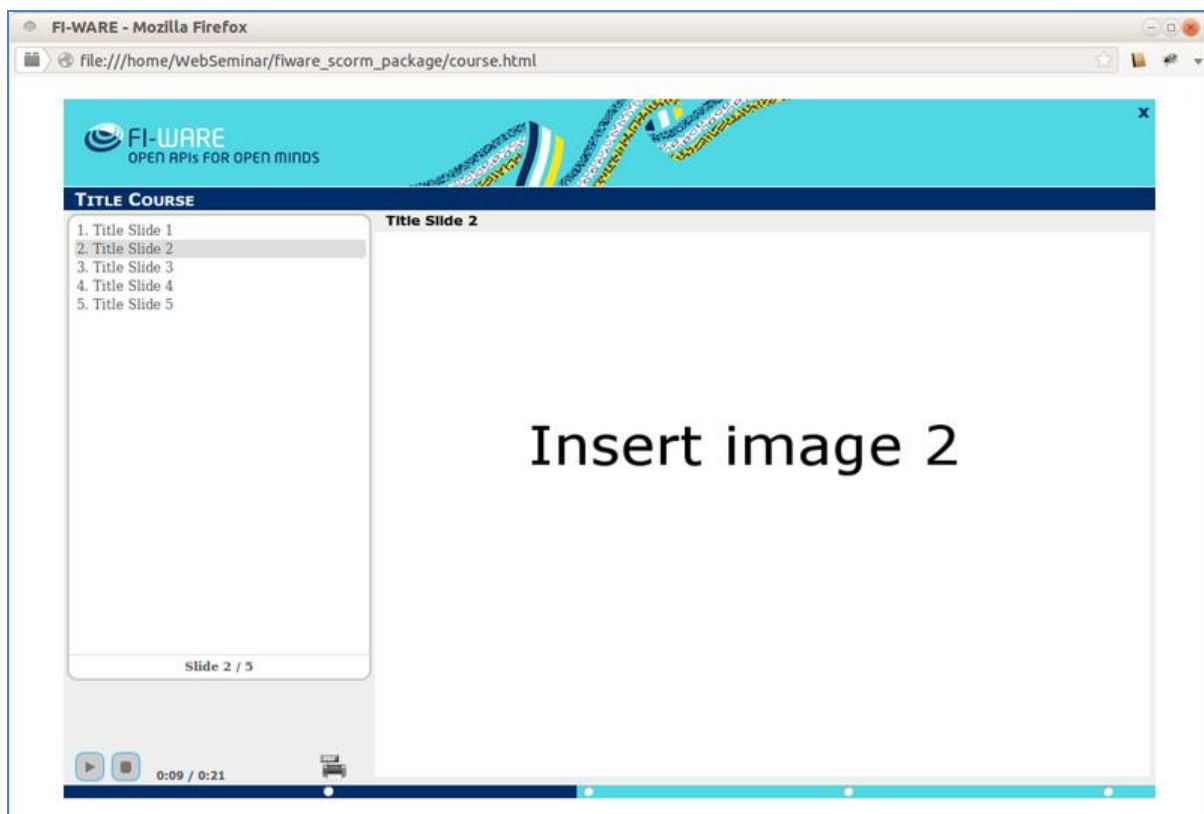


Figure 25 - Web Seminar Player Interface (HTML Player)

5.5.1 Project Folder

The root directory has a tree structure, as follows:

- the “css”, “images”, “jplayer” and “js” folders containing all files related to the Player;
- the “imsmanifest.xml” file, which is the document defining the macro-structure of the learning course, based on standard SCORM;
- a HTML file to launch the course (e.g. in figure 2: index.html), which runs the Player on your web browser;
- another HTML file (course.html), which shows the course in the popup window;
- a favourite icon associated with a particular web page (favicon.ico).

All these files must not be deleted or modified. Other directories and files are depended on specific learning course and they must be modified to custom the course.

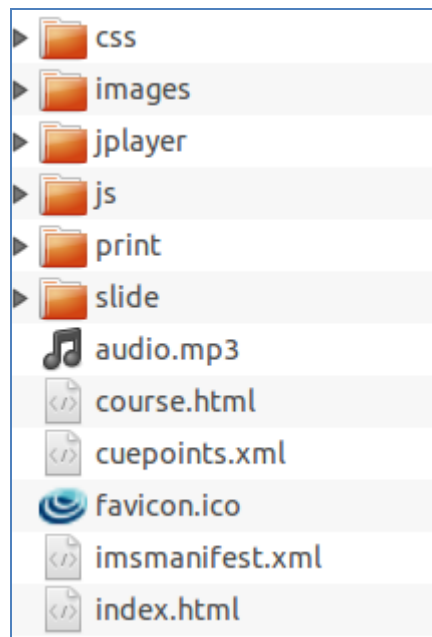


Figure 26 - Structure of the root directory

5.5.2 Custom files for the eLearning course

Each lesson (learning object) has a dedicated folder containing files strictly related to the specific learning object; this folder includes the following sub-folders:

- “slide”: folder containing the slides of the lesson in an image format file (e.g.: 2.jpg);
- “print”: folder containing one .pdf file to print the content of the lesson (e.g.: file.pdf);
- the files strictly linked to the specific learning course are:
- “audio.mp3”: the file within the audio component related to the lesson in a .mp3 format;
- “cuepoints.xml”: the file containing all data needed for the course (e.g.: title of course, title and time of slides).

5.5.3 Seven steps to prepare the package

This user guide is linked to the .zip package containing the whole structure in order to create a lesson by means of the Player Web Seminar.

To create a lesson must be followed the steps listed below:

1. unzip the package “fiware-scorm-packager-1.0.zip”;
2. open the folder “slide”;
 - copy in this folder the slides related to the lesson, which must be saved in a .jpg format. The slides must be named by using a numerical sequence (e.g.: n°.jpg) to give the sequential order in which the slides must be shown during the lesson (e.g.: 1.jpg; 2.jpg; 3.jpg; ...). Please note that the image name is case sensitive so you must use lowercase;
3. open the folder “print”.

- Copy in this folder the print document, in a .pdf format, containing the content of the lesson, the file must be named “file.pdf”. Please note that the file name is case sensitive so you must use lowercase.
4. Set title of course, title and time of slides.
 - Open the “cuepoints.xml” file by using an xml editor.
 - In this file must be added, between the opening tag <texts> and the closing tag </texts>, as many rows <text cuepoint="0.00" name="Title Slide"></text> as the number of slides of the lesson to be shown.
The root's attributes of tag <texts>, “time” and “title” are the duration time in second of audio file and the title of course respectively.
 - For each row inserted, the player will show, in progressive order, the slide images (e.g.: 1.jpg; 2.jpg; 3.jpg; ...) that are in the “slide” folder (see step 2).
 - For each row inserted must be specified the timing, defined in seconds, when each slide must be shown, giving a value to the attribute “cuepoint” (0.00) with the needed one (e.g.: 25.0).
Each slide image (e.g.: 1.jpg; 2.jpg; 3.jpg; ...) will be shown at the given second specified for the attribute “cuepoint” in the row related to that slide.
 - For each row inserted must be specified the title of the related slide, giving a value to the attribute “name” (Title of the Slide) and writing the appropriate one.
 - For each slide, the value of the attribute “name”, in the related row, will be shown as title of the slide in the index (see Figure 1). Thus, the slide image 1.jpg in the “slide” folder will be shown with the title given to the attribute “name” and at the second defined for the attribute “cuepoint” in the first row (e.g.: <text cuepoint="0.00" name="Title Slide nr 1"></text>); the slide image 2.jpg will be shown with the title given to the attribute “name” and at the second defined for the attribute “cuepoint” in the second row (e.g.: <text cuepoint="60.00" name=" Title Slide nr 2"></text>); and so on.
 - Save the “cuepoints.xml” after these modifications.
 5. Set the “audio” file.
 - Create and copy the audio file of the whole lesson in an .mp3 format, the file must be named “audio.mp3”. Please note that the name is case sensitive so you must use lowercase.
 6. Create again the package by compressing all the folders and files in a .zip format.
 7. Upload the .zip archive to the eLearning platform, following the indications reported in the proper manual.

5.6 Publish the Course

5.6.1 Introduction

This part of the How-To covers the steps for publishing a course into the FIWARE Academy.

The publication of training material in the eLearning platform is restricted to:

- partners of the FI-PPP programme;
- users registered to the eLearning platform.

5.6.2 Create a New Course

First, log into the platform using the "Login" link at the right top of the home page.

Important: Please note that new registered users have to make a request to obtain "Author" grants, in order to create a new course and to upload training material. To have your profile upgraded from simple "User" to "Author", send an email to

fiware-elearning[at]lists[dot]fi-ware[dot]org

In this email it's required to specify:

- which is the FI-PPP project (and Work Package if possible) you are partner of;
- for which training category (e.g. which FIWARE Chapter) your are requesting to become an "Author".

Once logged-in to the platform with "Author" grants, to create a new learning course select the menu item "Available Courses" in the home page.

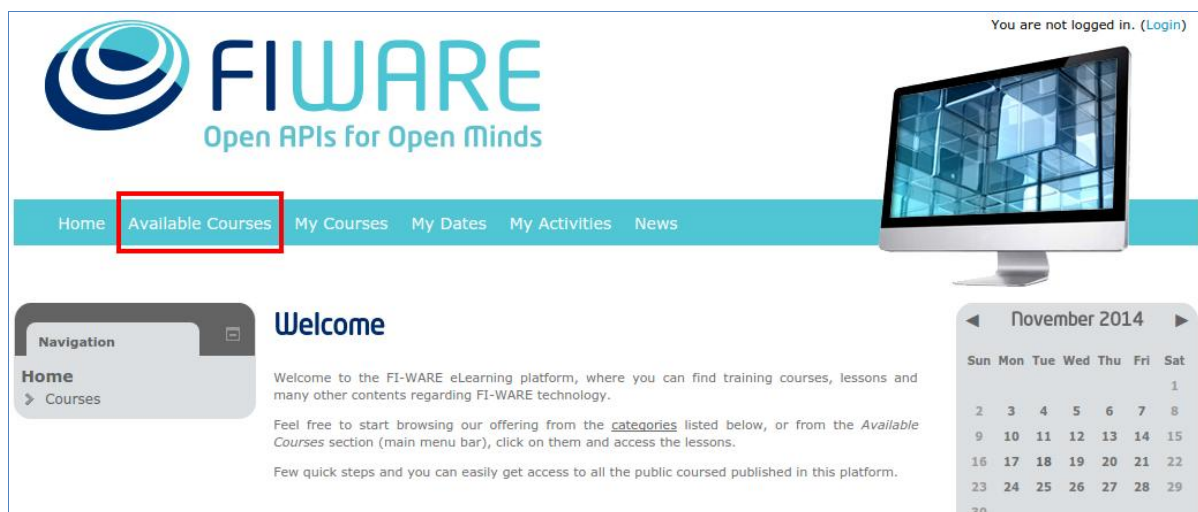
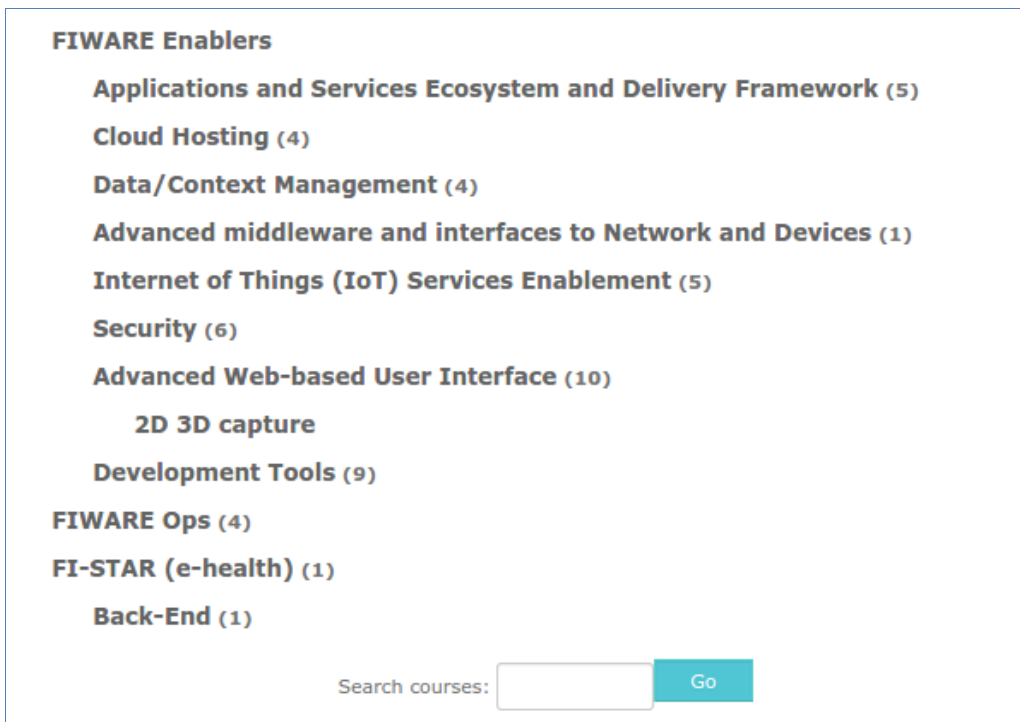


Figure 27 - Select Available Courses

Select the course category, for which the course must be created, among those listed in the page. Please note that the platform shows and allows to access all course categories, but editing features are available only for those categories for which you required to be "Author".



FIWARE Enablers

- Applications and Services Ecosystem and Delivery Framework (5)**
- Cloud Hosting (4)**
- Data/Context Management (4)**
- Advanced middleware and interfaces to Network and Devices (1)**
- Internet of Things (IoT) Services Enablement (5)**
- Security (6)**
- Advanced Web-based User Interface (10)**
- 2D 3D capture**
- Development Tools (9)**

FIWARE Ops (4)

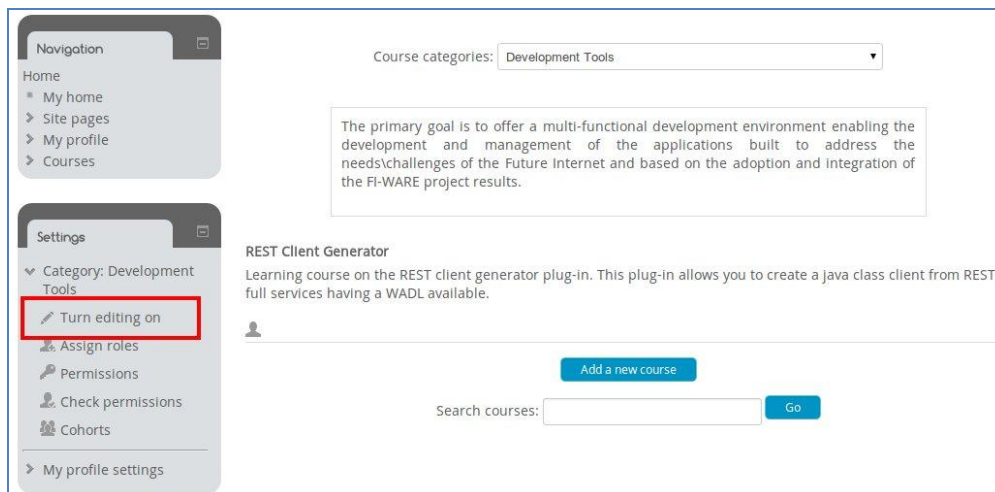
FI-STAR (e-health) (1)

Back-End (1)

Search courses:

Figure 28 - Select Course Category

Once selected the desired category, first start the editing process by clicking on the menu item "Turn editing on", shown by the "Settings" menu.



Navigation

- Home
 - My home
 - Site pages
 - My profile
 - Courses

Settings

- Category: Development Tools
 - Turn editing on**
 - Assign roles
 - Permissions
 - Check permissions
 - Cohorts
- My profile settings

Course categories:

The primary goal is to offer a multi-functional development environment enabling the development and management of the applications built to address the needs/challenges of the Future Internet and based on the adoption and integration of the FI-WARE project results.

REST Client Generator

Learning course on the REST client generator plug-in. This plug-in allows you to create a java class client from REST-full services having a WADL available.

Search courses:

Figure 29 - Turn Editing On

Then press the "Add a new course" button in the same page.

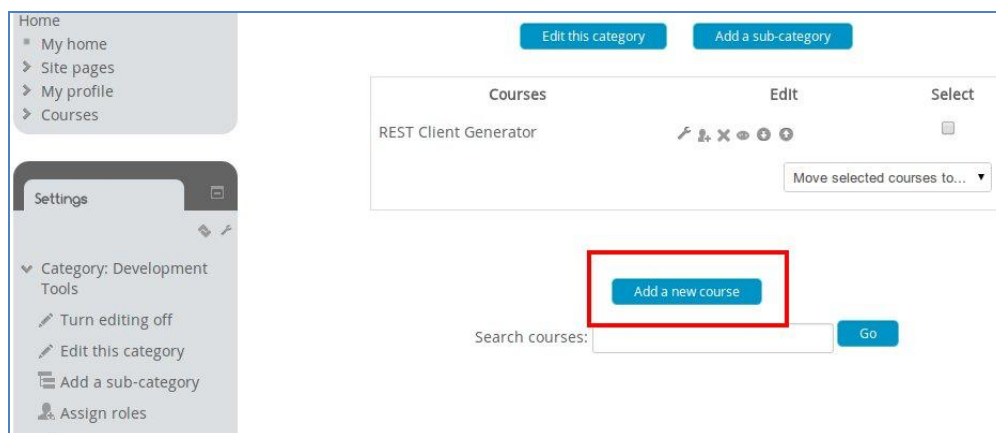


Figure 30 - Add a New Course

The platform will show a form that must be compiled with all required info for the course settings to create the new course (mandatory fields are marked by asterisk). Insert full name and short name of the course. If the course is on a Generic Enabler implementation it's suggested to compose the names as "*<Generic Enabler name> (<implementation name>)*".

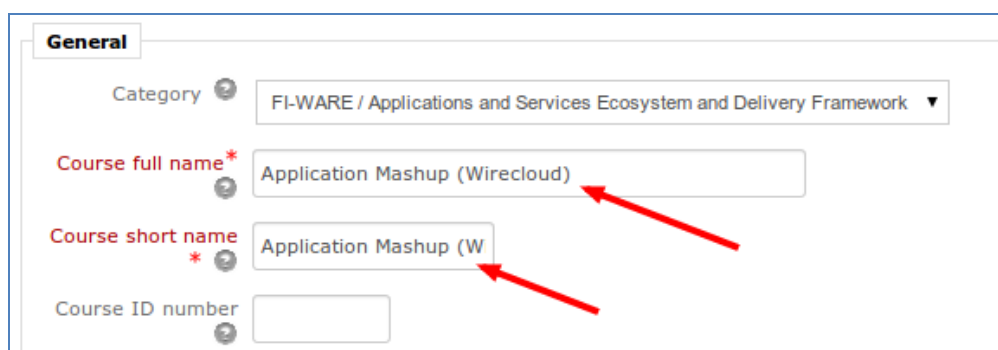

 The screenshot shows the 'General' tab of a course creation form. The 'Category' dropdown is set to 'FI-WARE / Applications and Services Ecosystem and Delivery Framework'. The 'Course full name*' field contains 'Application Mashup (Wirecloud)'. The 'Course short name*' field contains 'Application Mashup (W'. The 'Course ID number' field is empty. Red arrows point to the 'Course full name' and 'Course short name' fields. Question mark icons are present next to each field label.

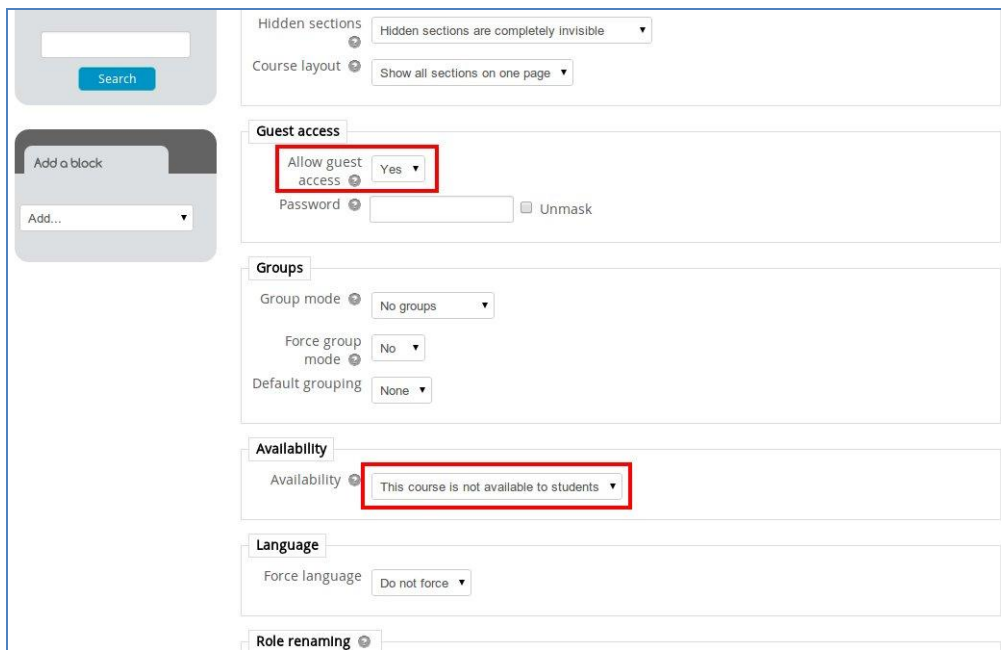
Figure 31 - Course names

Click on the question mark icon, near each field, to access the online guide and read more instructions and information.

Do not change the value in the "Format" field, which is set by default to "Topics format" typology.

Set the value of "Allow guest access" field to "Yes" in order to enable the access to the course also to not registered users.

Use the "Availability" field to set whether your course must be shown or not in the list of available courses. Please note that the default value is "not available".



Hidden sections: Hidden sections are completely invisible

Course layout: Show all sections on one page

Guest access

Allow guest access: Yes

Password: [] Unmask

Groups

Group mode: No groups

Force group mode: No

Default grouping: None

Availability

Availability: This course is not available to students

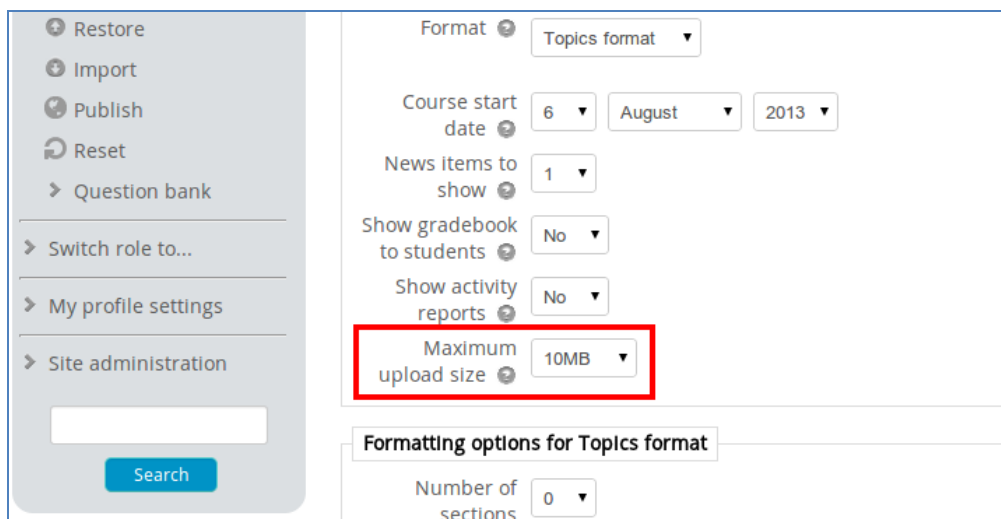
Language

Force language: Do not force

Role renaming

Figure 32 - Edit Course Settings

Select the Maximum upload size of a package that can be for example a SCORM course or a video.



