The **JEMMA Open Source Project** and the **Demo & Reference Implementation** Working Group

Riccardo Tomasi
Pervasive Technologies Area, ISMB
Working Group Chair

Ivan Grimaldi
Pervasive Technologies Area, ISMB

Energy@Home Workshop, Milan, November 26, 2013

From **Specifications** to the **Reference Implementation**

- The Energy@home Association has recently launched two initiatives to better exploit the know-how matured in *specifying*, *developing*, *deploying* and *maintaining* **innovative Energy Management Solutions**

- Aim: to deliver a **Reference implementation** of the full Energy@home specifications, usable by industry players, researchers or independent developers and "friendly" towards **open standards** and **interoperable solutions**

  – the **JEMMA Open Source Project**

  (launched on Oct. 16th, 2013)

  – the **Demo & Reference Implementation** WG

JEMMA at a glance

- **JEMMA**: **J**ava **E**nergy **M**anage**M**ent **A**pplication framework
- It is a modular, resource-oriented middleware running in **Home Gateways** and **in the Cloud**
- It supports energy **monitoring**, **management** and **awareness** applications **at home**
- It is fully **open source**: anybody can download it, modify it and deploy it, **even for commercial purposes**
- It supports **3rd party applications** (bundled locally or operating remotely) through its open APIs
- It is backed by the Energy@home association and **compatible** with its eco-system.

JEMMA: Technologies

(For integrators)

JEMMA

Cloud communication

Application Layer

Smart Home API Layer

GAL (Gateway Access Layer)

- *Node Discovery*
- *Service Discovery*
- *ZigBee cluster library*

ZigBee Device

ZigBee Device

ZigBee Device

(For Developers)

(For "normal" users)

JEMMA: License

- JEMMA has been released under the **LGPL (***Lesser General Public License v3)*
- LGPLv3 is a permissive "copyleft" license:
  - it allows bundling and re-distributing the software for any purpose, also integrating 3rd party components released under other licenses

- It is thus **allowed**:
  - To freely share JEMMA and its source code
  - To extend and integrate JEMMA with other (free and non-free) products or services

Find out more at
http://jemma.energy-home.org

Demo & Reference Implementation WG

- The Energy@home association covers a primal role in backing JEMMA developments and steering the open source project

- In order to coordinate and support all developments effort by partners, the association has just launched a the new working group on "**Demo & Reference implementation**"
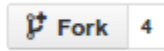
Working Group Objectives
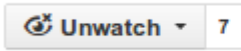
- To develop and maintain the <u>reference implementation </u> of the Energy@home software, based on the <u>JEMMA open source project</u>;

- To collaborate with other WGs to ensure that newly adopted features and technical solutions developed by different partners can be <u>integrated</u> <u>effectively</u> and <u>harmonically</u>;

- To develop and maintain <u>the demonstrator </u> showcasing the use cases defined by the Association;

- To set-up <u>open events </u> to foster <u>integration</u> and <u>diffusion</u> of the open source project.

Working Group: Who and How ?

- The Demo and Reference Implementation WG is currently counts around 15 active Members

- The group will use the dedicated private mailing list and helds monthly conference calls to:
  – Discuss and share architectural decisions
  – Synchronize about on-going developments and planning
  – Propose new developments
  – Plan timing and composition of next releases
  – Coordinate integration and testing activities
  – Coordinate usage and evolutions of the reference Demonstrator

- Decisions and proposals of the WG are directly fed in the JEMMA planning

What has been done so far

- Initial JEMMA release (v0.0.1) launched at the EU utility week (Amsterdam)
  - Stable release used in Energy@home trials, modified to support the Maven-based tool-chain.
  - First version of documentation and tutorials for developers
- First integration meeting held in Torino on Nov. 13, 14
- Set-up of the coordination tools (GitHub repository, mailing list, blog, etc.) and the JEMMA web site

Watch	7	Star	6	Fork	4
Unwatch		Unstar			

	Visits	Unique Visitors	Pageviews
	499	220	2,409
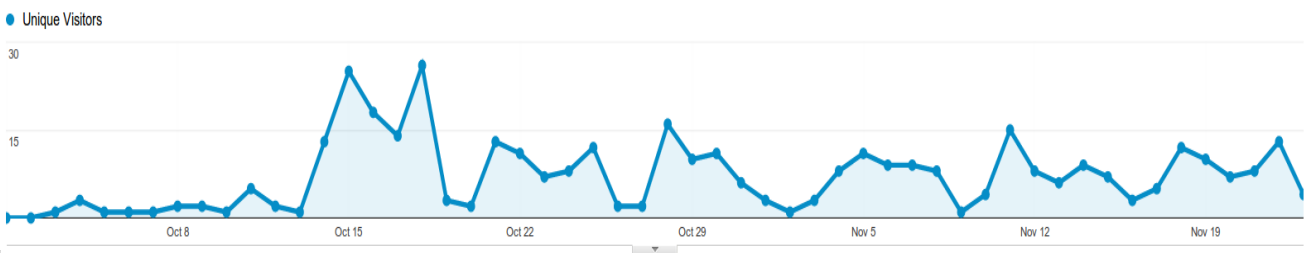
1.	🇮🇹	Italy	410
2.	🇩🇪	Germany	29
3.	🇫🇷	France	12
4.	🇳🇱	Netherlands	6
5.	🇦🇹	Austria	5
6.	🇪🇸	Spain	5
7.	🇬🇧	United Kingdom	5
8.	🇺🇸	United States	5
9.	🇧🇪	Belgium	4
10.	🇰🇷	South Korea	4
11.	🇮🇪	Ireland	2
12.	🇮🇳	India	2
13.	🇸🇪	Sweden	2
14.	🇦🇺	Australia	1
15.	🇨🇭	Switzerland	1
16.	🇬🇷	Greece	1
17.	🇭🇺	Hungary	1
18.	🇯🇵	Japan	1
19.	🇱🇰	Sri Lanka	1
20.	🇸🇬	Singapore	1

Next Milestone: 0.1

- Maven-based release.
- Improvement of Documentation for API and SW Architecture