Format: Topics format

Course start date: 6 August 2013

News Items to show: 1

Show gradebook to students: No

Show activity reports: No

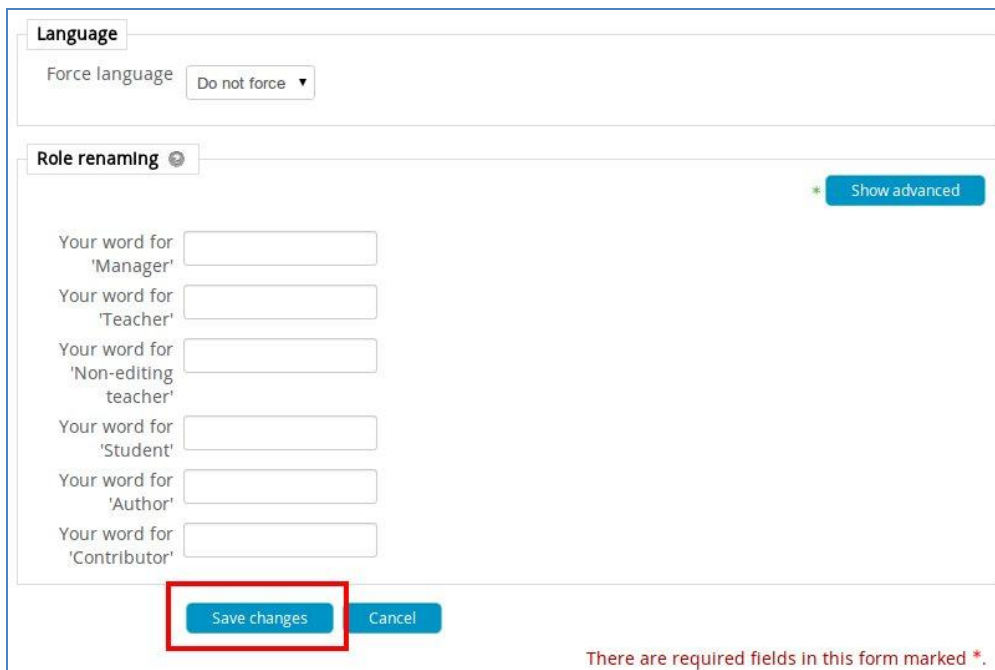
Maximum upload size: 10MB

Formatting options for Topics format

Number of sections: 0

Figure 33 - Max Upload Size

Press the "Save changes" button, to confirm the chosen settings for the course.



Language

Force language Do not force ▼

Role renaming ⓘ

* Show advanced

Your word for 'Manager'

Your word for 'Teacher'

Your word for 'Non-editing teacher'

Your word for 'Student'

Your word for 'Author'

Your word for 'Contributor'

Save changes Cancel

There are required fields in this form marked *.

Figure 34 - Save Changes

Once the new course settings are saved, the platform shows a new page divided into a number of "Topic" (the number of topics can be changed/set-up in the initial form for creating the course). To each topic can be assigned activities and/or resources.

It's a good practice to delete all empty/unused *Topic* entries. It's possible to add them again if needed, and the layout of the course has a better look.

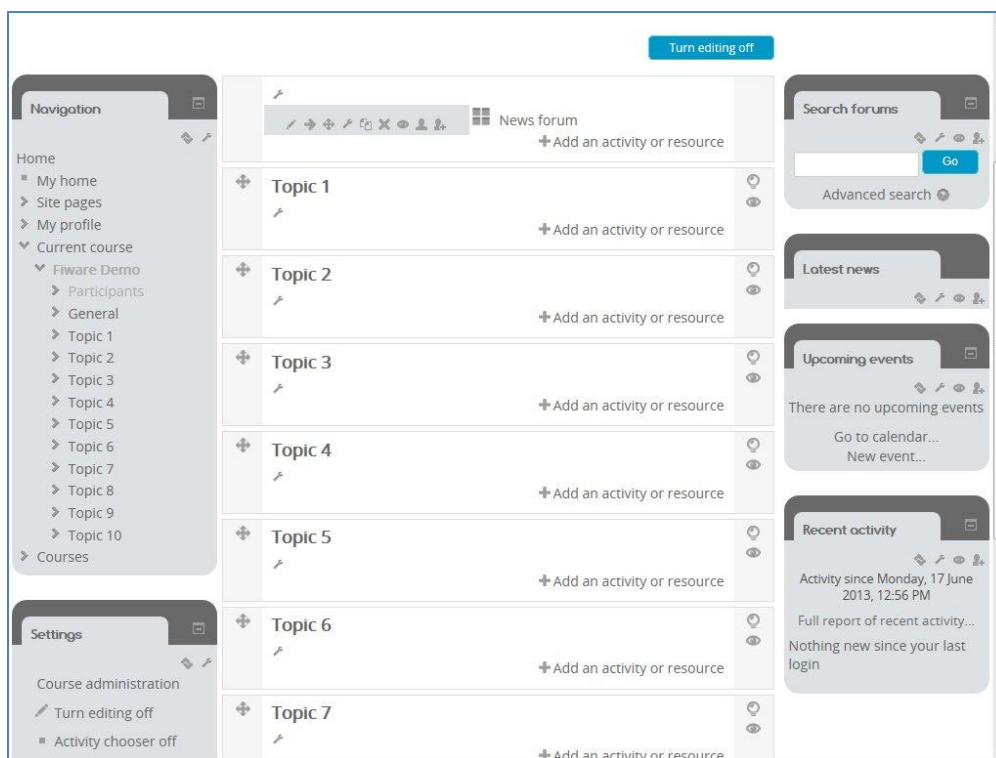







Figure 35 - Edit Topics List

The most relevant icons are detailed in the table below.

Icon	Description
	Add: to access the form to insert new activities and/or resources for the topic
	Move: to move the related topic in the list
	Update: to access the form and set-up the values for the topic
	Highlight: to highlight the related topic
	Hide/Show: to toggle the visibility of the related topic

Click the "+ Add an activity or resource" button. New activities or resources can be added by selecting the desired one among those available in the left column list.

By selecting a specific activity (or a resource), the related description is shown in the section on the right side of the page.

Press the "Add" button to confirm and add the selected resource.

For each activity (or resource) added, the platform will show you a specific related form to set-up the required parameters to load that activity.

5.6.2.1 SCORM Package

In the following example is shown how to load a new activity that is a "SCORM package" typology.

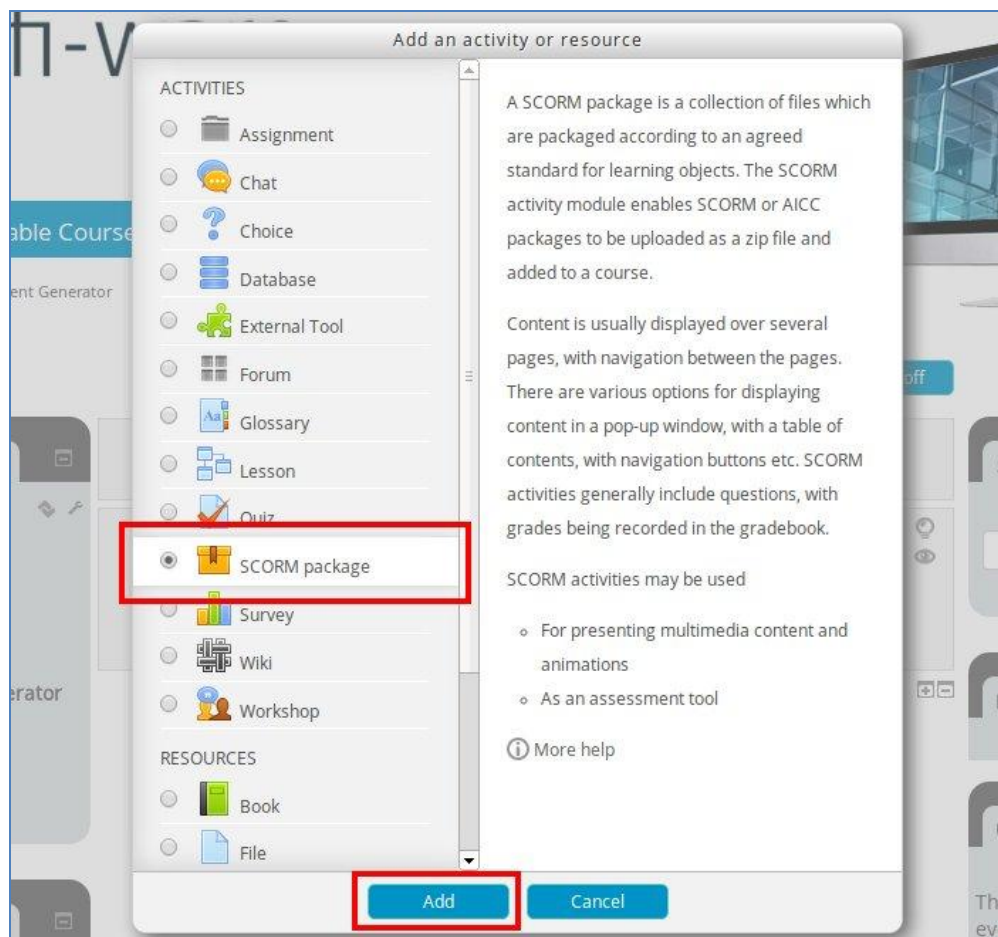
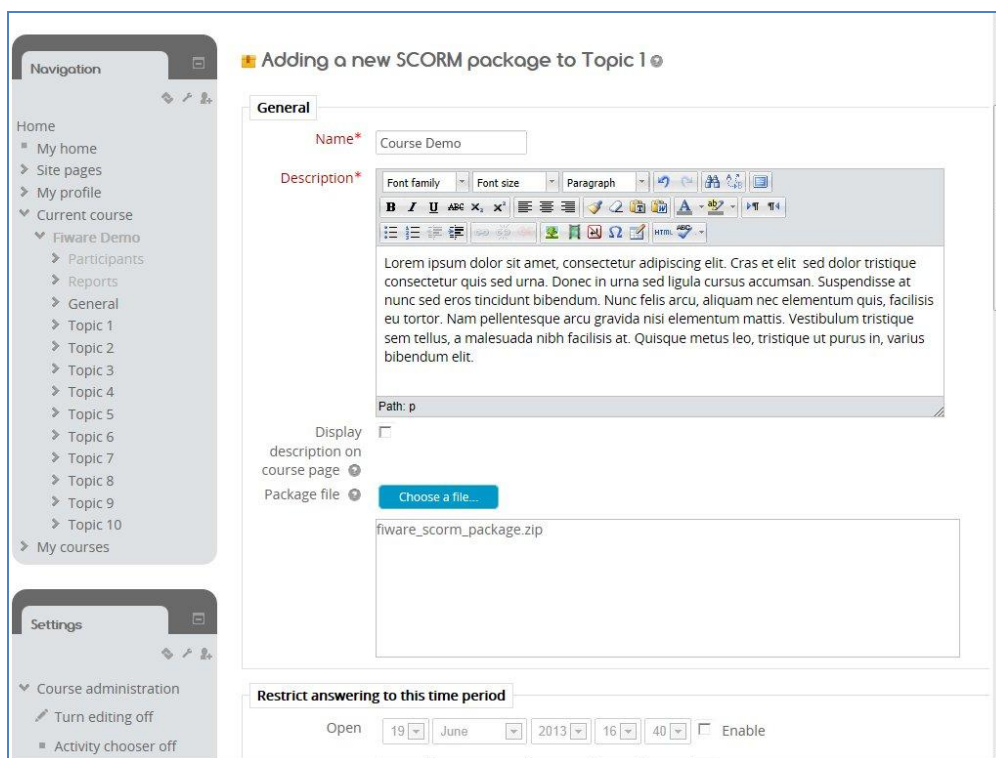


Figure 36 - Add SCORM Resource

All mandatory fields (marked by the asterisk) must be filled-in. The SCORM package must be uploaded in a .zip format. All configuration parameters of this activity must be defined.

Click on the question mark icon, near each field, to access the online guide and read more instructions and information.



Navigation

- Home
 - My home
 - Site pages
 - My profile
- Current course
 - Fiware Demo
 - Participants
 - Reports
 - General
 - Topic 1
 - Topic 2
 - Topic 3
 - Topic 4
 - Topic 5
 - Topic 6
 - Topic 7
 - Topic 8
 - Topic 9
 - Topic 10
 - My courses

Settings

- Course administration
 - Turn editing off
 - Activity chooser off

Adding a new SCORM package to Topic 1

General

Name* Course Demo

Description*
 Lorem ipsum dolor sit amet, consectetur adipiscing elit. Cras et elit. sed dolor tristique consectetur quis sed urna. Donec in urna sed ligula cursus accumsan. Suspendisse at nunc sed eros tincidunt bibendum. Nunc felis arcu, aliquam nec elementum quis, facilisis eu tortor. Nam pellentesque arcu gravida nisi elementum mattis. Vestibulum tristique sem tellus, a malesuada nibh facilisis at. Quisque metus leo, tristique ut purus in, varius bibendum elit.

Path: p

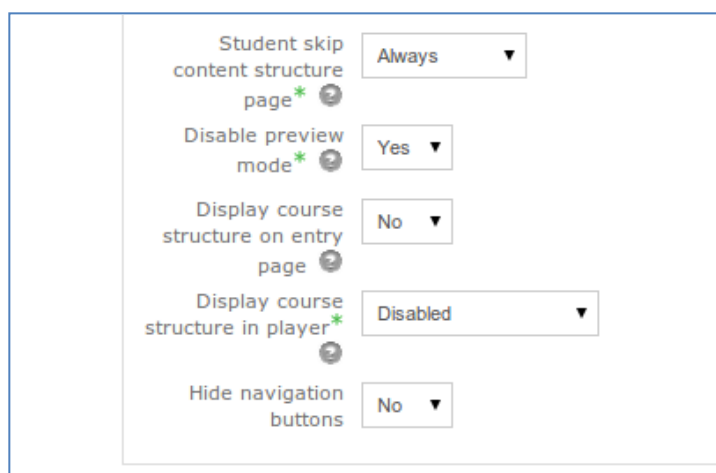
Display description on course page ☐

Package file
 Choose a file...
 fiware_scorm_package.zip

Restrict answering to this time period
 Open 19 June 2013 16:40 Enable

Figure 37 - SCORM Resource Settings

It's suggested to follow a common approach for the configuration of the "Display settings" in order to create a homogeneous user experience.



Student skip content structure page* Always

Disable preview mode* Yes

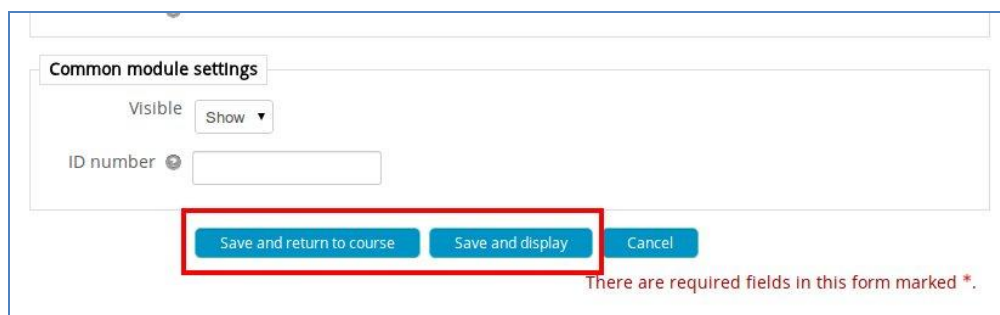
Display course structure on entry page No

Display course structure in player* Disabled

Hide navigation buttons No

Figure 38 - SCORM display settings

Once all configuration parameters are defined, to confirm and add the new activity belonging to "SCORM package" typology, press the button "Save and return to course" or "Save and display".

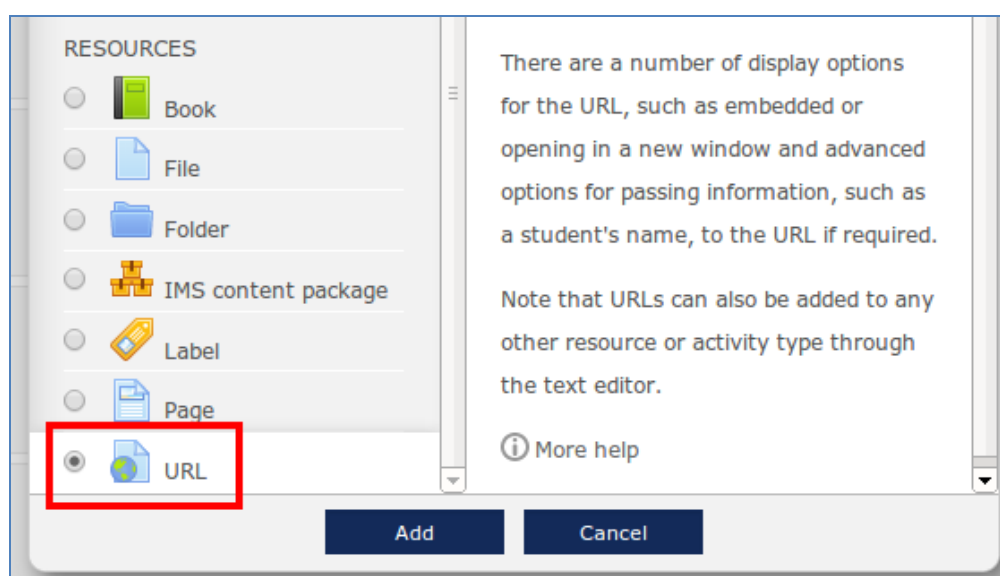


The image shows a 'Common module settings' dialog box. It contains a 'Visible' section with a 'Show' dropdown menu and an 'ID number' text input field. At the bottom, there are three buttons: 'Save and return to course', 'Save and display', and 'Cancel'. A red rectangle highlights the 'Save and return to course' and 'Save and display' buttons. Below the buttons, a red asterisk indicates that there are required fields in the form.

Figure 39 - Save SCORM Settings

5.6.2.2 URL

In order to publish a link (internal to the eLearning platform or external), select "URL" option under "Resources" section of "Add an activity or resource" dialog.



The image shows the 'Add an activity or resource' dialog box. On the left, under the 'RESOURCES' section, there is a list of resource types: Book, File, Folder, IMS content package, Label, Page, and URL. The 'URL' option is selected and highlighted with a red rectangle. On the right, there is a text area with instructions: 'There are a number of display options for the URL, such as embedded or opening in a new window and advanced options for passing information, such as a student's name, to the URL if required. Note that URLs can also be added to any other resource or activity type through the text editor.' Below the text area is a 'More help' link. At the bottom, there are 'Add' and 'Cancel' buttons.

Figure 40 - Select URL Resource

Insert the proper Name and Description and flag the "Display description on course page" option in case you want to publish the description text, in the topic box, under the URL Name.

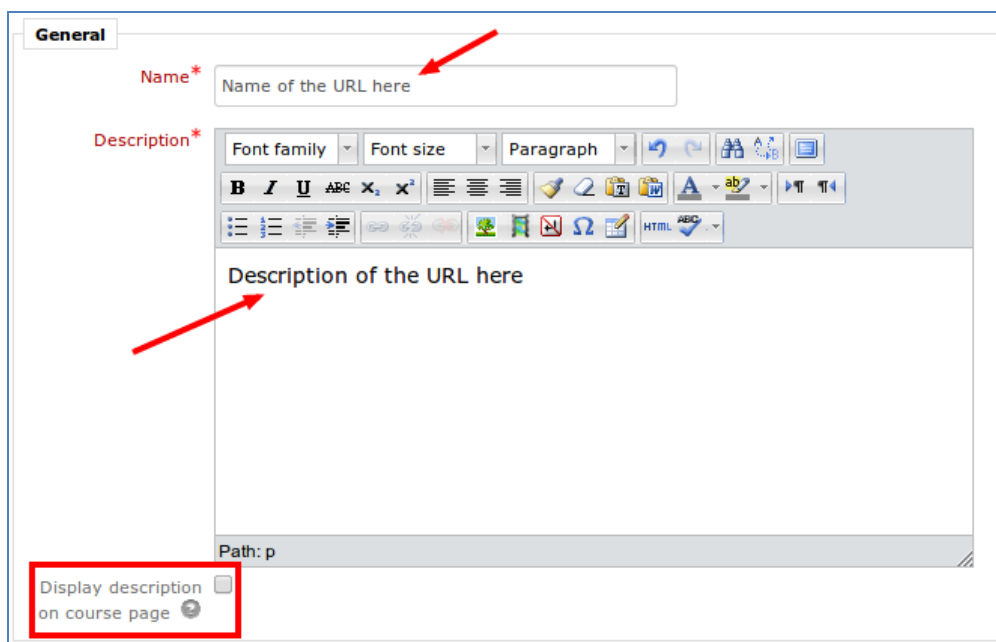


Figure 41 - URL Name and Description

The "URL Content" field is used to specify the actual location to open.

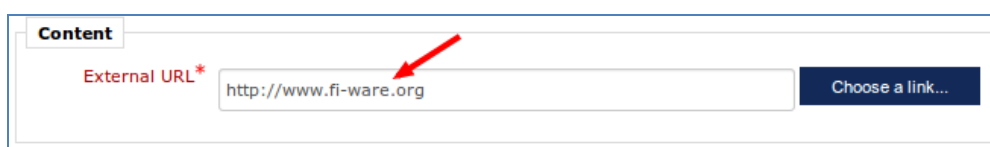


Figure 42 - URL Content

To determine how the URL is displayed it's possible to select among different values of the "Display" option. The two suggested values are:

- **Open:** Only the URL is displayed in the browser window;
- **In pop-up:** The URL is displayed in a new browser window without menus or an address bar (in this case it's possible to adjust the size of the pop-up window).

The *Automatic* one do not always work as expected.

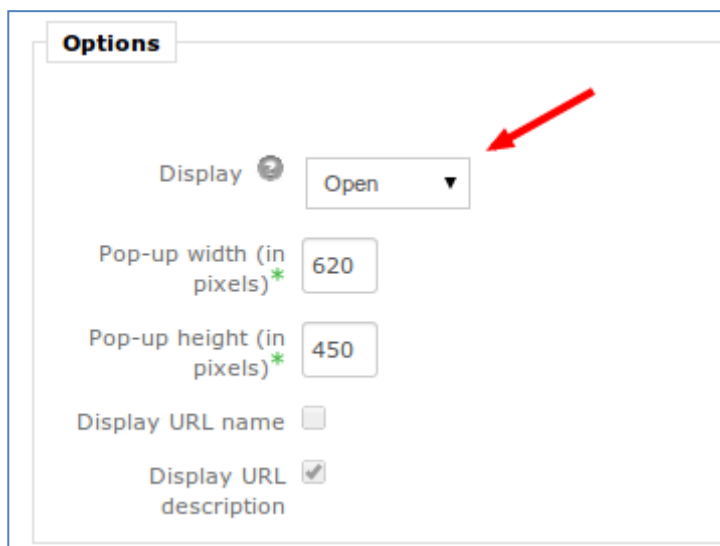


Figure 43 - URL Options

Save the configuration and check the activity or go back to the course page.

5.6.2.3 *Video*

In order to publish a video, select "File" option under "Resources" section of "Add an activity or resource" dialog. In case of long video, it's suggested to split it, by topic, in parts no longer than 10 minutes each and use the sections of a course to rebuild the entire sequence. In this way it's also possible to provide a direct access to a specific part by reading the list of sections that compose the course.

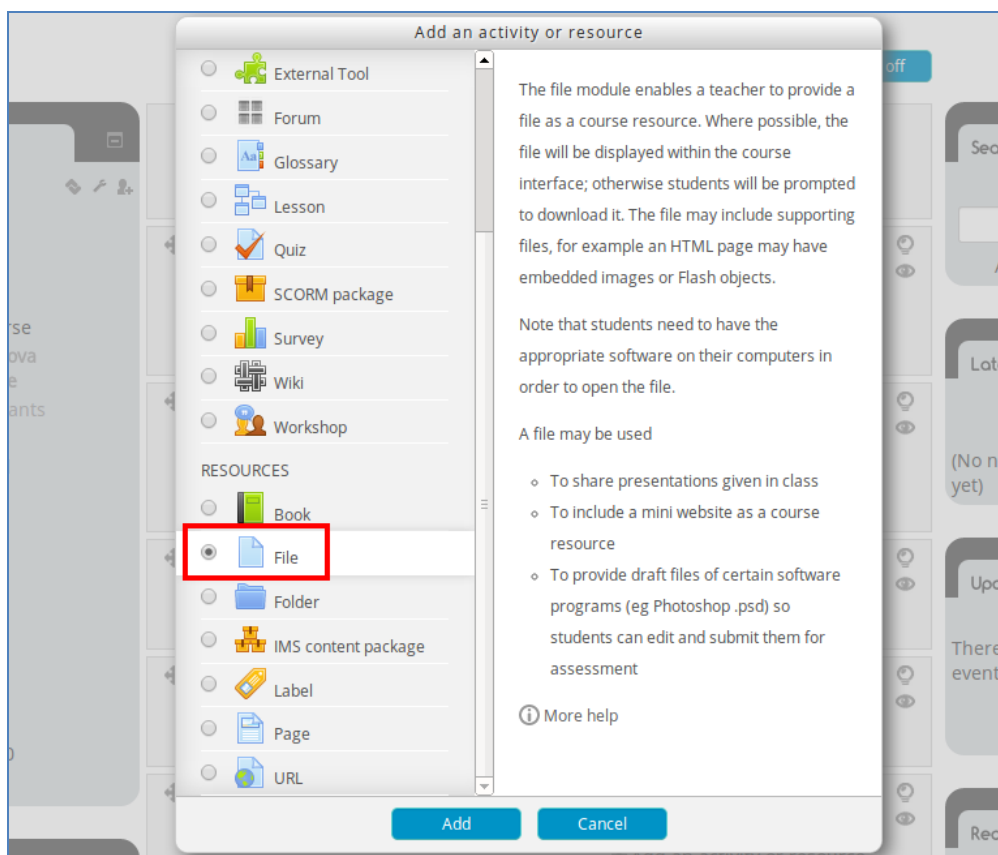


Figure 44 - Select File Resource

Name and description are mandatory as usual. Upload the file using the dedicated interface. It is recommended to upload files in **.mp4 format**.

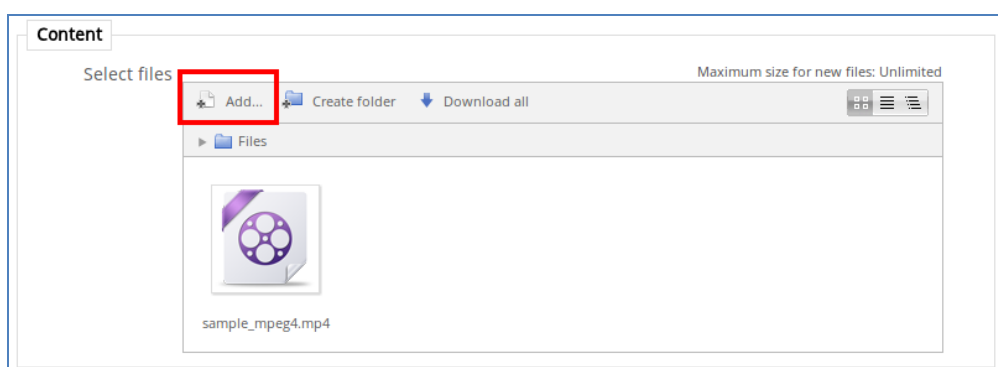
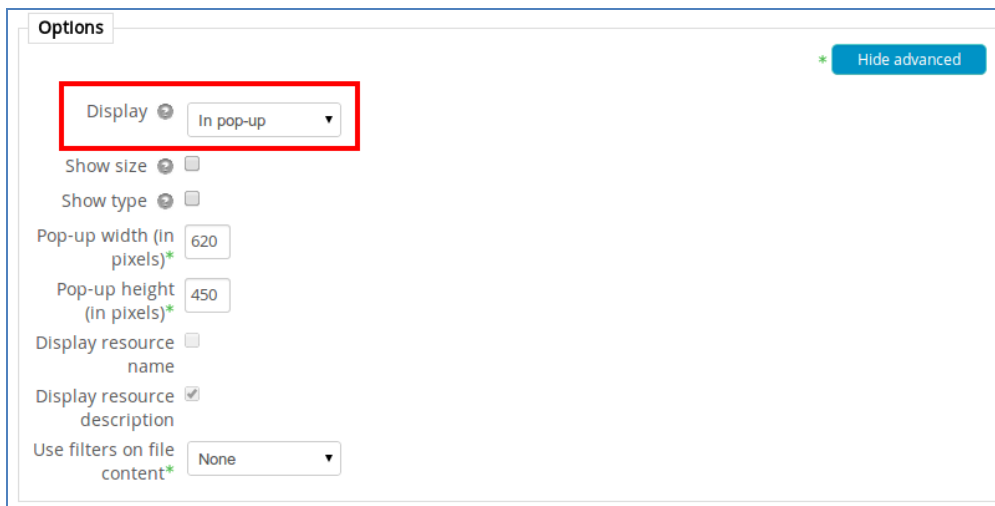
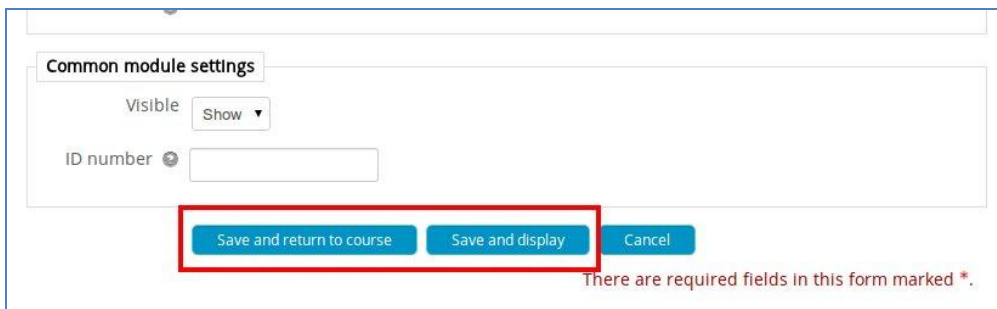


Figure 45 Add File

Recommended option setting for the Display property is: **In pop-up**. In this way can be specified the proper *width* and *height* values.

**Figure 46 - Video Options**

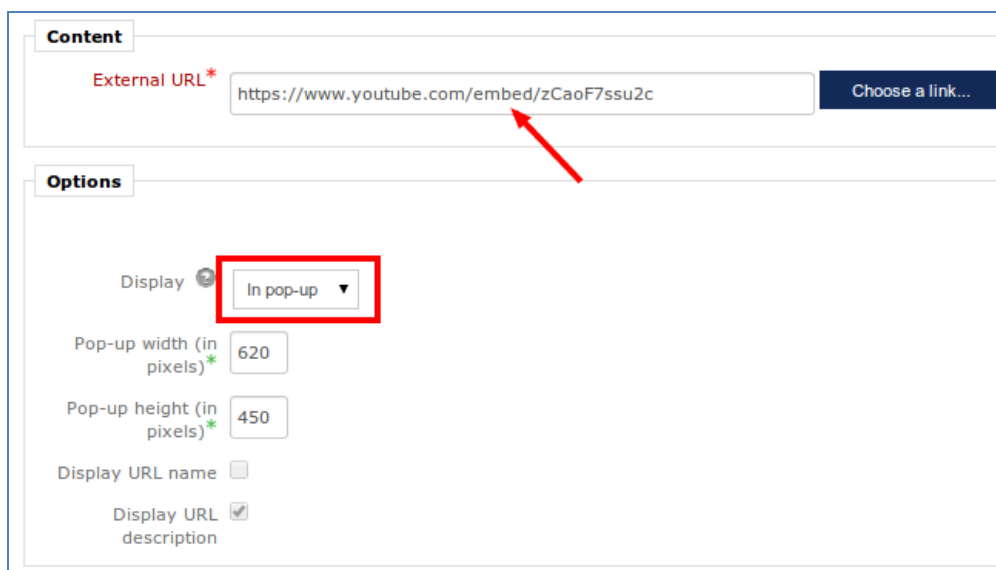
Once all configuration parameters are defined, to confirm and add the new activity belonging to "File" typology, press the button "Save and return to course" or "Save and display".

**Figure 47 - Save Settings**

Additional options on how to publish and embed a video can be found from the official documentation of Moodle: [Working with Media:Video](#).

5.6.2.3.1 *YouTube Video*


To publish a video from YouTube, use the URL Resource item. Retrieve the embedded version of the video from YouTube page (e.g. www.youtube.com/embed/zCaoF7ssu2c) and paste it as "URL Content" value. In this case is highly suggested to use the **In pop-up** value as "Display" option.



Content

External URL* Choose a link...

Options

Display  In pop-up ▼

Pop-up width (in pixels)*

Pop-up height (in pixels)*

Display URL name ☐

Display URL description ☒


Figure 48 - YouTube Video

5.6.3 Course Availability

Once performed all the activities to define the new course, it must be made available in the list of courses, in order to allow other users to access this course. To make this course available:

- Click on the menu item "Edit settings", in the menu "Settings" (left column);
- Search for the "Availability" field and set the value to "This course is available to students";
- Confirm this setting by pressing the "Save changes" button of the page.

Availability


Availability 


This course is available to students ▼

Language

Force language

Do not force ▼

Role renaming 

 [Show advanced](#)

Your word for 'Manager'

Your word for 'Teacher'

Your word for 'Non-editing teacher'

Your word for 'Student'

Your word for 'Author'

Your word for 'Contributor'

Save changes

Cancel

There are required fields in this form marked *

Figure 49 - Enable Course Visibility

To end the editing activities on a course, press the "Turn editing off" button of the page.

The screenshot shows the top navigation bar of the Canvas LMS interface with links for 'Courses', 'My Courses', 'My Dates', 'My Activities', and 'News'. Below the navigation bar, a red box highlights a blue button labeled 'Turn editing off'. The main content area shows a table with a single row titled 'Topic 1'. To the right of the table, there is a sidebar with a search bar labeled 'Search forums'.

Figure 50 - Turn Editing Off

To start editing again the activities on a given course, press the "Turn editing on" button of the page.

5.6.4 Course Evaluation

The training material created by FIWARE project and published in the eLearning platform is evaluated following the points listed below:

- ☒ - the course is missing;
- ☒ - the course is not publicly accessible (guests cannot access this course);
- ☒ - use the last available theme (for the SCORM player);
- ☒ - the course title has to contain GE and Implementation names, e.g. "GE Name (Impl. Name)";
- ☒ - short summary of the course is required (e.g. what the component does, what the process is intended for, ...);
- ☒ - use a meaningful title for topics;
- ☒ - short description of the topics is required (e.g. video on how to install, webinar on how to use, ...);

In case of videos, highly recommended aspects for a profitable user experience are:

- publish video/presentations possibly no longer than 10 mins per topic. Starting from a long recording, it's possible to rebuild the structure of the entire presentation using the sequence of topics.
- keep only relevant content in the videos (especially if recorded during webinars, remove useless discussions, long silences, webinar setup operations, ...).

Additional small issues can be reported directly to the course editor (e.g. use the last FIWARE logo in slides; use the updated version of the SCORM player).

5.7 Assign the Contributor role

Users having "Author" grants can assign the "Contributor" role to other user, so to allow them to work on a specific course.

To assign the "Contributor" role, log-in to the FIWARE platform and follow the steps listed below:

Select the menu item "Available Courses" from the main menu (top blue bar). Select and access the course for which you have "Author" grants and for which you want to assign the "Contributor" role to a specific user.

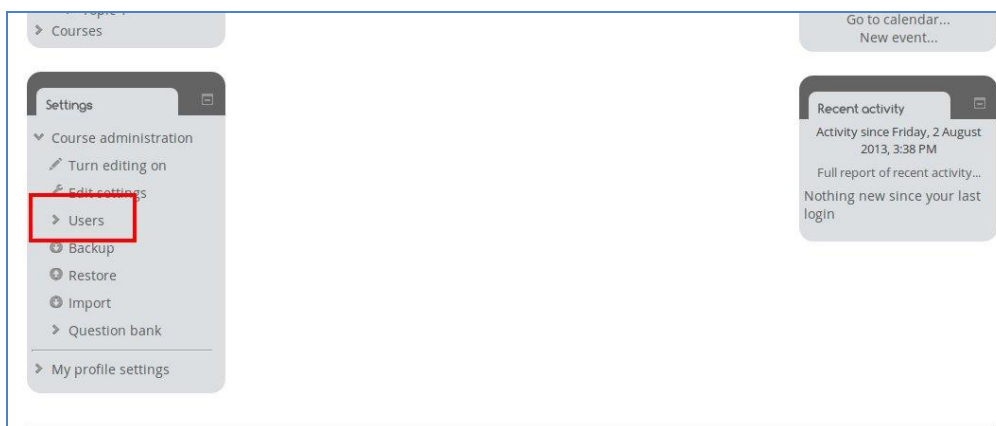


Figure 51 - Select Users

Select the menu item: "Enrolled users".

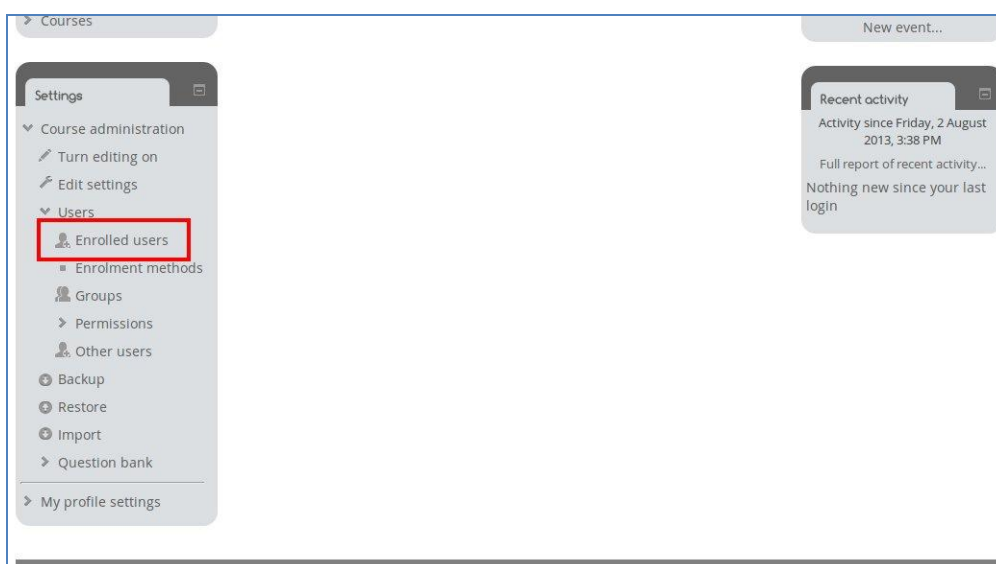


Figure 52 - Select Enrolled Users

The next steps that the Author has to follow are slightly different if the user is already subscribed to the course or not.

5.7.1 User not subscribed to the course

Press the "Enrol User" button.

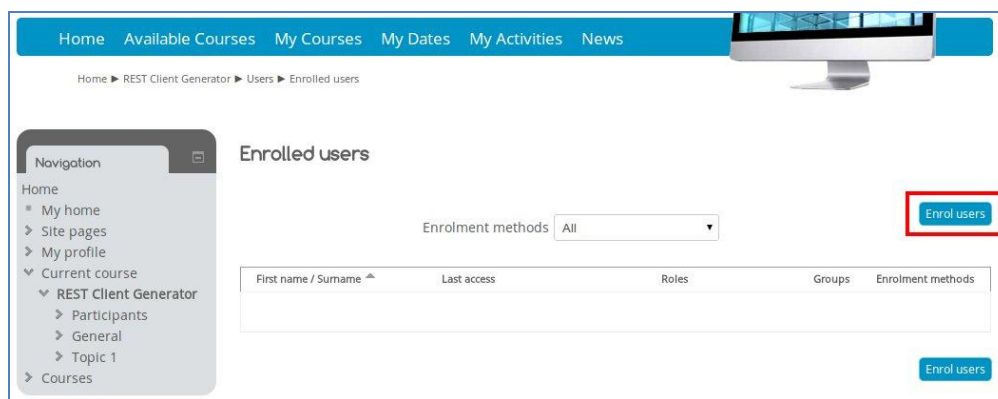


Figure 53 - Enrolled Users

Click to open the "Assign roles" drop down menu and select the "Contributor" option. Click on the "Enrolment options" label, in order to give duration and define the start/end date of the enrolment.

Press the "Enrol" button, near the user you want to assign "Contributor" role.

Press the "Finish enrolling users" button.

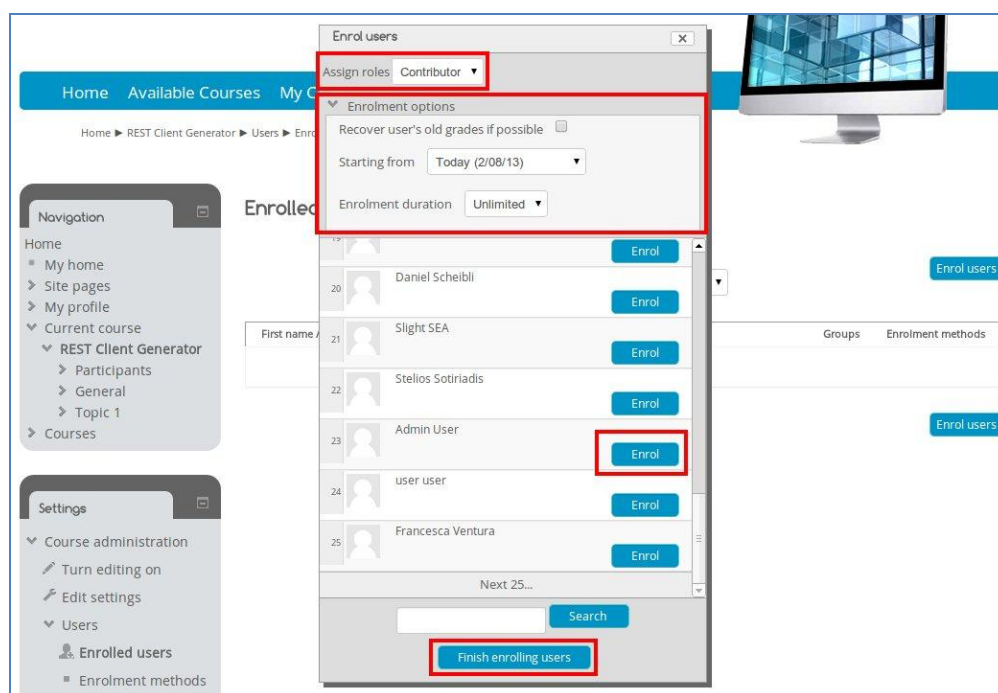


Figure 54 - Enrol Contributor

After this, the chosen user will be shown in the list having the "Contributor" role and will be able to work on the specific course he was authorized for as Contributor.

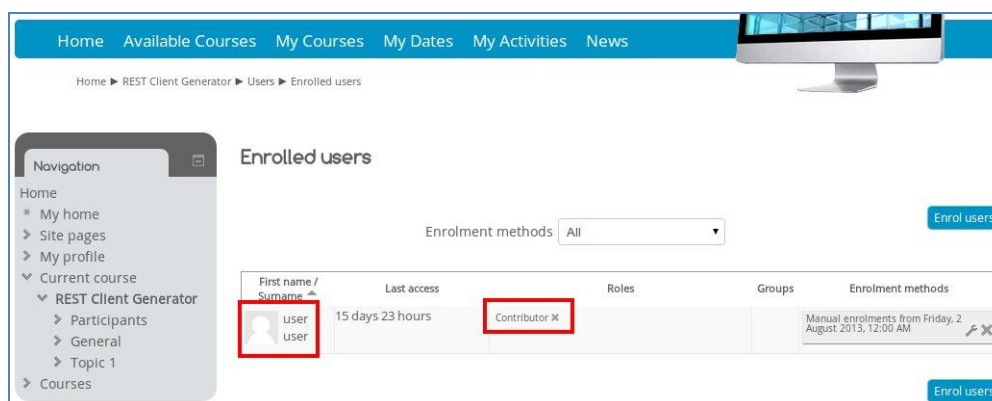


Figure 55 - Contributor User

5.7.2 User subscribed to the course

Users having "Author" grants can assign the "Contributor" role to other users, so to allow them to work on a specific course. Starting from the Enrolled User page, press the "+" (plus) button, which is in the "Roles" column related to the user to whom you want to assign the "Contributor" role.

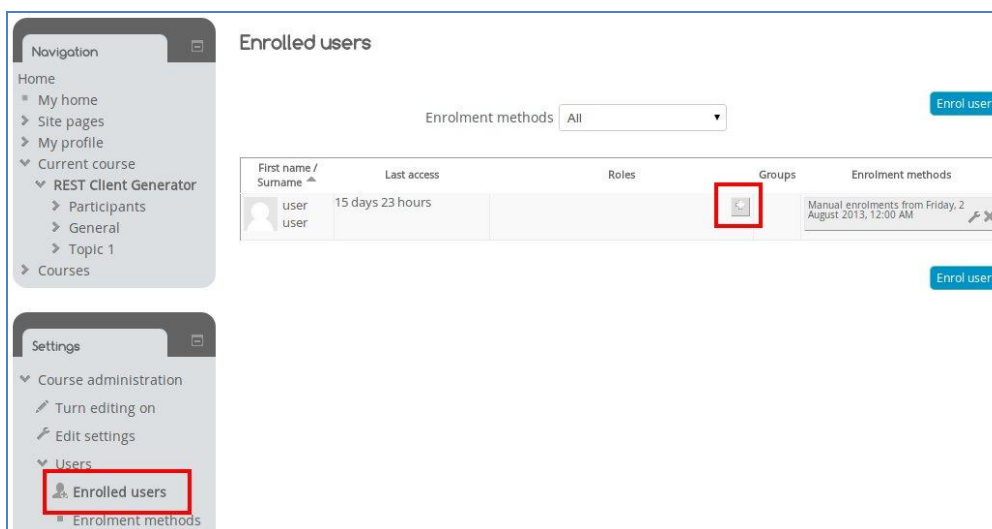


Figure 56 - Add User Role

Select the "Contributor" label.

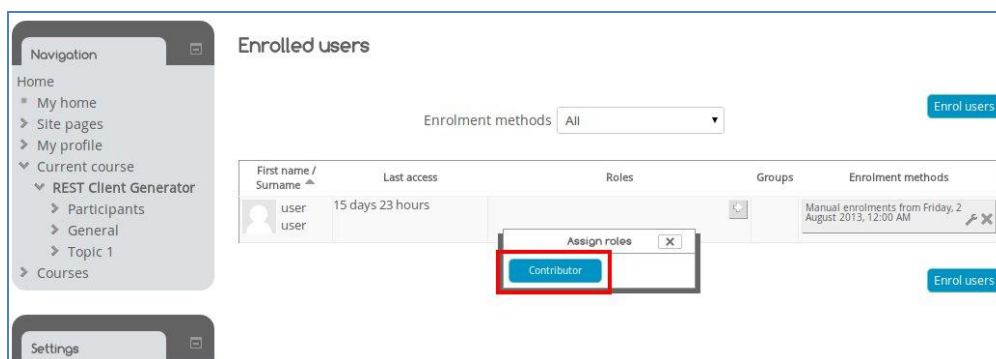


Figure 57 - Select Contributor Role

5.7.3 Revoke the Contributor role

Users having "Author" grants can at any time revoke the "Contributor" role previously assigned to other users. To revoke the "Contributor" role, you have to log-in to the FIWARE platform and follow the following steps.

Select the menu item "Available Courses".

Select and access the course for which you have "Author" grants and for which you want to revoke the "Contributor" role to a specific user.

Click on the menu item: "Users", listed in the "Settings" menu and search for and select the menu item: "Enrolled users".

Click on the "X" button, near the "Contributor" role related to the user for whom you want to revoke the "Contributor" role to a specific user.

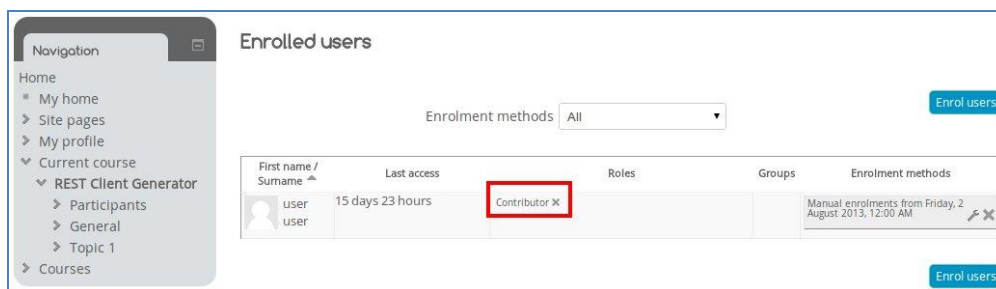


Figure 58 - Remove Contributor

Press "Remove" button and confirm the revocation.

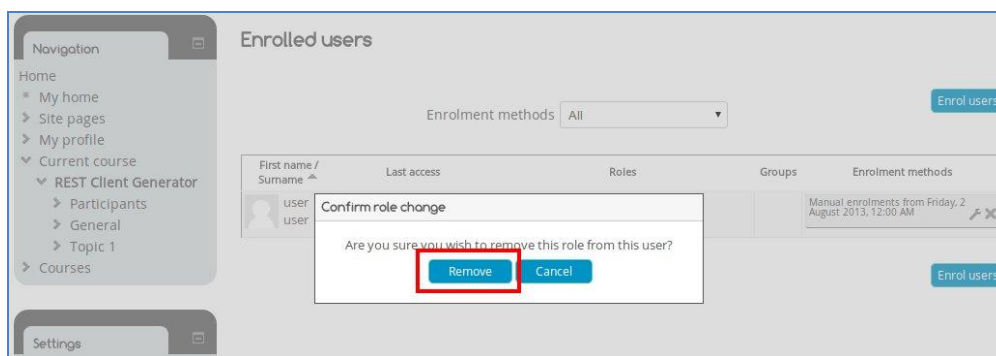


Figure 59 - Confirm Contributor Removal

Please note:

- The revocation of "Contributor" role to a user does not mean to unsubscribe that user from the course. By using the "+" (plus) button, which is in the "Roles" column related to each user, that user can be given again the "Contributor" role at any time.
- Users can be removed from the list and unsubscribed at any time, by using the "X" button, which is in the "Enrolment methods" column.

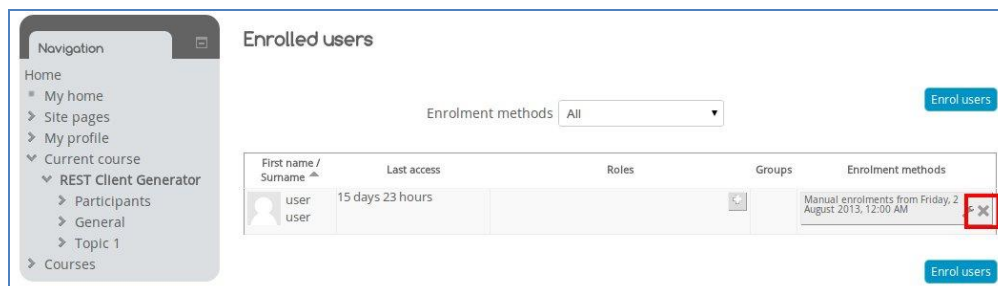


Figure 60 - Remove Enrolled User

6 myForge

6.1 Introduction

The Developer Community and Tools Chapter of FIWARE are responsible for providing tools and facilities supporting the developers of Future Internet Applications and new implementations of Generic Enablers based on their Open Specifications. Within this scenario, the myForge Portal is designed to support all those users wanting to use the Forge Services without worrying about how and where building the virtual machine that contains them. The myForge Portal supports the most common Browsers and its functionalities are based on the PaaS distribution service.

6.1.1 Information

Name: myForge

Version: 1.0.0

License: MIT

Testbed Instance: <https://myforge.testbed.fi-ware.org>

Download: (code) <https://forge.fi-ware.org/scmrepos/svn/tools/trunk/software/cloud/myforge/>

Scope: Application Lifecycle Management

6.2 Installation

This section explains how to prepare the development environment to modify the myForge Portal, once it has been downloaded, and how to install and launch the myForge Portal package on server side.

6.2.1 Dependencies

This section specifies all dependencies of myForge Portal on server side. In order to use and modify the myForge Portal (once it has been downloaded) the *node.js* and *npm* must be installed. If considering, as example, a server on a GNU/Linux machine with CentOS 6.x Operating System, the following steps must be executed to ensure a development environment suitable to use myForge:

-Open a session your GNU/Linux machine:

```
- type the "wget http://nodejs.org/dist/v0.10.4/node-v0.10.4.tar.gz" command and download the tar package;  
- type the "tar xzf node-v0.10.4.tar.gz" to un-tar the compress file in the node-v0.10.4 folder".
```

After the preview operation, install the node.js platform and npm package manager, by typing the command:

```
- go in the node-v0.10.4 folder (cd node-v0.10.4);  
- type ./configure, make and make install to install nodejs software";  
- check the installation typing "node -v"
```

Once ensured that all dependencies were installed/solved, to modify and/or customize the source of myForge, first un-zip the compress file, then launch `npm install` command before starting the server. This way, the new binary code will be compiled and installed in a new directory (dist). After this, through the `sudo node server` command, the application can be launched on server side.

6.2.2 Install the package

To install myForge Portal application server, copy the tar.gz package into the home directory of the project and unzip it. After that, in the directory project-home start the application server and type the `sudo node server` command. In the `config` file, which is in the home directory of the project, can be specified and indicated the preferred environment (e.g.: test, production) by managing the `server.js` file.

6.3 Architecture

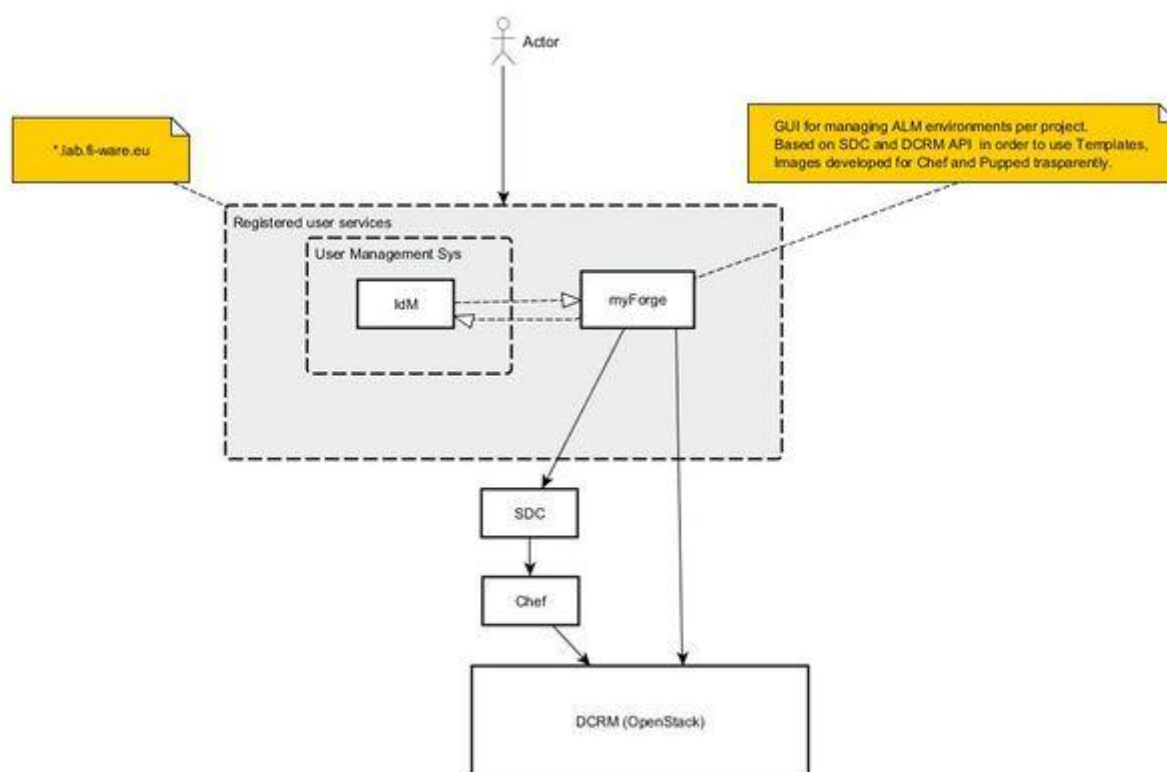


Figure 61 - Architecture overview

The myForge Portal was developed on the basis of the Cloud Portal and, in the same way, the user must be authenticated to access the myForge portal. This authentication is performed by the IDM system. Once being authenticated, it's possible to get information, through the OpenStack API, about the vm hosting the created service or to add new service (in the followings paragraphs is explained how to perform both actions). The operations to add/create services are performed by invoking the SDC to launch all Chef scripts for creating/deploying the service.

6.4 How To

This section describes how to use the myForge Portal to create a Virtual Machine on which was installed and is running a chosen service. myForge Portal can be accessed via browser at <http://myforge.testbed.fi-ware.org/>.

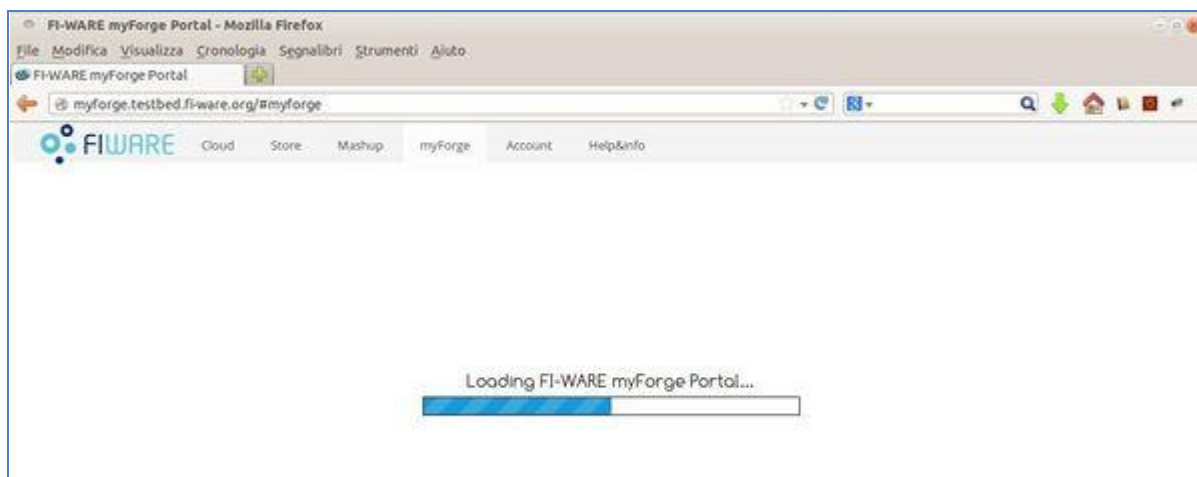


Figure 62 - Re-direct to IDM authentication

The myForge Portal redirects to an authentication system named IDM only if accessing the first time to the portal. The following figure shows an authentication mask to sign in to the system and to all the applications protected by the IDM.

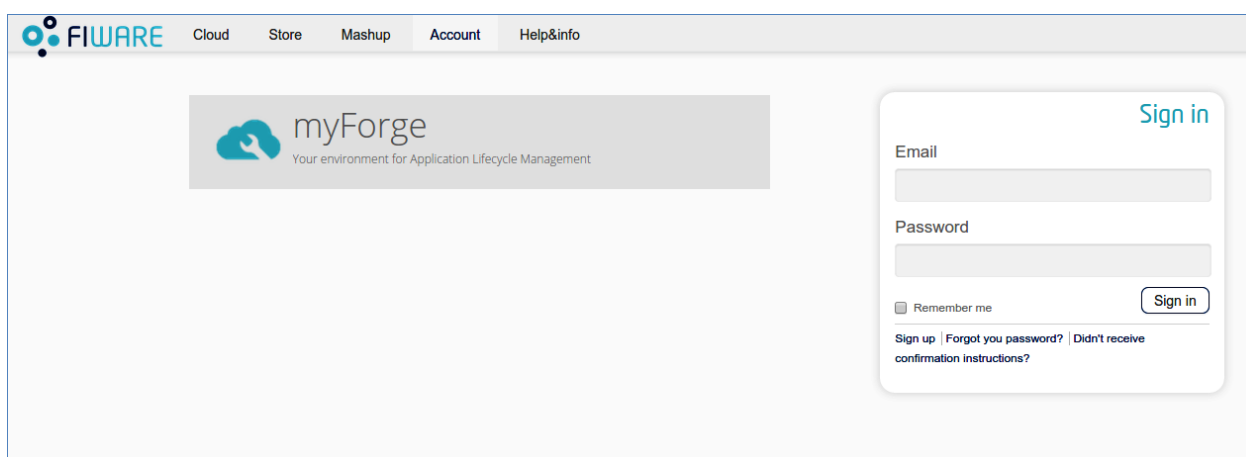


Figure 63 - IDM Authentication page

After having correctly logged in, the user is redirected to the myForge homepage, which shows all the services/vm that refer to *user_myForge* project, stored on Open Stack and also visible on the Cloud Portal for the same project name.

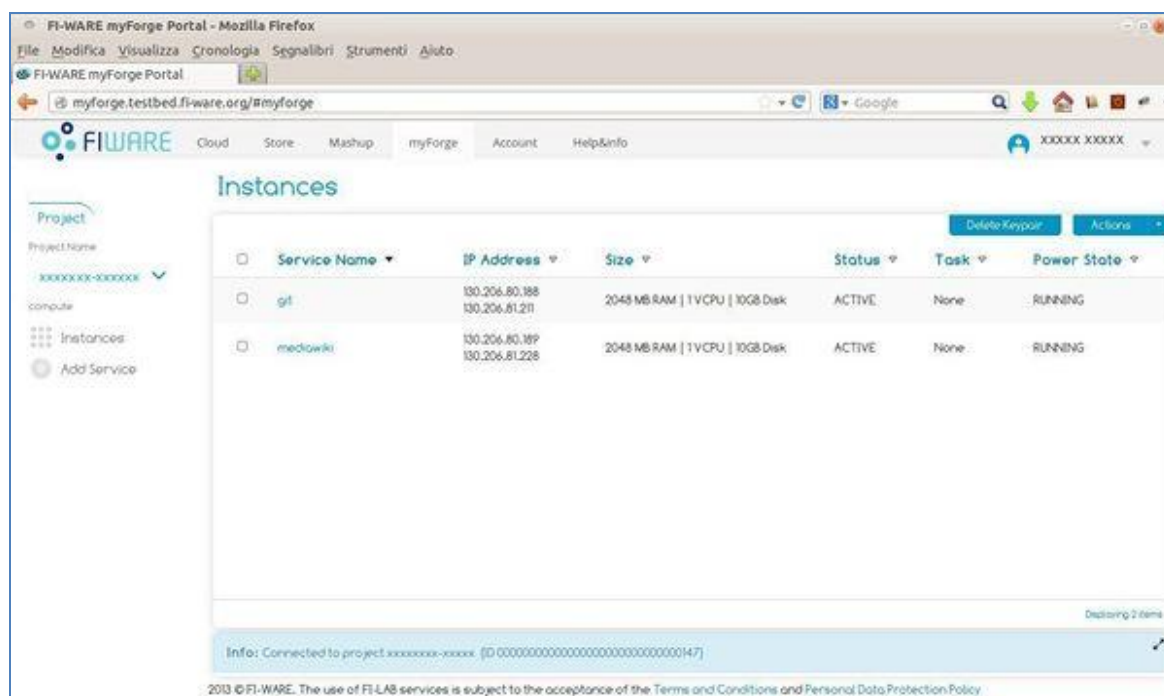


Figure 64 - myForge Portal homepage

6.4.1 View instances and add service

Once the homepage is displayed, on the left menu will be shown the references to two functionalities: *Instances* and *Add Service*.

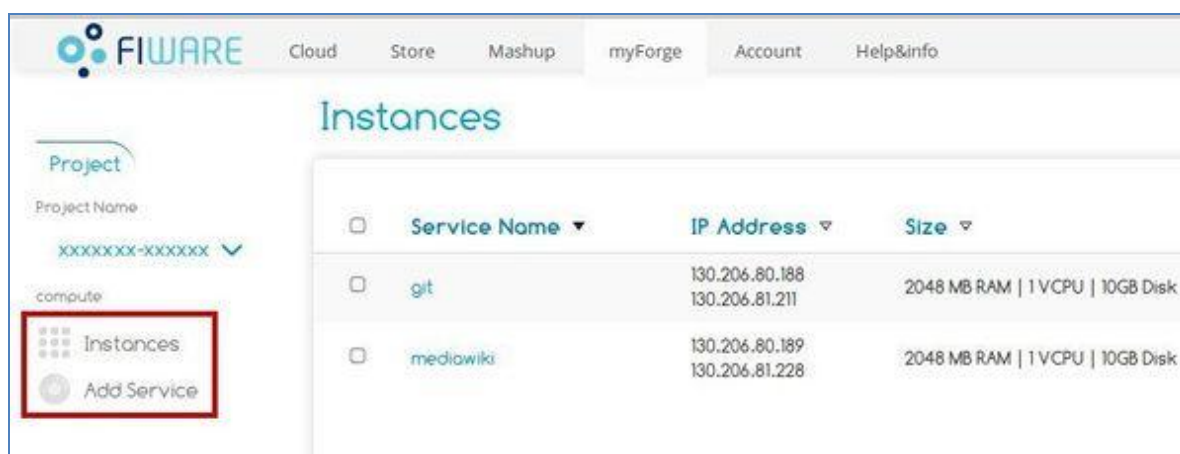


Figure 65 - Details about instances

Use *Instances* to display information about the instances of myForge project. On the right menu there is the list of service instances, virtual machine characteristics and public IP addresses to access them.

When clicking on the *Instance Service* label to choose a service, a screen with details will be shown. In this Overview it's possible to know the Id of the VM, and its characteristics in terms of RAM, VCPU and HD, public IP address to access it, the security group and the name of the key to use in ssh mode to access it.

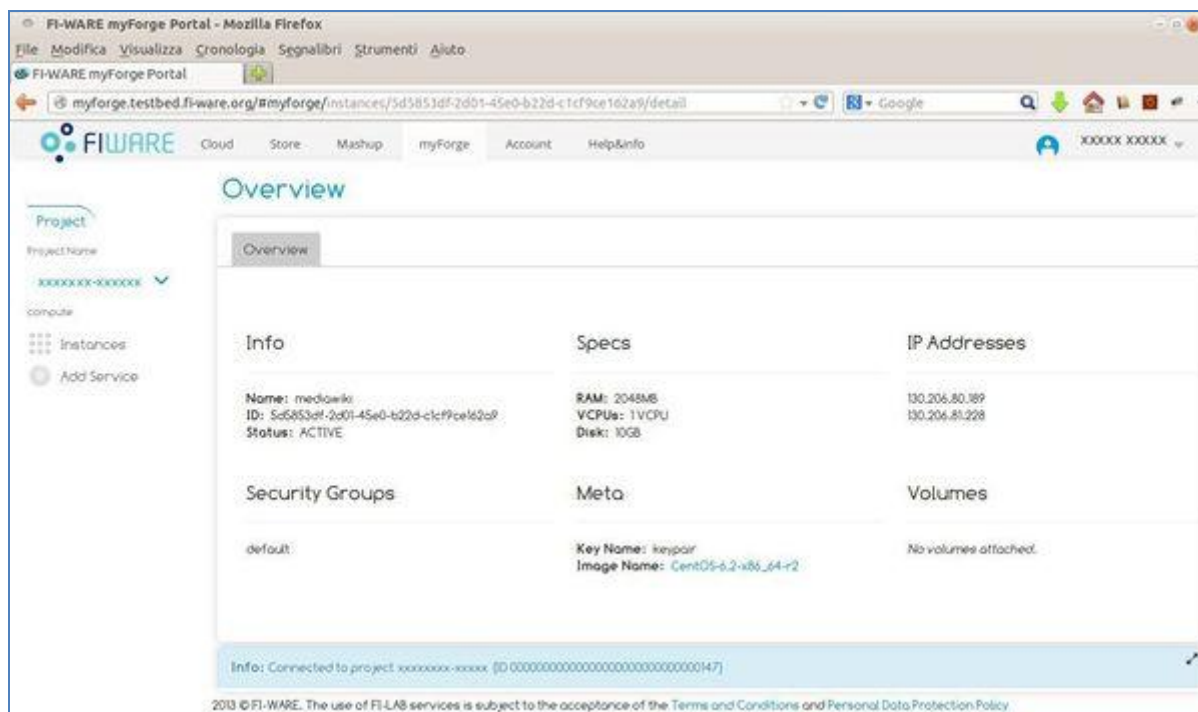


Figure 66 - Overview of an Instance

It also possible to know the Id of the default template used to create the VM (in the ID field of the Overview page), in order to retrieve related information.

Use the *Add Service* label to add a new service to myForge project. When clicking on it a window will be shown loading the list of all the services/items present in catalogue, for myForge.

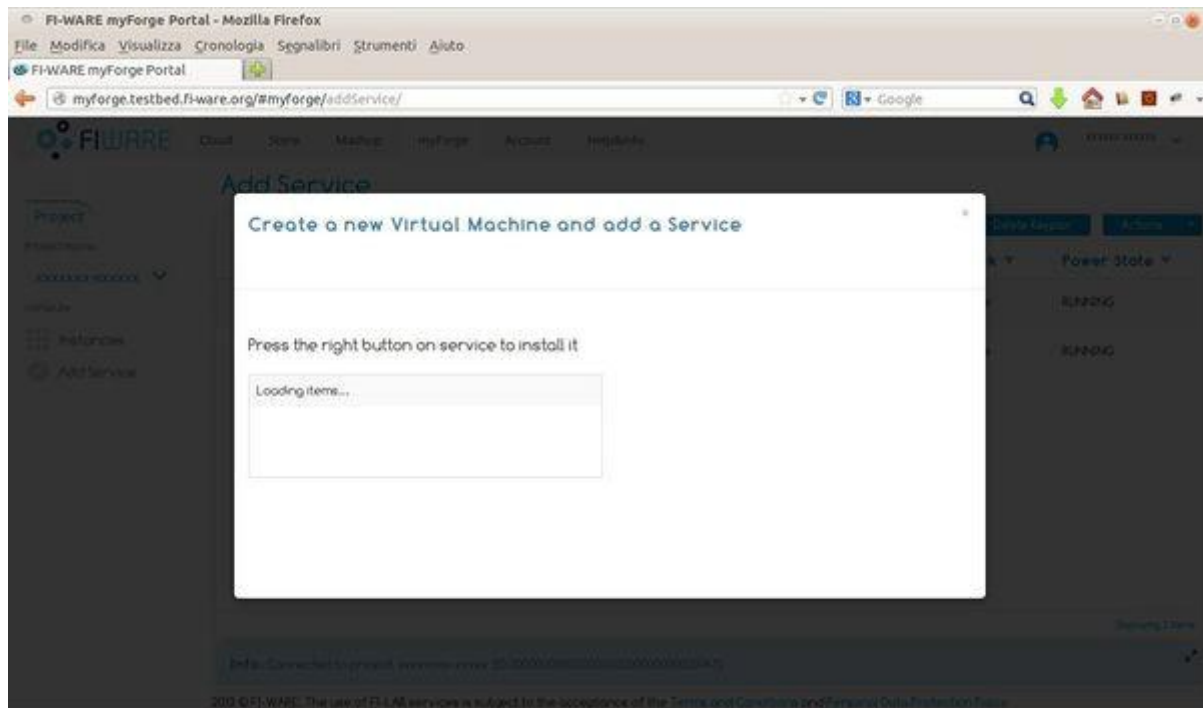


Figure 67 - Loading the ALM service...

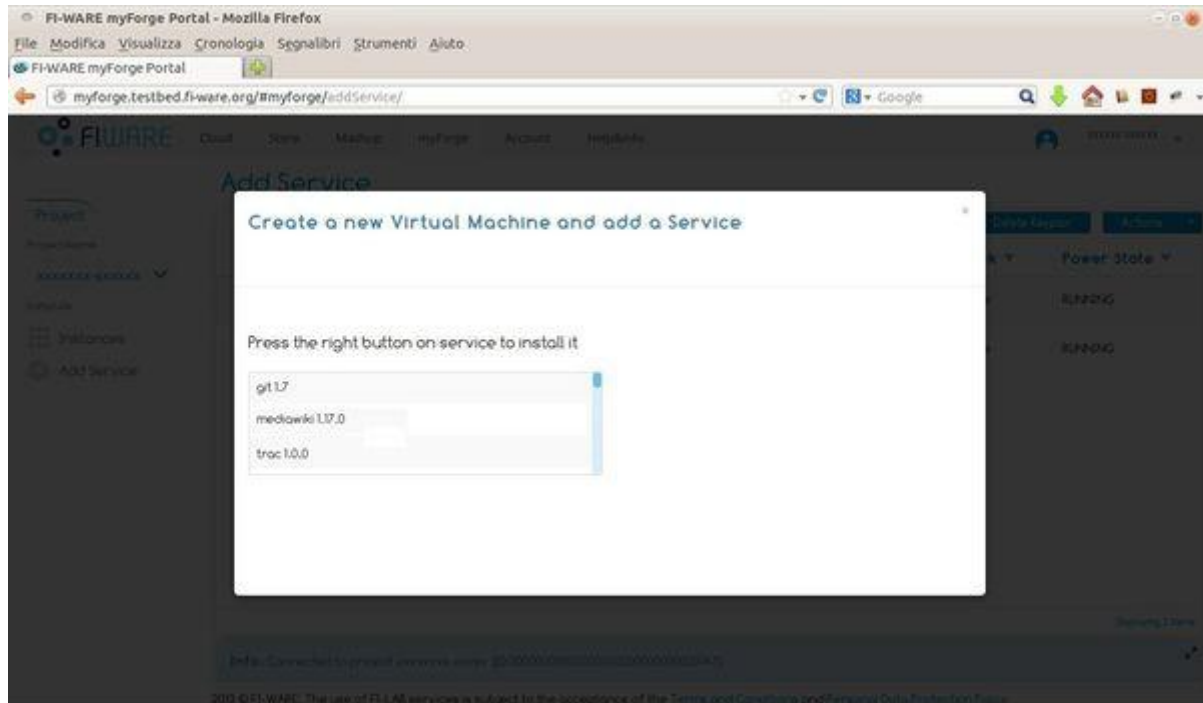


Figure 68 - ... loading completed

Once the loading is completed it's possible to scroll down the list and choose the needed service, by right clicking on it and selecting the install command.

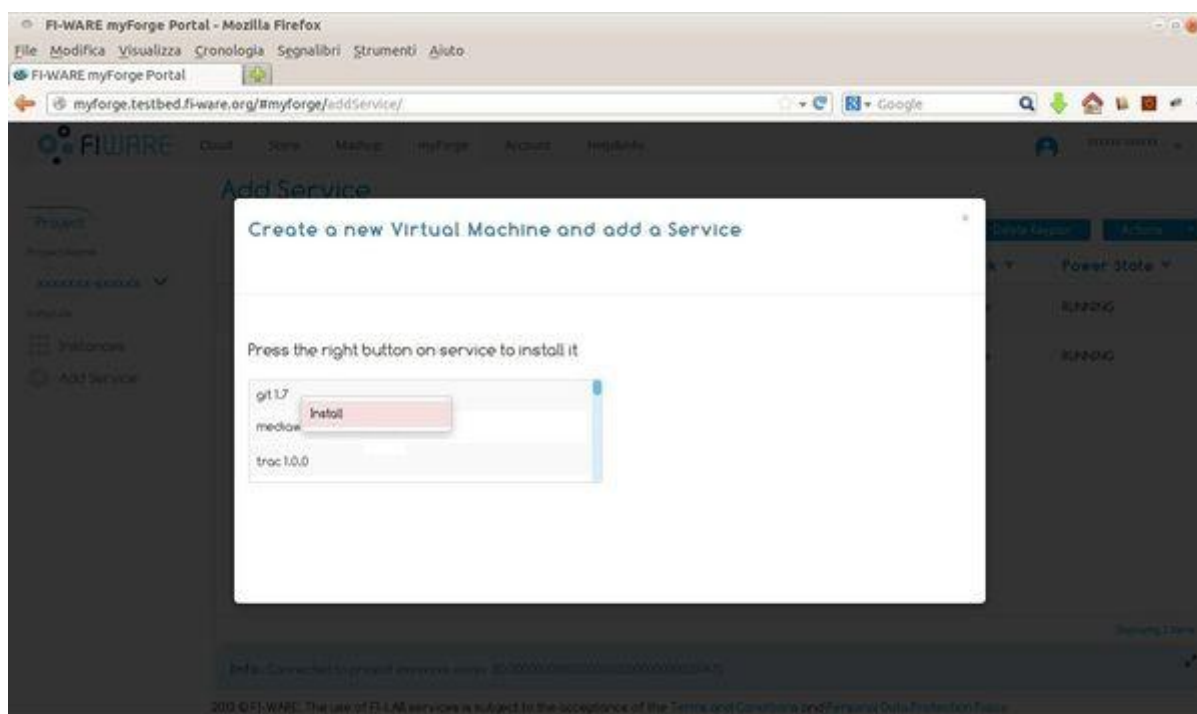


Figure 69 - How to install the chosen service

After the install command is launched, the myForge Portal server sends requests to different applications in order to create a virtual machine, starting from a default template, and to reserve an IP within a pool of public IP addresses in order to allow the access to the new VM, to associate this IP to the VM, to start the chef script that installs and runs the chosen service. While performing these operations a screen appears, that shows the VM in a BUILD state and in the meanwhile no operation is possible.

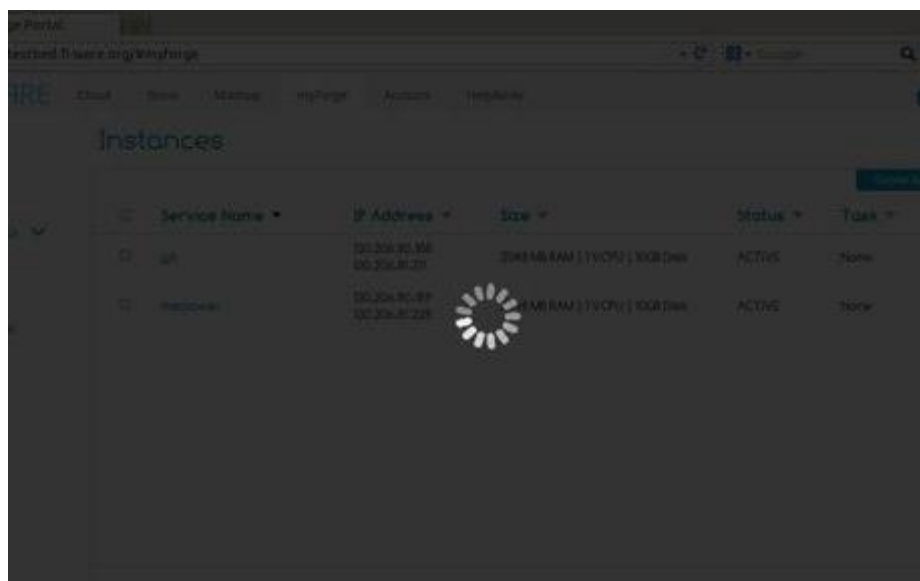


Figure 70 - Waiting for the deployment of the virtual machine with the chosen service

6.4.2 Actions

It is possible to perform actions on all services running on myForge Portal. In the right top menu there is a drop-down button from where it's possible to choose the actions related to instances, which are:

- *Edit Instance* - to edit the instance's name
- *Pause Instance* - to pause the instance
- *Unpause Instance* - to unpause the instance
- *Suspend Instance* - to suspend the running instance
- *Resume Instance* - to resume the suspend instance
- *Reboot Instance* - to restart the instance
- *Terminate Instance* - to delete the instance

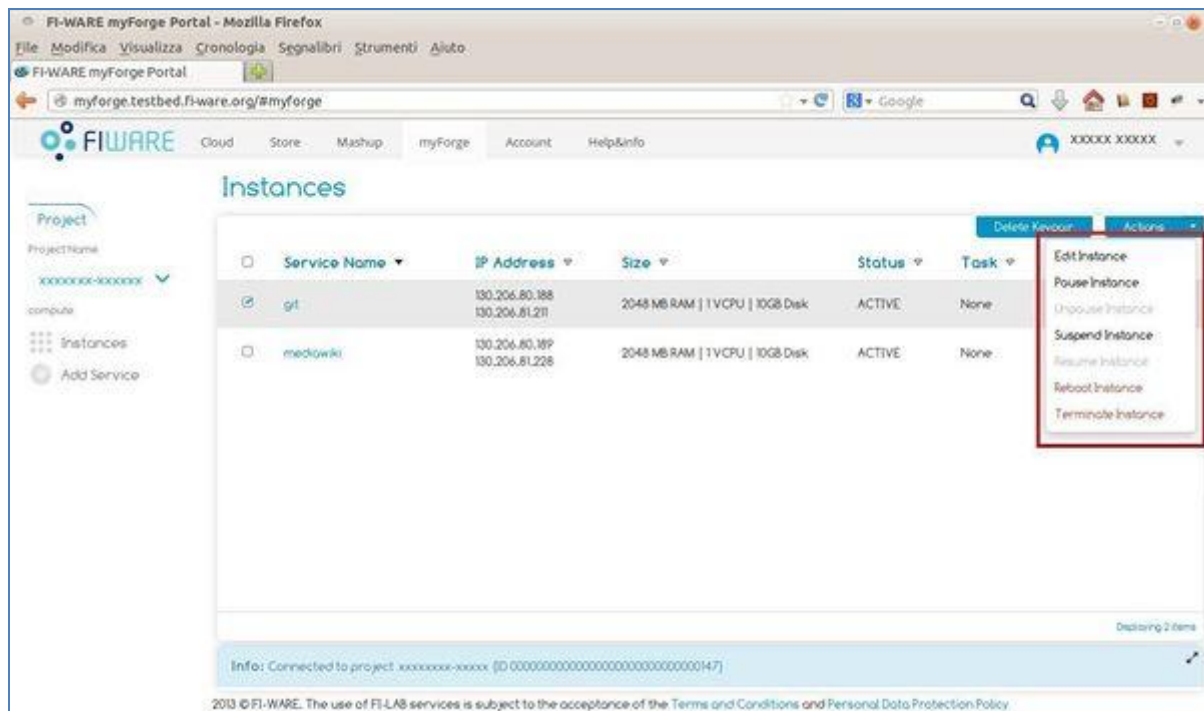


Figure 71 - Actions

6.4.3 keypair

When an instance (service) is added for the first time, myForge Portal automatically creates a keypair.

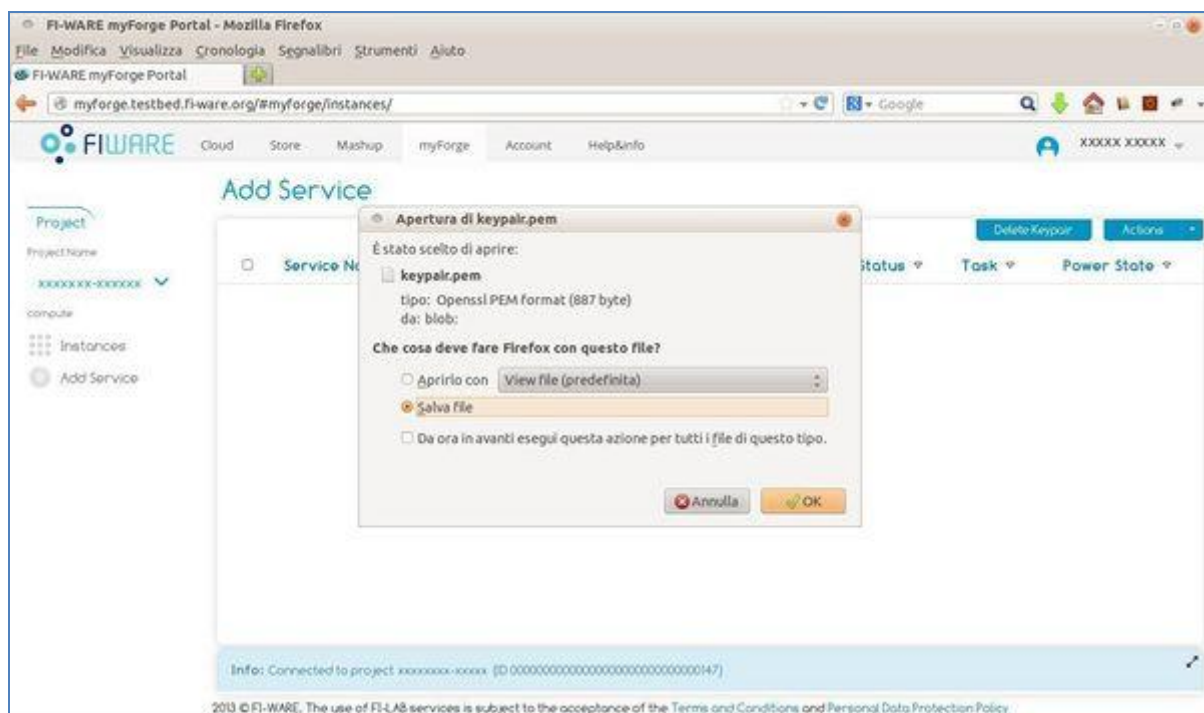


Figure 72 - Download keypair automatically

A window popup will open from where can be downloaded the `kaypair.pem` file. This must be used when accessing on VM in ssh mode (without the `kaypair` VMs cannot be accessed). If a `kaypair` is lost, the only way to proceed is to delete the old `kaypair`, add a new instance, so that a new `kaypair` will be created. Since the old instance refers to the old `kaypair`, it cannot be accessed by using the new `kaypair`.

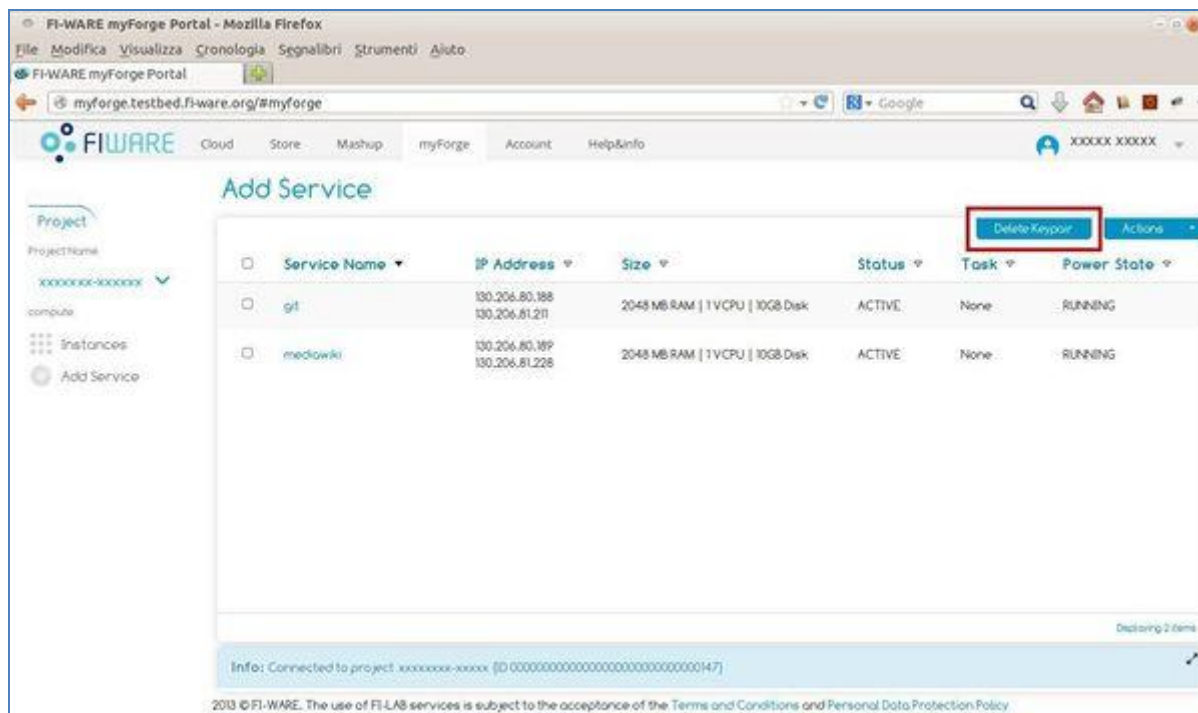


Figure 73 - Delete keypair button

To delete the keypair, click on the *Delete Keypair* button and then confirm on the window popup.

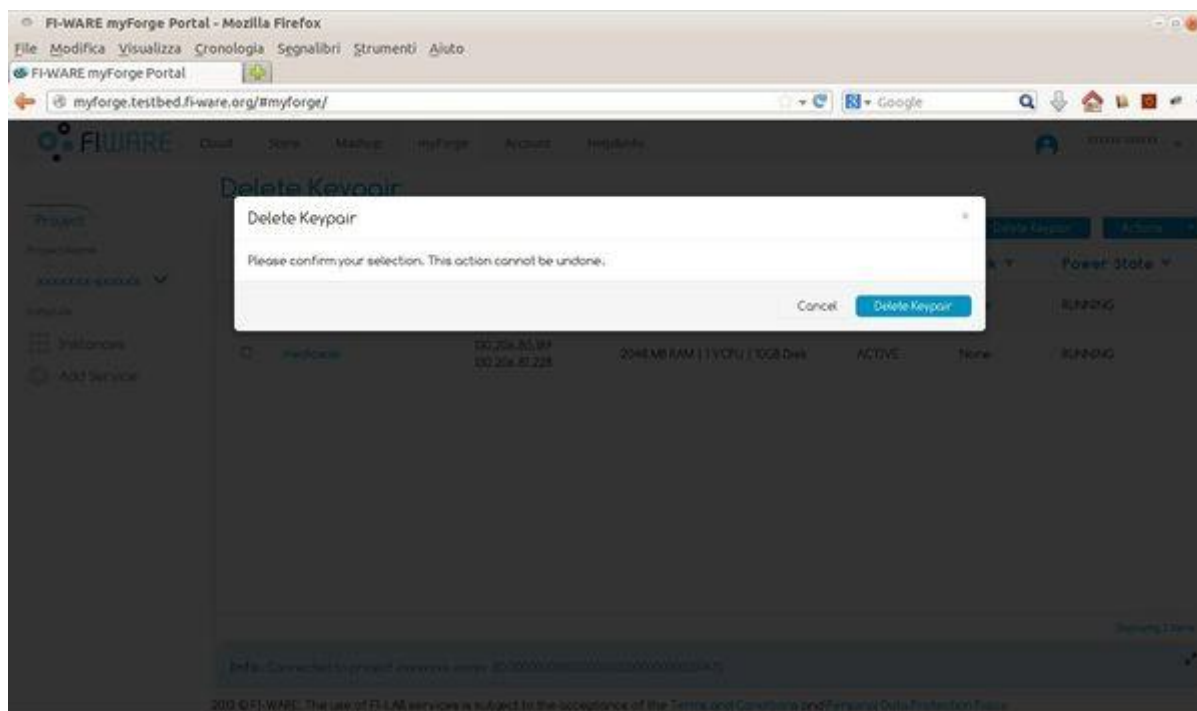


Figure 74 - Delete keypair popup

By clicking on the *Delete Keypair* button the keypair will be deleted.

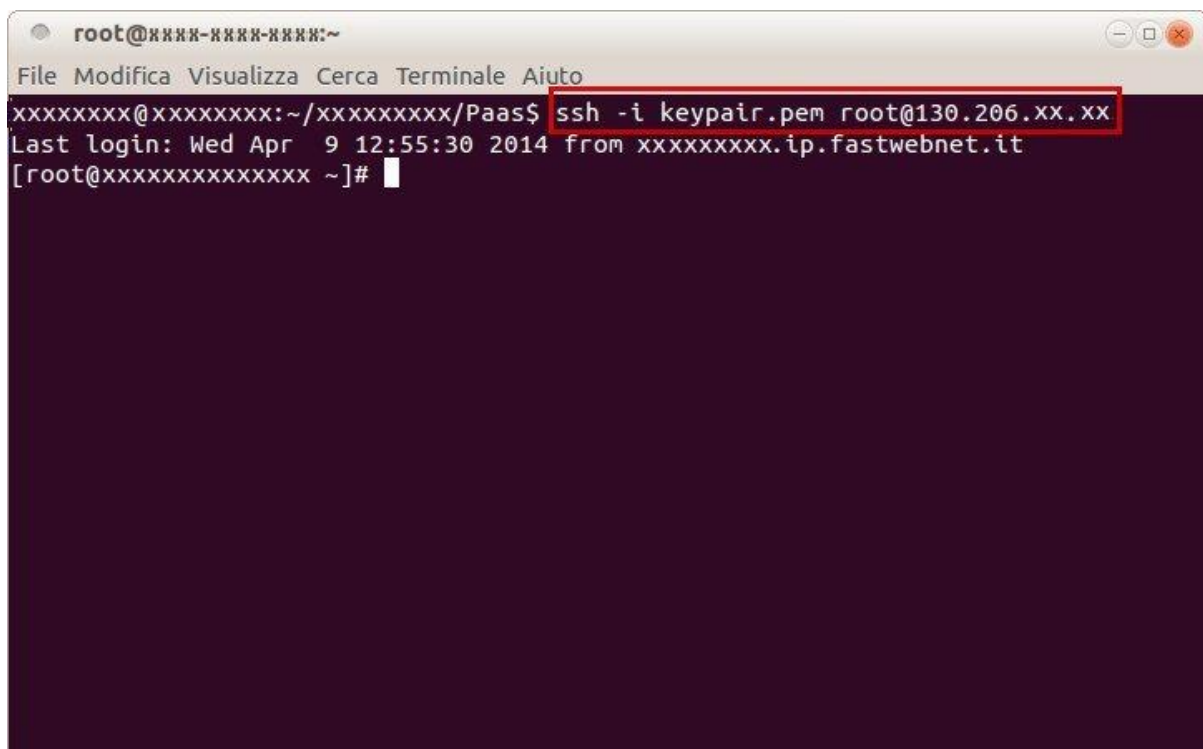
6.4.4 Connect to the VM

Once these operations are completed, a new VM will be available, named using a random *prefix+service* name, with a public IP and being in an ACTIVE state. In order to connect through an ssh protocol to this new VM, ensure to have in the *project home* directory the security key and that the same is specified in the Overview screen, in the Meta tags and Key name fields.

To connect to the VM, type on the command line:

```
- ssh -i keypair root@vm_ip_address
```

Here an example of connection via ssh with keypair in the linux shell.



```
root@xxxx-xxxx-xxxx:~  
File Modifica Visualizza Cerca Terminale Aiuto  
xxxxxxxx@xxxxxxxx:~/xxxxxxx/PaaS$ ssh -i keypair.pem root@130.206.xx.xx  
Last login: Wed Apr 9 12:55:30 2014 from xxxxxxxx.ip.fastwebnet.it  
[root@xxxxxxxxxxxxxxxx ~]#
```

Figure 75 - Connection via ssh with keypair

6.5 Use Case

6.5.1 Context

Create a new ALM service on a VM with public IP.

6.5.2 Scenario

Choose on the catalogue the ALM service to be created/deployed on a virtual machine with standard characteristics.

6.5.3 Description

An FI-PPP developer that wants to work directly with an ALM service, and doesn't know how to launch a virtual machine with its RAM, HD and how to install it on an O.S., can use the myForge Portal, and its *Add Service* feature.

Once logged in, the developer selects the *Add Service* label on the left. This way an ALM catalogue will be shown and the developer can select the needed service. Once selected the service, by right clicking on it, it's possible to launch the installation procedure.

This procedure creates a virtual machine starting from the default template, having one CPU, 10GB of HD and 2GB of RAM. On this VM is installed a Centos 6.x O.S. and, then, is reserved a public IP chosen among

an ip-address pool, which is associated to this VM that has been created, then, the service chosen by the developer is deployed.

6.5.4 Use Case Diagram

Use Case	Add a new service on a public virtual machine
Actor	FI-App developer
Actions	<p>FI-App developer</p> <p>log in to the portal and click on Add Service label, on the left menu, in the myForge homepage</p> <p>in the ALM catalogue that is shown, choose the service to be installed and deployed</p> <p>right click on the selected service install command</p> <p>wait for creation/reservation/association/deploying</p> <p>connect via ssh to the new vm with the deployed service</p>
Subject	myForge Portal server + Browser for HTTP connection
Precondition	myForge Portal server up
Post condition	VM created with service installed

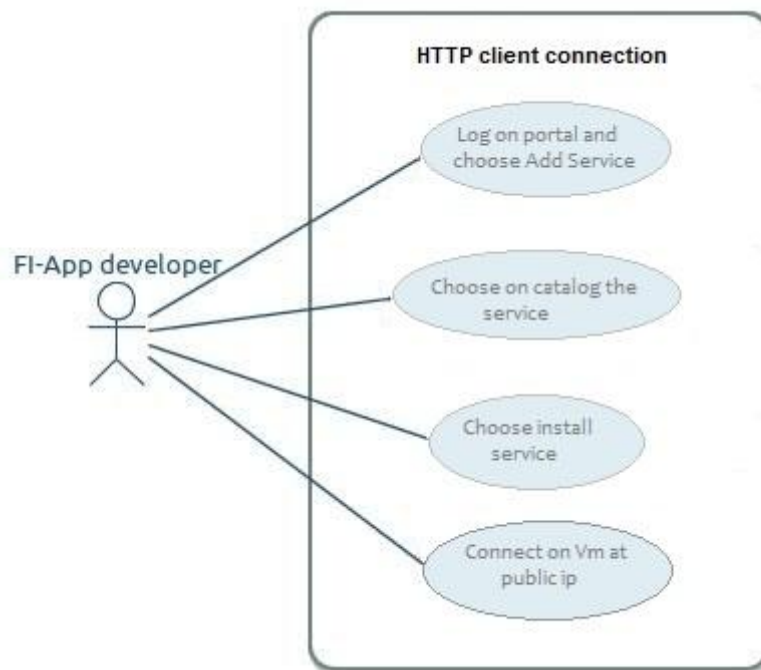


Figure 76 - Deploy a new service

6.6 Development of the myForge

myForge is a simplified version of the FIWARE cloud portal (<https://github.com/ging/fi-ware-cloud-portal>) that allows user to create, quickly and easily, services to support apps development and project management.

6.6.1 Services in the myForge portal

In the myForge portal, the user chooses the service and starts the virtual machine within the service. The list of services available in the myForge is different by FIWARE cloud portal.

6.6.1.1 *Metadata tag*

In order to use the myForge with different services a new metadata tag (with key/value attributes) has been used. The metadata tag was used to filter all software products available in the catalogue only for myForge portal. It was specified with target/alm in the following way:

To connect to the VM, type on the command line:

```
<metadata>
  <key>target</key>
  <value>alm</value>
```

```
</metadatas>
```

6.6.1.2 *Create and display services in the myForge portal*

To display only the services create in the myForge portal and to hide all services create in the FIWARE cloud portal a metadata attribute has been used.

In details, in the creation mode, in the jstack.js file the attribute is used in this way to define all services created in the myForge portal:

```
metadata = {"createIn" : "myForge"}
```

In the view mode, in the file Instances.view the “if” statement has been added to filter all services without metadata attribute:

```
createIn = instance.get("metadata").createIn;  
  
if (createIn === "myForge"){  
    ...  
}
```

6.6.2 Configuration of attributes by using config.js file

Before to start the myForge portal server the config.js file must be edited, it is located in the myForge portal root. All parameters can be edited for:

- Authentication:
 - in the keystone;
 - and OAuth for authentication in the testbed/cloud portal;
 - server side:
- to print the logs (in the console or in the myForge.log file);
- to change the server port for nodejs server;
- client side (backbonejs) – edit this parameters:
 - name of pool;
 - name of keypair;
 - id of virtual machine;
 - id of flavour.

6.6.3 Using the keypair

Before using the keypair to connect on VM the keypair permission must be changed, by using this command:

```
chmod 0400 keypair.pem
```


However, it's possible to have problems related to the Keystore file (the one containing the keypair), when trying to connect on a VM via *ssh*, because new keypair having the same name could be always added. In this case, it must be deleted the *know_host* file in the linux like system and try to connect via *ssh*.

6.7 Creation of a custom svn cookbook

The subversion cookbook is already available on chef supermarket site (<https://supermarket.getchef.com/>), where it's possible to find and download the last subversion version.

Remember that the subversion cookbook manages only authentication but it doesn't manage the authorization. Finally the authentication is delegated to Apache Web Server using by the *htpasswd* file.

To create a recipe for GEs, follow the guide published at http://forge.fi-ware.org/plugins/mediawiki/wiki/fiware/index.php/How_to_create_recipes_for_the_GEs. This guide explains how to upload the svn cookbook into the svn and use it.

Starting from the subversion cookbook, a new version of svn was created with authorization features. Below are listed the changes done to the svn cookbook in order to add the authorization support:

1. created the *authz* file for authorization;
2. added *authz_svn_module* module for authorization;
3. added the *AuthzSVNAccessFile* property in the *subversion.conf* file.

As for the authentication, also the authorization is delegated to Apache Web Server by using the *authz* file.

The source of the svn cookbook can be downloaded at this link https://forge.fi-ware.org/frs/?group_id=15, in the myForge section.

6.7.1 The application_svn_with_web_UI cookbook

To manage the svn repository via web browser the "application_svn_with_web_UI cookbook" has been created. The source can be downloaded at this link https://forge.fi-ware.org/frs/?group_id=15, in the myForge section.

After having deployed it on the virtual machine, access the svn repository at this link http://IP_YOUR_VM/svn/repo/. The WebApp (named SVNWebAdmin) is available at http://IP_YOUR_VM/SVNWebAdmin

Note that the Apache Server uses a default port (80), while Tomcat 6 uses a default port (8080), but the WebApp is available at port 80! In this case a redirect proxy module (*mod_proxy* and *mod_proxy_http*) has been used in the Apache Web Server, so that all the requests to '/SVNWebAdmin' path will be redirected to 8080 port.

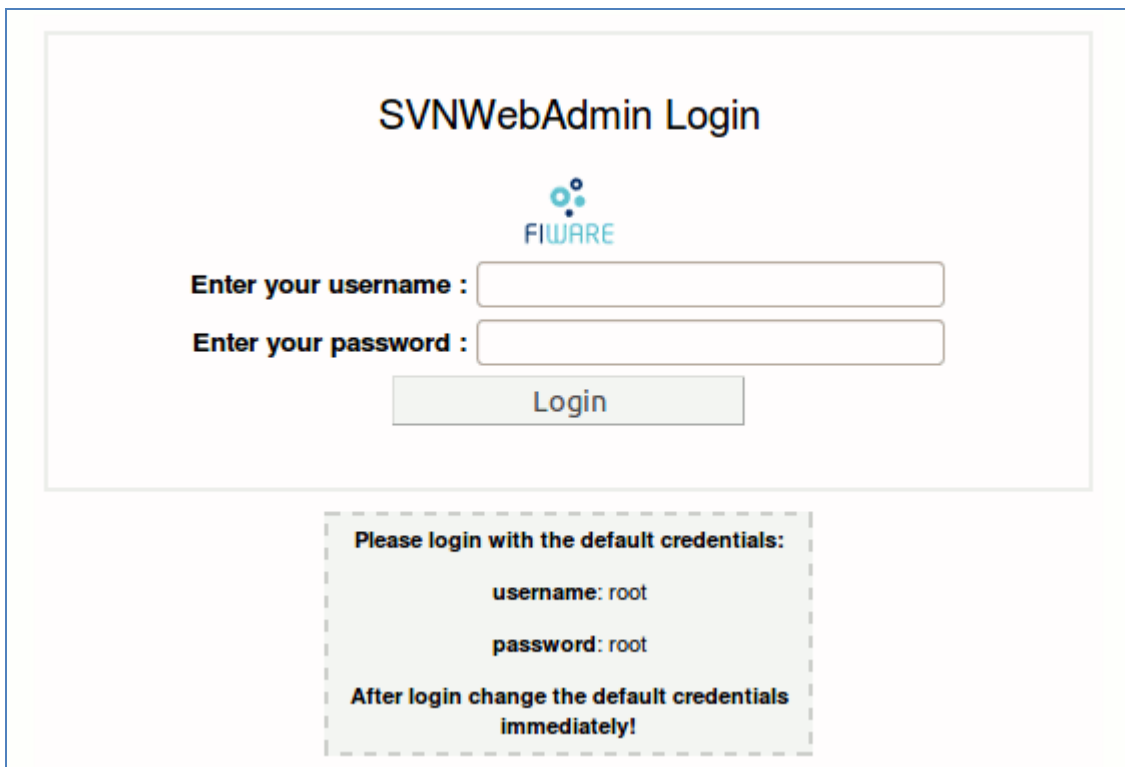
Finally to deploy the war in the Tomcat this URL has been used <https://forge.fi-ware.org/frs/download.php/1501/SVNWebAdmin.war> where the war is available.

6.7.2 SVNWebAdmin WebApp

This section describes how the default application is customized in order to manage the svn authentication and authorization of users that can access the svn service. This configuration is included in the final package so that it is already available for every instance.

6.7.2.1 *Login and Logout*

To manage the svn authentication and authorization a new cookbook has been created. It's a Java WebApp for which the login is required.



The image shows a web form titled "SVNWebAdmin Login". At the top center is the FIWARE logo. Below it, there are two input fields: "Enter your username :" and "Enter your password :". A "Login" button is positioned below the password field. At the bottom of the form, there is a dashed box containing the following text: "Please login with the default credentials:", "username: root", "password: root", and "After login change the default credentials immediately!".

Figure 77 - SVNWebAdmin Login

The first time it can be accessed by using the root/root credentials, but once logged-in the credentials must be changed, by using the "Change Credentials" link, in the top menu, from where you can logout, using the "Logout" link, or go to the home page using the "Administration" link.

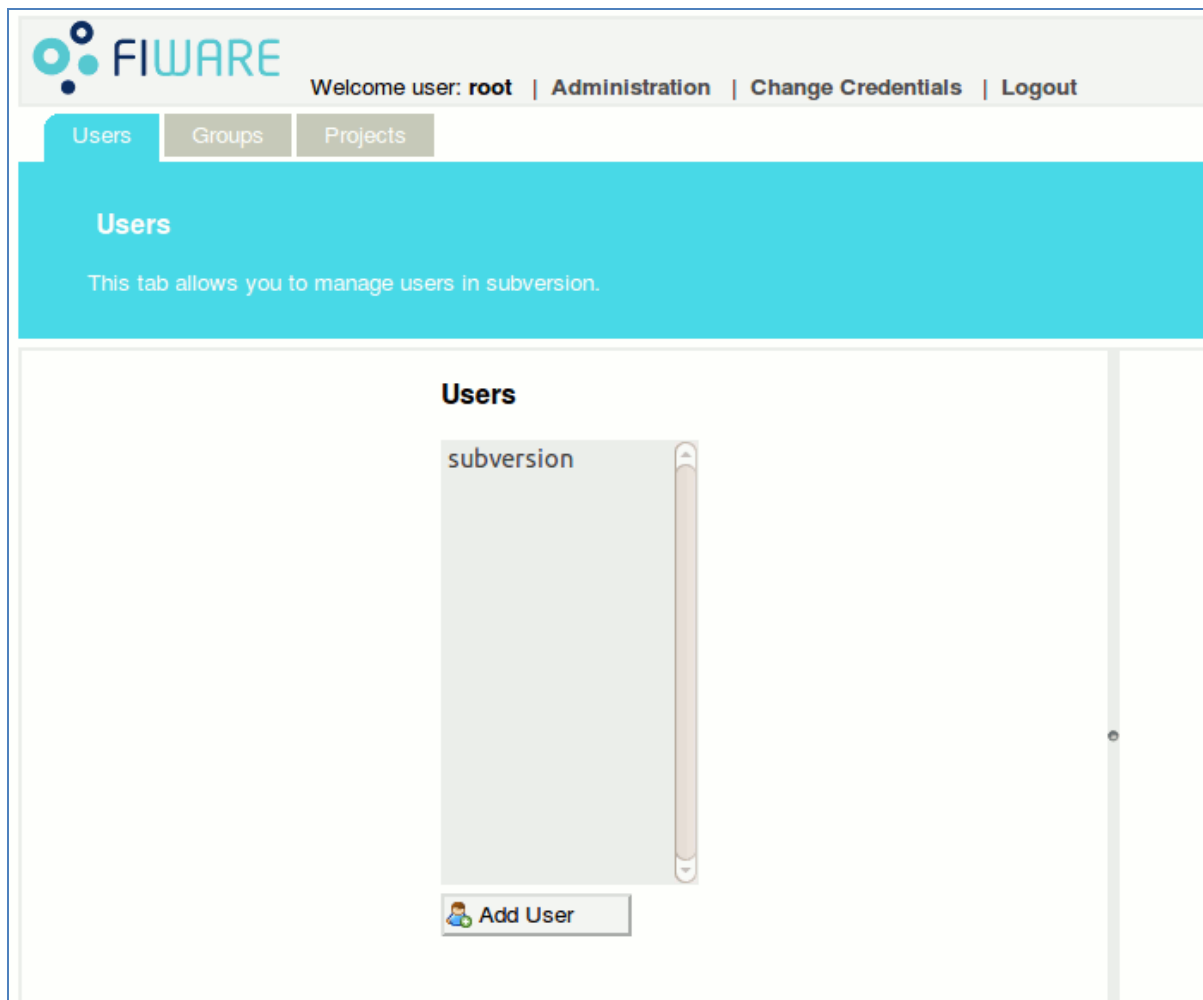


Figure 78 - SVNWebAdmin home page

6.7.2.2 *Users, Groups and Projects*

In the SVNWebAdmin WebApp there are three sections to manage users, groups and projects.

Users section

In this section it's possible to manage users. A user can be added by using the "Add User" button. When clicking on the button a form will appear on the right. Here, type all fields and add the user with the "Submit" button. After having added a user, the users list on the left will be updated listing also the new user. The new user will be added in the htpasswd file of the Apache Server. In order to edit or delete a given user, select that user in the users list on the left, then use the options on the right to edit or delete the selected user, by using the "Submit" or "Delete" button.

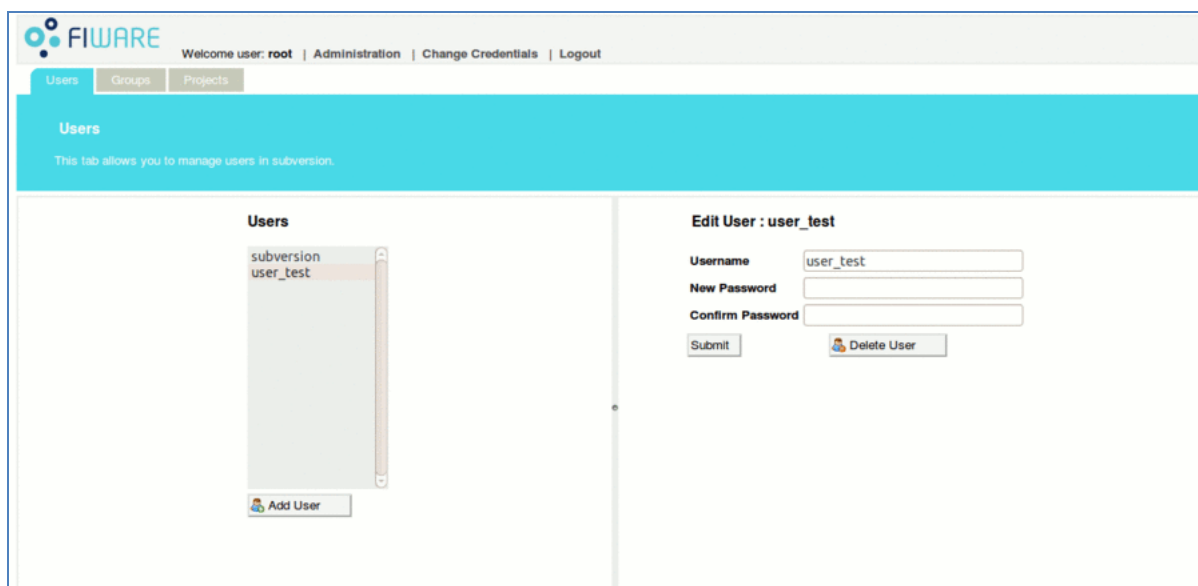


Figure 79 - User section

Groups section

In this section it's possible to manage groups and members.

In order to add a group, use the "Add Group" button on the left. A form will appear; type in the "group" field and add the group by using the "Submit" button. This way, the new group will be added in the authz file of Apache Server.

After having added the new group, it will be shown in the list on the left. To delete the group, select it from the list and click on the "Delete Group" button.

In order to add a user (membership) to a given group, click on the "Add Membership" button (on the left) and use the form that will appear.

To delete a membership of a given group, select the user from the user list on the right, a delete form will appear, click on the "Delete Membership" button.

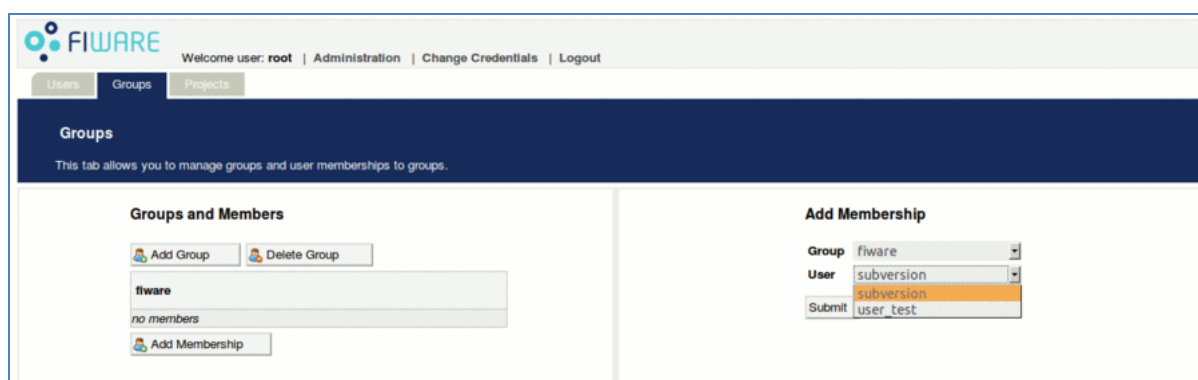


Figure 80 - Groups section

Projects section

In this section it's possible to manage the projects. A project path can be added, in order to define the access type (i.e. permission for read, write or read/write) for any group.

In order to add a project path click on the "Add Project Path" button on the left and a form will appear; here, type in the "project path" field and add the project by clicking the "Submit" button. This way, the new group will be added in the authz file of Apache Server.

After having added the project, the project path will be shown in the list on the left.

To delete the project, select it from the list and click on the "Delete Project Path" button.

In order to add the access type to the project path, select the project path on the left and a form will appear. Use the "Add Group Access" button to select the group and choose the access types (rw = read/write, r = read, w = write).

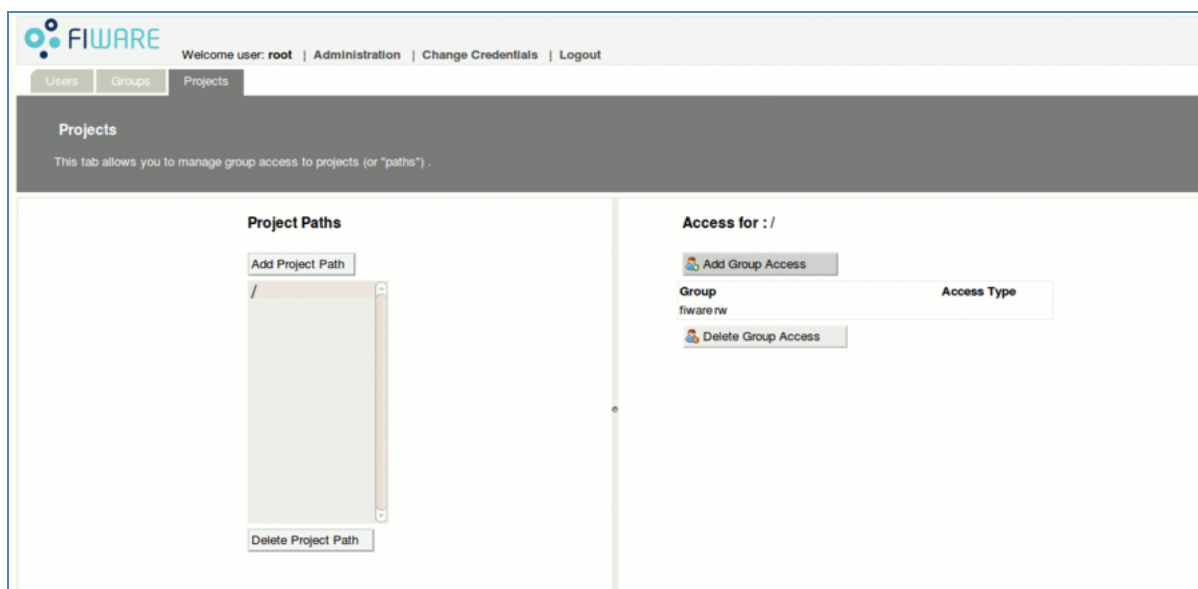


Figure 81 - Projects section

7 Fusion Forge User Project Management

7.1 Introduction

This section provides information about how to install and use the plugin that provides the wizards for managing Fusion Forge users and projects from the IDE. This plugin is designed to work within the [Eclipse IDE](#).

The current release offers wizards to create, manage and delete Fusion Forge projects and create users from the FIWARE IDE.

Together with the binary packages, also the source code page is available. Note that the FIWARE FI-CoDE Wizards for Fusion Forge User/Project Management plugin is released under the open source licence [EPL v1.0](#).

7.1.1 Information

Name: FI-WARE FI-CoDE Wizards for Fusion Forge User/Project Management plugin

Version: 0.2.0

License: EPL v1.0

Download: [Binaries](#)³ - [Source Code](#)⁴

Update Site: www.fi-ware.org/tools/updates

Scope: Fusion Forge Management

7.2 Installation

This plugin requires to install and configure the Fusion Forge Connector as explained in the section for the Fusion Forge Connector User Manual.

Copy the plugin jar (e.g. eu.fiware.ficode.cde_0.2.0.jar) into the Eclipse plugins directory.

In next releases, an Eclipse update site will be provided allowing end users to install the complete FIWARE FI-CoDE.

7.3 How To

This section explains the usage of the Fusion Forge User/Project Management wizards shipped within the FIWARE FI-CoDE.

³ https://forge.fi-ware.org/frs/?group_id=15

⁴ https://forge.fi-ware.org/frs/?group_id=15

7.3.1 Configure Fusion Forge (FF) Repository

Before using the wizards, a Fusion Forge repository must be defined following instructions provided by Fusion Forge connector as explained in Fusion Forge Connector User Manual.

7.3.2 Fusion Forge User/Project Management Wizards

Fusion Forge User/Project Management wizards are accessible from the FIWARE FI-CoDE main top toolbar, or from the FIWARE FI-CoDE main top Fusion Forge submenu.

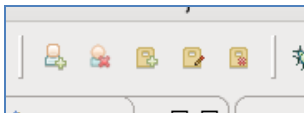


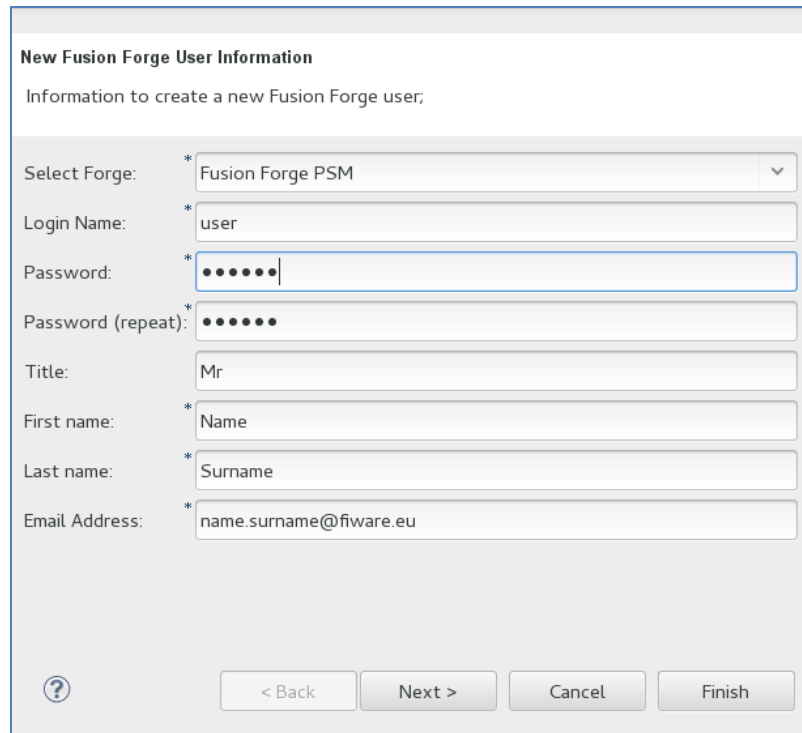
Figure 82 – Fusion Forge Toolbar

From left to right the icons correspond to these actions:

- Create a new Fusion Forge user
- Delete a Fusion Forge user
- Create a new Fusion Forge project
- Manage a Fusion Forge project
- Delete a Fusion Forge project

7.3.3 Create a Fusion Forge user

To create a new Fusion Forge user in select the option Fusion Forge/Create Fusion Forge user menu entry or click on the first icon from the left on the Fusion Forge toolbar. Then the new Fusion Forge User creation wizard pops up.



New Fusion Forge User Information

Information to create a new Fusion Forge user;

Select Forge: * Fusion Forge PSM

Login Name: * user

Password: *

Password (repeat): *

Title: Mr

First name: * Name

Last name: * Surname

Email Address: * name.surname@fiware.eu

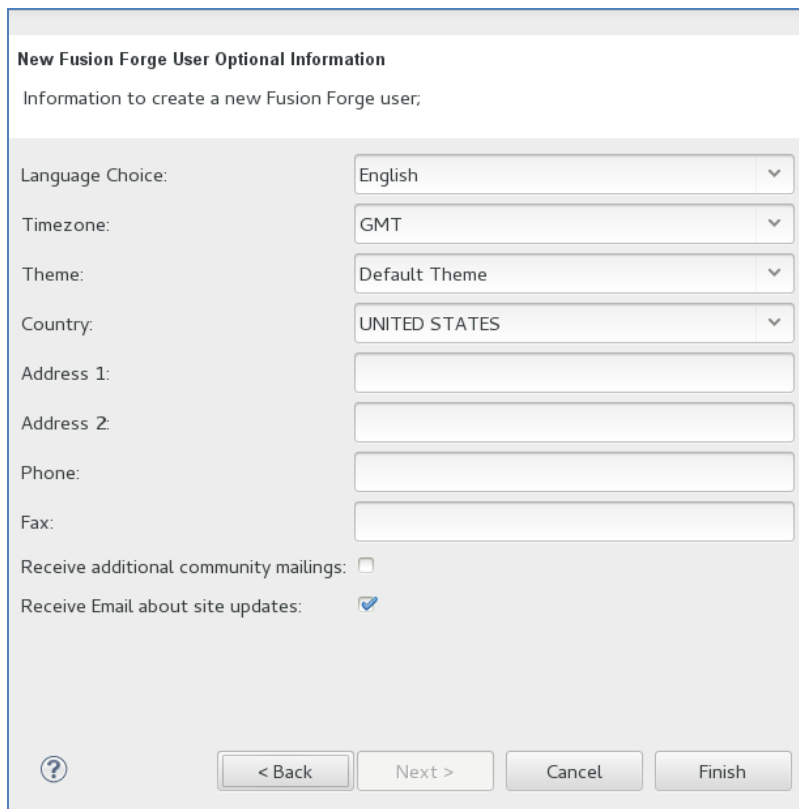
? < Back Next > Cancel Finish

Figure 83 - Create New Fusion Forge User Wizard. User Information

Fill in the mandatory fields in the first page:

- Select the Fusion Forge repository;
- Unique login name;
- Password (repeat, minimum 6 characters);
- Title (Mr, Ms, etc) - optional;
- First and last name;
- Email address.

Once all required properties have been provided, the finish button is enabled. The user can either finished the wizard or pass through the next page to fulfil optional properties.



New Fusion Forge User Optional Information

Information to create a new Fusion Forge user;

Language Choice: English

Timezone: GMT

Theme: Default Theme

Country: UNITED STATES

Address 1:

Address 2:

Phone:

Fax:

Receive additional community mailings: ☐

Receive Email about site updates: ☒

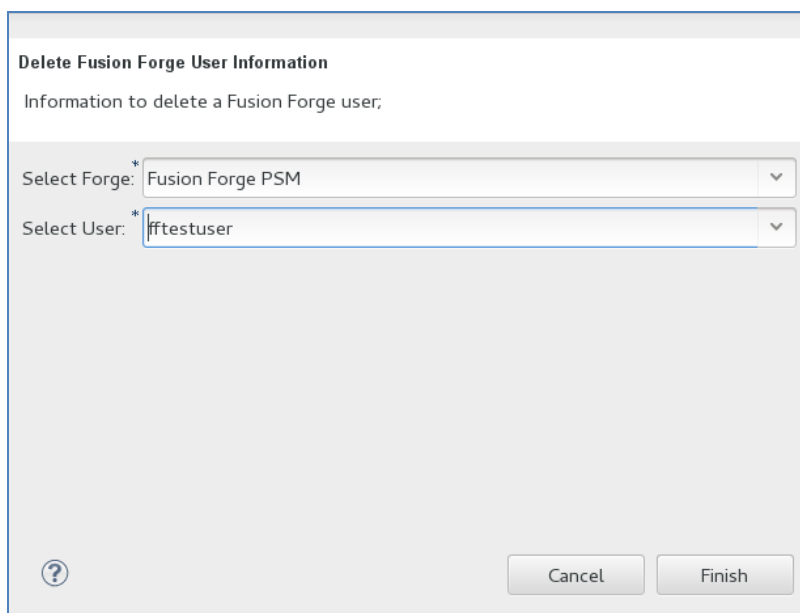
? < Back Next > Cancel Finish

Figure 84 - Create New Fusion Forge User Wizard. User Information

Close the wizard by clicking on Finish button. Once the user creation action is complete the user is notified.

7.3.4 Delete a Fusion Forge user

To delete a Fusion Forge user select the option Fusion Forge/Delete Fusion Forge user menu entry or click on the second icon from the left on the Fusion Forge toolbar. Then the delete Fusion Forge User deletion wizard pops up.



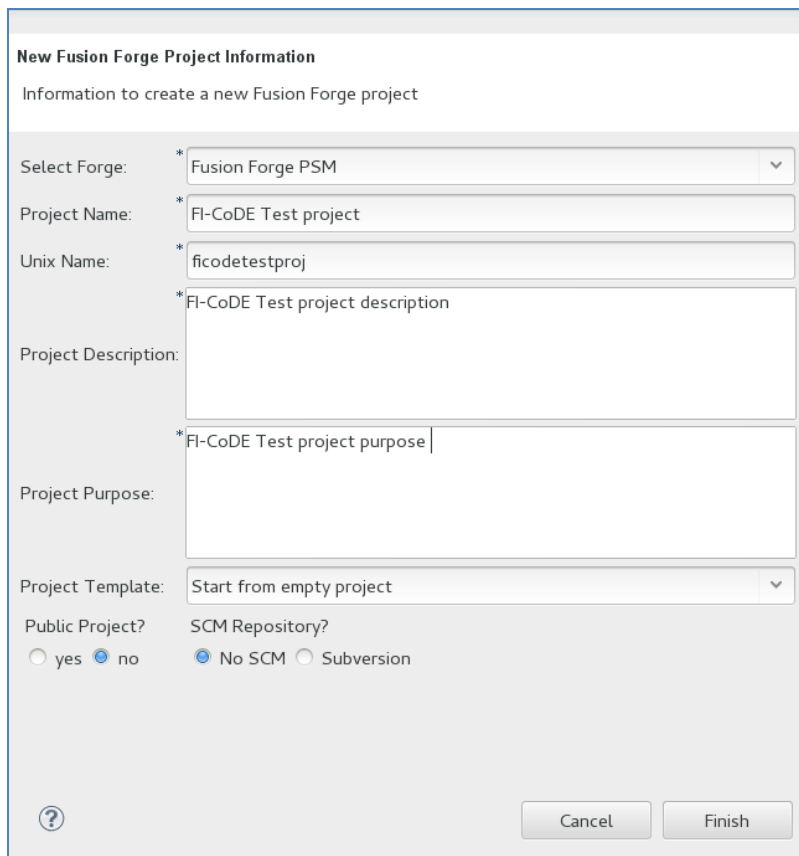
The dialog box is titled "Delete Fusion Forge User Information". Below the title, it says "Information to delete a Fusion Forge user;". There are two dropdown menus: "Select Forge:" with "Fusion Forge PSM" selected, and "Select User:" with "fftestuser" selected. At the bottom left is a help icon (a question mark inside a circle). At the bottom right are two buttons: "Cancel" and "Finish".

Figure 85 - Delete Fusion Forge User Wizard. User Information

Select the forge and user. Click on Finish. Upon deletion a confirmation dialogue is shown.

7.3.5 Create a Fusion Forge project

To create a new Fusion Forge project select the option Fusion Forge/Create Fusion Forge project menu entry or click on the corresponding action (third icon from the left) in the Fusion Forge toolbar. Then the new Fusion Forge project creation wizard pops up.



New Fusion Forge Project Information
Information to create a new Fusion Forge project

Select Forge: * Fusion Forge PSM

Project Name: * FI-CoDE Test project

Unix Name: * ficodetestproj

Project Description: * FI-CoDE Test project description

Project Purpose: * FI-CoDE Test project purpose

Project Template: Start from empty project

Public Project? ☐ yes ☒ no

SCM Repository? ☒ No SCM ☐ Subversion

? Cancel Finish

Figure 86 - Fusion Forge Project creation wizard

Select Fusion Forge repository and provide a project name, unique name (project identifier), project description and project purpose as mandatory fields. Once all required properties have been fulfilled, the Finish button is enabled.

Optionally, the user can select a project template from which the new project will take its configuration, set project visibility (public, private), and the usage of an SCM repository.

Click it to finalize. Upon creation, the user is notified. If the Task Repository registered in previous step for Fusion Forge is associated to an admin user, the project is immediately created and approved. Otherwise, the project is created pending of approval by the FF administrator.

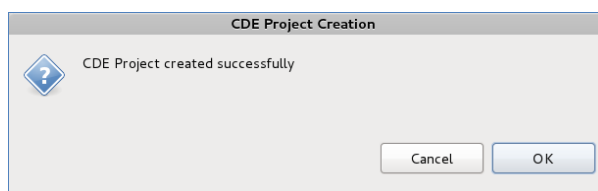


Figure 87 - Fusion Forge Project creation wizard confirmation

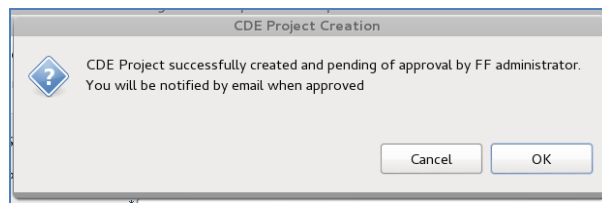


Figure 88 - Fusion Forge Project creation wizard confirmation of project pending of approval

7.3.6 Manage a Fusion Forge project

Existing Fusion Forge projects can be managed through a wizard provided by the FIWARE FI-CoDE. To access this wizard select the Fusion Forge/Manage Fusion Forge project menu entry or click on the fourth icon from the left on the Fusion Forge icon toolbar: a Fusion Forge Project Management wizard pops up.

In the first wizard page, select the forge (i.e. task repository) and the project. In this page main attributes of the project can be modified, as the ones provided in the Fusion Forge project creation wizard.

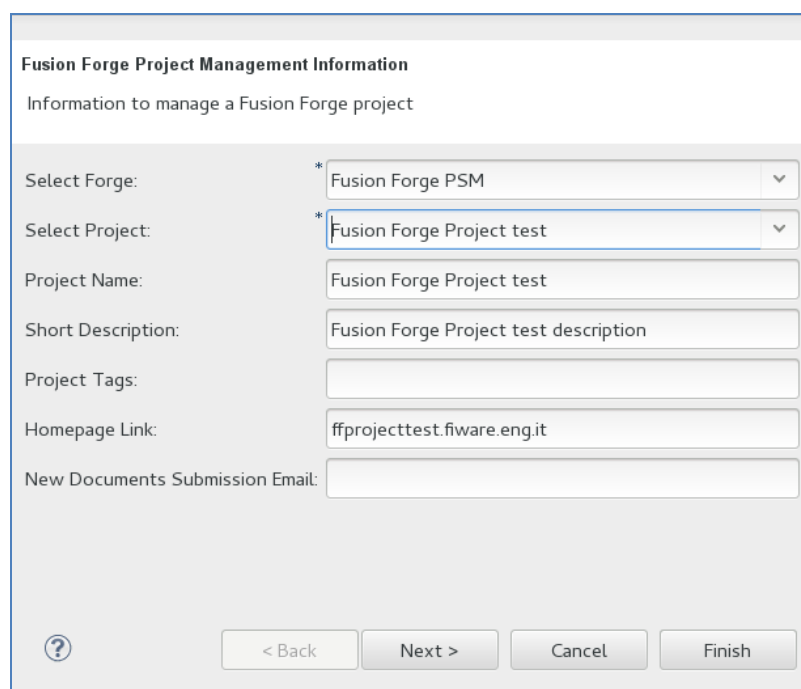
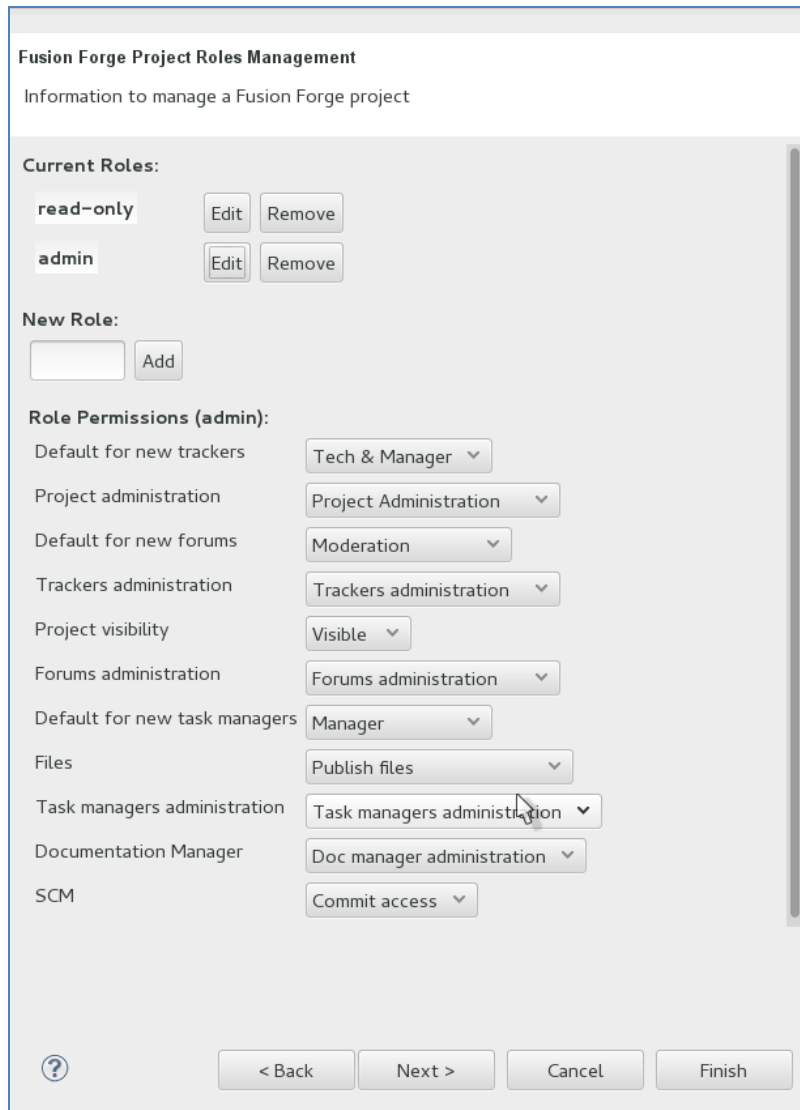
A screenshot of the "Fusion Forge Project Management Information" form. The title bar says "Fusion Forge Project Management Information" and the subtitle is "Information to manage a Fusion Forge project". The form contains several fields: "Select Forge:" with a dropdown menu showing "Fusion Forge PSM"; "Select Project:" with a dropdown menu showing "Fusion Forge Project test"; "Project Name:" with a text box containing "Fusion Forge Project test"; "Short Description:" with a text box containing "Fusion Forge Project test description"; "Project Tags:" with an empty text box; "Homepage Link:" with a text box containing "ffprojecttest.fiware.eng.it"; and "New Documents Submission Email:" with an empty text box. At the bottom, there is a help icon (question mark in a circle) and four buttons: "< Back", "Next >", "Cancel", and "Finish".

Figure 89 - Fusion Forge Project management wizard. Project Information

In the second wizard page, can be added and removed roles for the current project and edit their permissions.



Fusion Forge Project Roles Management
Information to manage a Fusion Forge project

Current Roles:

read-only

admin

New Role:

Role Permissions (admin):

Default for new trackers Tech & Manager ▾

Project administration Project Administration ▾

Default for new forums Moderation ▾

Trackers administration Trackers administration ▾

Project visibility Visible ▾

Forums administration Forums administration ▾

Default for new task managers Manager ▾

Files Publish files ▾

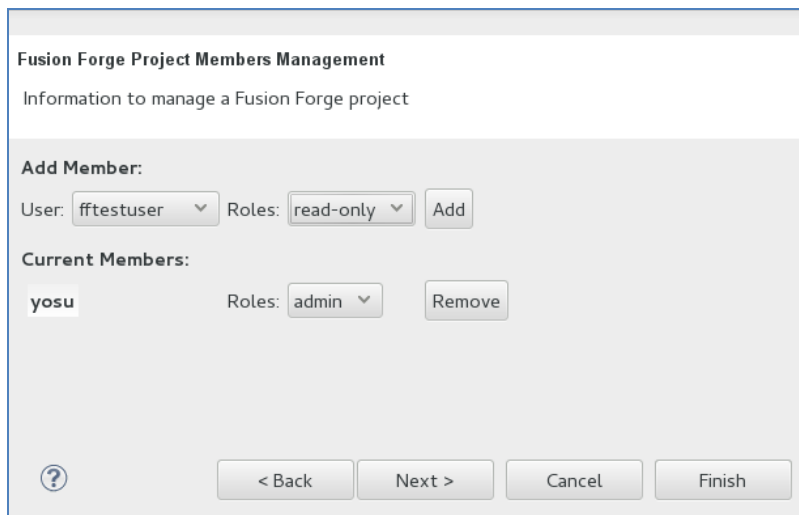
Task managers administration Task managers administration ▾

Documentation Manager Doc manager administration ▾

SCM Commit access ▾

Figure 90 - Fusion Forge Project management wizard. Project roles

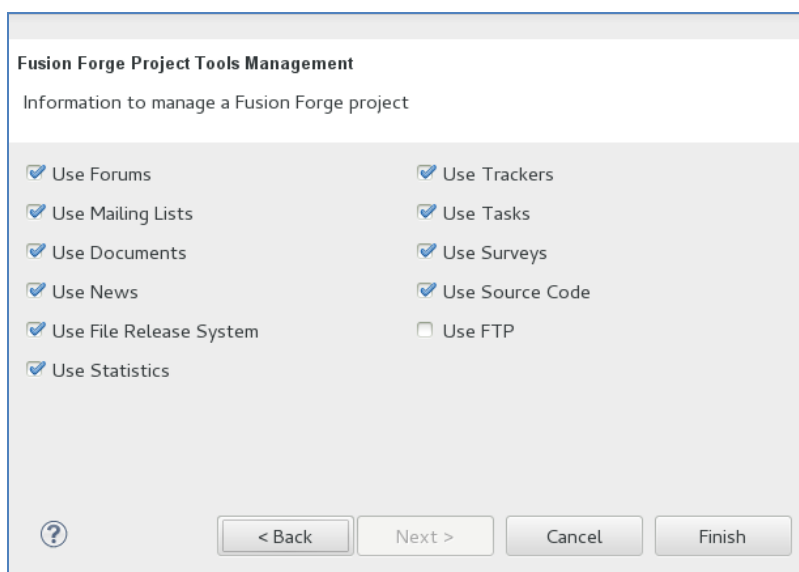
In the third wizard page, can be added members to the project and can be associated roles to the members.



The screenshot shows the 'Fusion Forge Project Members Management' wizard. It has a title bar and a subtitle 'Information to manage a Fusion Forge project'. The main area is divided into two sections: 'Add Member:' and 'Current Members:'. In the 'Add Member:' section, there is a 'User:' dropdown menu with 'fftestuser' selected, a 'Roles:' dropdown menu with 'read-only' selected, and an 'Add' button. In the 'Current Members:' section, there is a list of members with 'yosu' as the only one. Next to 'yosu' is a 'Roles:' dropdown menu with 'admin' selected and a 'Remove' button. At the bottom, there is a help icon (question mark in a circle) and four buttons: '< Back', 'Next >', 'Cancel', and 'Finish'.

Figure 91 - Fusion Forge Project management wizard. Project members

In the last wizard page, can be selected the forge tools available for the project.



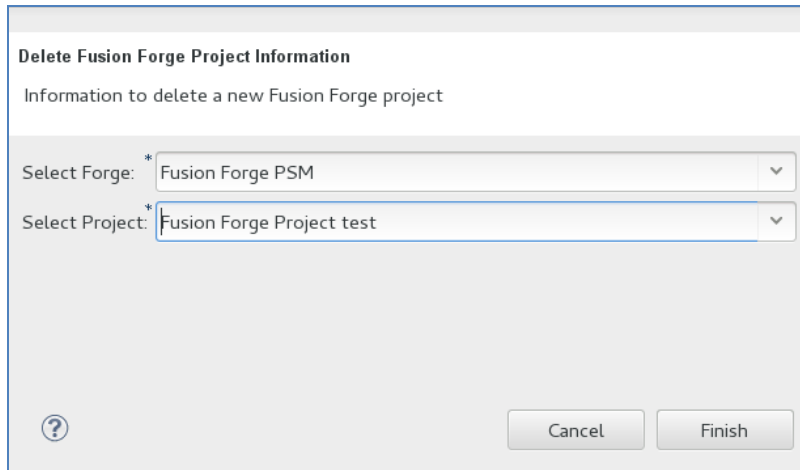
The screenshot shows the 'Fusion Forge Project Tools Management' wizard. It has a title bar and a subtitle 'Information to manage a Fusion Forge project'. The main area contains a list of tools with checkboxes. The tools are: 'Use Forums' (checked), 'Use Mailing Lists' (checked), 'Use Documents' (checked), 'Use News' (checked), 'Use File Release System' (checked), 'Use Statistics' (checked), 'Use Trackers' (checked), 'Use Tasks' (checked), 'Use Surveys' (checked), 'Use Source Code' (checked), and 'Use FTP' (unchecked). At the bottom, there is a help icon (question mark in a circle) and four buttons: '< Back', 'Next >', 'Cancel', and 'Finish'.

Figure 92 - Fusion Forge Project management wizard. Project tools

To register the Fusion Forge project changes, click on Finish button. Upon successful update, a confirmation dialog is shown.

7.3.7 Delete a Fusion Forge project

To delete an existing Fusion Forge project, select the option in the Fusion Forge/Deleted Fusion Forge project menu entry or click on the corresponding action (last icon from the left) in the Fusion Forge toolbar. Then the Fusion Forge project deletion wizard pops up.



The dialog box is titled "Delete Fusion Forge Project Information" and contains the subtitle "Information to delete a new Fusion Forge project". It features two dropdown menus: "Select Forge:" with the selected value "Fusion Forge PSM" and "Select Project:" with the selected value "Fusion Forge Project test". Both dropdowns have a small asterisk to their left and a downward arrow on the right. At the bottom left is a help icon (a question mark inside a circle). At the bottom right are two buttons: "Cancel" and "Finish".

Figure 93 - Fusion Forge Project deletion wizard

Select the Fusion Forge repository and the project to delete. Confirm clicking of finish button.

After a while a confirmation dialog pops up.

8 FIA Project Management

8.1 Introduction

This section provides information about how to install and use the plugin that provides FIWARE FI-CoDE FIA Project Management. This set of plugins is designed to work within the [Eclipse IDE](#).

Current release offers support to create and manage FIA projects within the FIWARE IDE.

Together with the binary packages, also the source code page is available. Note that the FIWARE FI-CoDE FIA Project Management plugin is released under the open source licence [EPL v1.0](#).

8.1.1 Information

Name: FI-WARE FI-CoDE FIA Project Management plugin

Version: 0.2.0

License: EPL v1.0

Download: [Binaries](#)⁵ - [Source Code](#)⁶

Scope: FIA Project Management

8.2 Installation

This plugin requires to install and configure the following plugins:

- The Fusion Forge Connector as explained in the section for FusionForge Connector User Manual;
- The FIWARE FI-CoDE Wizards for Fusion Forge User/Project Management plugin as explained in FusionForge User/Project Management.

To install the plugins copy [eu.fiware.ficode.fia_plugin](#) and [eu.fiware.ficode.fia.catalogue.client_plugin](#) into the eclipse plugins directory.

In next releases, an Eclipse update site will be provided allowing end users to install the complete FIWARE FI-CoDE.

8.3 How To

This section explains the usage of the FIA Project Management wizards shipped within the FIWARE FI-CoDE.

⁵ https://forge.fi-ware.org/frs/?group_id=15

⁶ https://forge.fi-ware.org/frs/?group_id=15

8.3.1 Configure Fusion Forge (FF) Repository

Before using the wizards, a Fusion Forge repository must be defined following instructions provided by Fusion Forge connector as explained in [FusionForge Connector User Manual](#).

8.3.2 FIA Project Management Wizard

FIA Project Management wizard is accessible from the FIWARE FI-CoDE main menu at File/New Project. Select New FIA project under the FI-CoDE category.

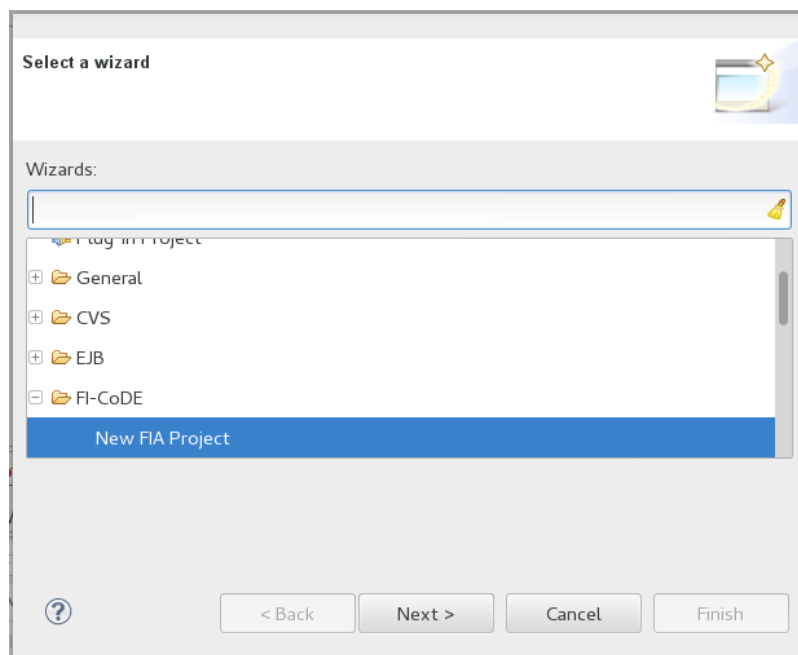
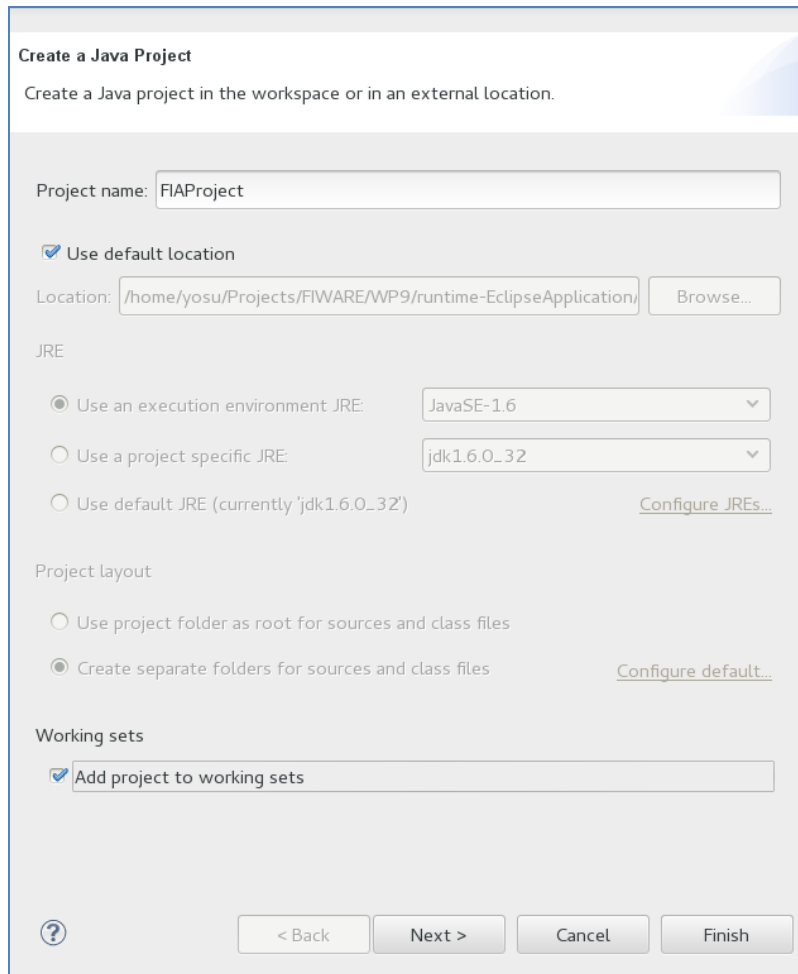


Figure 94 - FIA Project Toolbar

8.3.3 Create a FIA project

To create a FIA Project click on the FIA Toolbar icon. FIA project creation wizard extends the Eclipse New Java Project Wizard. Therefore, the two first wizard pages are those corresponding to the Eclipse New Java Project Wizard.

In the first page, set your FIA project name and optionally other Java project settings.



Create a Java Project
Create a Java project in the workspace or in an external location.

Project name:

☒ Use default location

Location:

JRE

☒ Use an execution environment JRE:

☐ Use a project specific JRE:

☐ Use default JRE (currently 'jdk1.6.0_32') [Configure JREs...](#)

Project layout

☐ Use project folder as root for sources and class files

☒ Create separate folders for sources and class files [Configure default...](#)

Working sets

☒ Add project to working sets

Figure 95 - Create New FIA Project Wizard. Java Project creation

In the second page can be optionally set the FIA project Java settings.

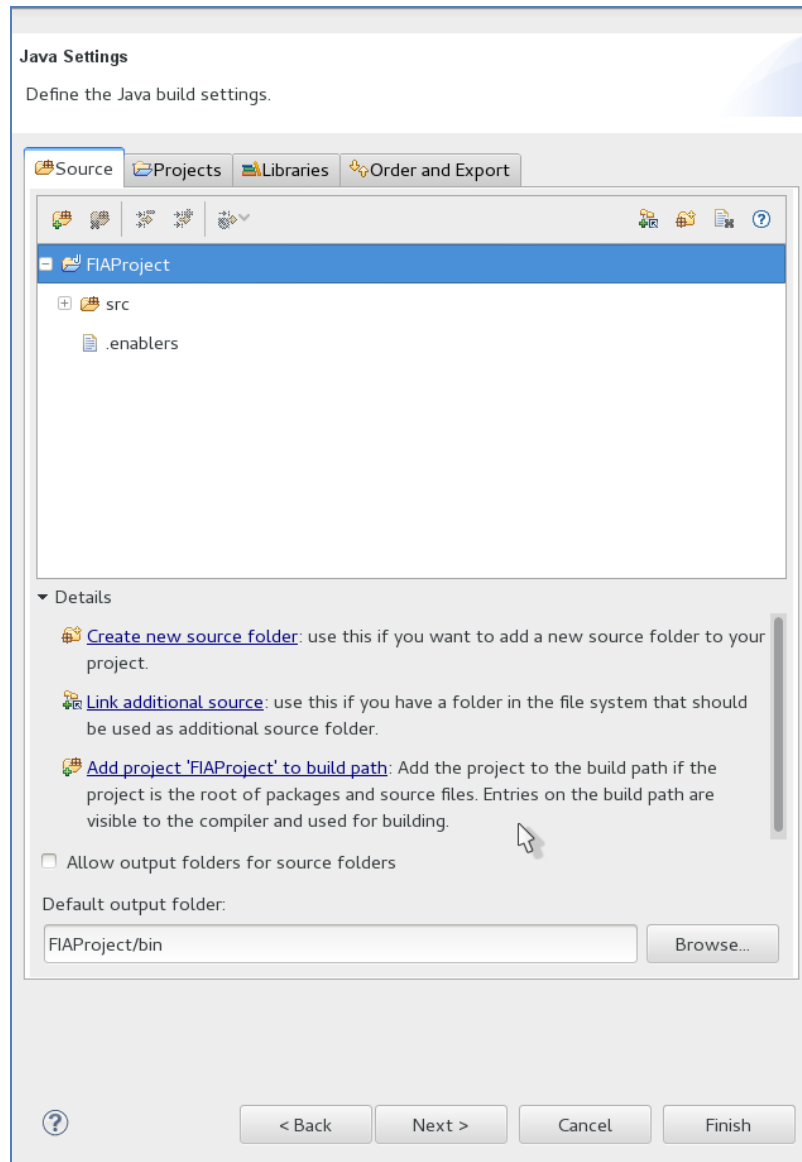




Figure 96 - Create New FIA Project Wizard. Java settings

In the third page, can be selected enablers from a list of FIWARE Generic Enablers, obtained dynamically from the FIWARE Catalogue.


FIWARE Enablers selection
Information to create a new FIA project

 [Gateway Data Handling GE - Sol/CEP](#) ☒ Select


The SOL/CEP Complex Event Processor is part of the GE, handling large amounts of asynchronous events.

 [Publish/Subscribe Context Broker - SAMSON Broker](#) ☒ Select


Context produces are consumer broker implementing NGSI9 and NGSI10 interfaces

 [Protocol Adapter - ZPA](#) ☐ Select


A layer that enables the communication with IoT Devices implementing ZigBee specification

 [Security Monitoring](#) ☐ Select


Security monitoring is a suite of services for risk analysis, security visualization, decision making support and technical forensics.

 [Publish/Subscribe Context Broker - Context Awareness Platform](#) ☐ Select


Publish/Subscribe GE is a components allowing to publish context information in push (update) mode and obtain the context data in two modes: pull (on-request) or push (on-subscription). via simple set of REST-like and REST-ful APIs.

 [Semantic Annotation](#) ☐ Select

Semantically Annotate Text and Comment

 [Light Semantic Composition Editor - COMPEL](#) ☐ Select

Service Composition Editor based on Semantics

 [Semantic Application Support](#) ☐ Select

Semantic Web Application Support enabler aims at providing an effective environment for developers to implement and deploy high quality Semantic Web-based applications


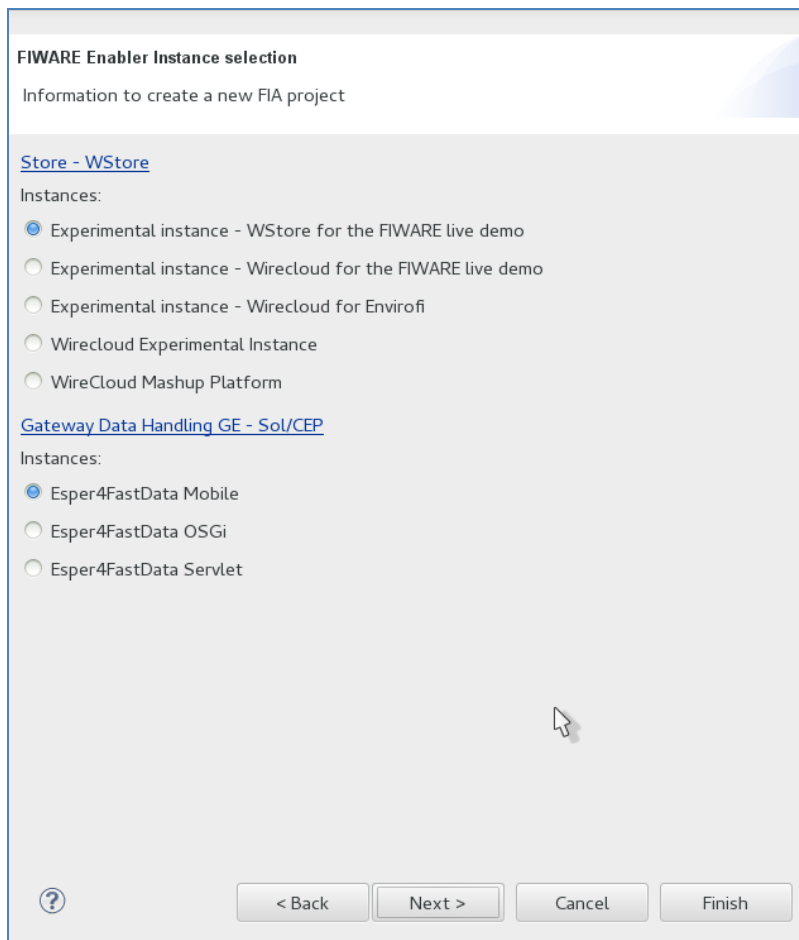


Figure 97 - Create New FIA Project Wizard. FIWARE GEs selection

In the fourth page, can be selected the default instance for each selected enabler in the previous step.



FIWARE Enabler Instance selection
Information to create a new FIA project

Store - WStore

Instances:

- ☒ Experimental instance - WStore for the FIWARE live demo
- ☐ Experimental instance - Wirecloud for the FIWARE live demo
- ☐ Experimental instance - Wirecloud for Envirofi
- ☐ Wirecloud Experimental Instance
- ☐ WireCloud Mashup Platform

Gateway Data Handling GE - Sol/CEP

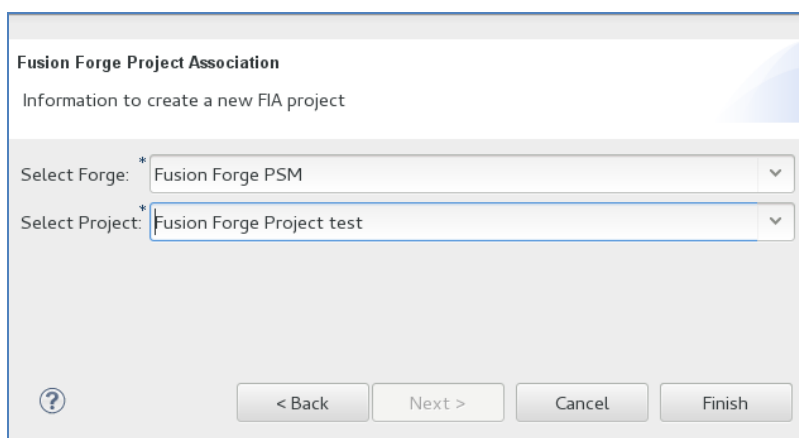
Instances:

- ☒ Esper4FastData Mobile
- ☐ Esper4FastData OSGi
- ☐ Esper4FastData Servlet

? < Back Next > Cancel Finish

Figure 98 - Create New FIA Project Wizard. FIWARE GEs instance selection

In the last page, the FIA project can be linked to an existing Fusion Forge project, so that the FIA project artefacts can be uploaded later on into the Fusion Forge project within the FI-CoDE IDE.



Fusion Forge Project Association
Information to create a new FIA project

Select Forge: * Fusion Forge PSM

Select Project: * Fusion Forge Project test

? < Back Next > Cancel Finish

Figure 99 - Create New FIA Project Wizard. Fusion Forge project link

Click on finish, the wizard will create the FIA project in your workspace, and the project can be seen in the Navigator view. If your Navigator view is not filtering .* resources, you should see a .fiaconfiguration file that contains your FIA project configuration for FIWARE enablers and Fusion Forge project link.

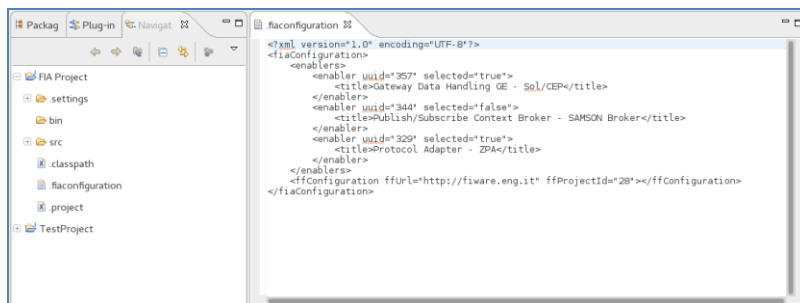


Figure 100 - FIA Project configuration File

FIA Project wizard also creates helper classes to get access to selected enablers configuration, as shown in the following FIA project structure figure.

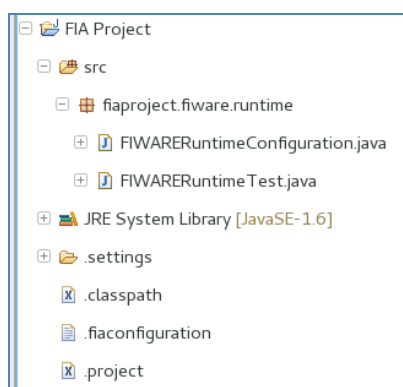


Figure 101 - FIA Project structure

Under package <projectname>.fiware.runtime, a FIWARERuntimeConfiguration.java helper class is created to access configuration of selected enablers within the FIA project created. Additionally, a FIWARERuntimeTest.java class is also created to show up how to get access to that configuration.

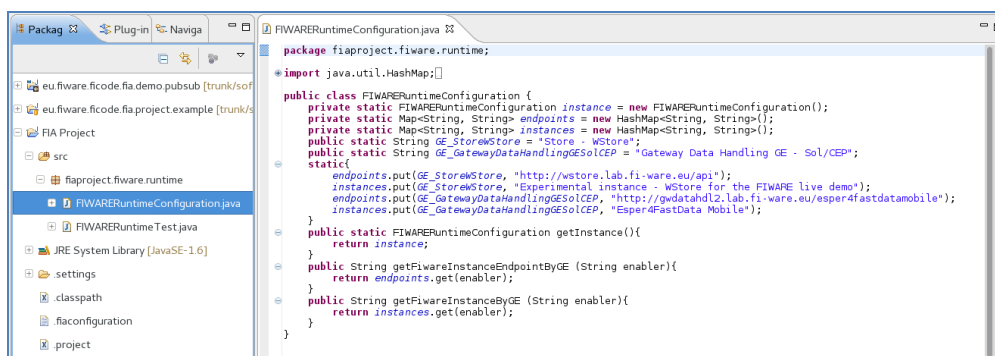


Figure 102 - FIA Project FIWARERuntimeConfiguration helper class

Additionally, FIA project creates a runtime configuration that setup default instance endpoints for selected enablers as environment variables. That is, FIA projects can get access to the configuration of FIWARE enablers through the FIWARERuntimeConfiguration class or through the environment variables created in a runtime configuration, as shown in following figure.

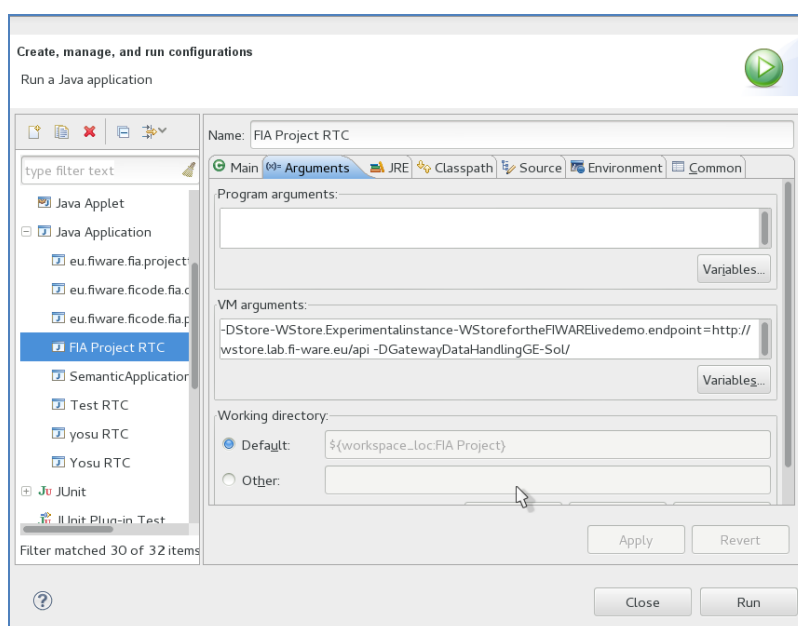


Figure 103 - FIA Project FIWARE Runtime Configuration helper class

8.3.4 Configure a FIA project

After creating the FIA project it can be configured by right-clicking on the project from the Navigator or the Package Explorer View. Select properties menu entry. The FIA project properties dialog pops up. Select the FIA project entry in the leftmost tree. This entry includes sections for configuring selected FIWARE enablers and the linked Fusion Forge project.

In the property page for configuring the selected FIWARE enablers, they can be enabled/disabled and the default instance can be selected.

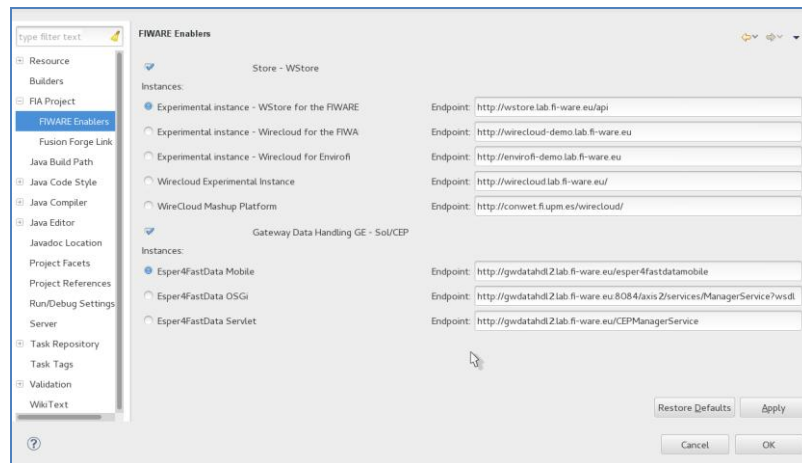


Figure 104 - FIA Project configuration of selected FIWARE GEs

In the property page for configuring the linked Fusion Forge project, select the linked project by selecting the Fusion Forge instance and the project.

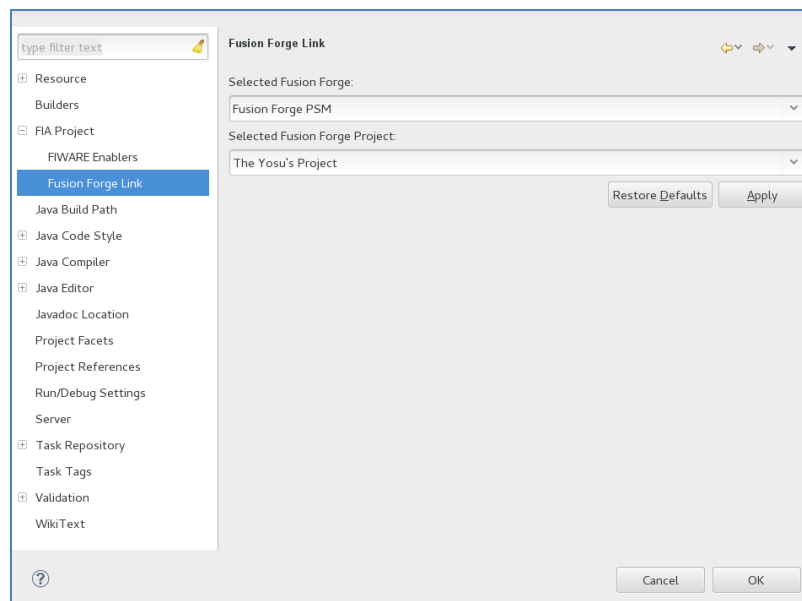


Figure 105 - FIA Project configuration of linked Fusion Forge project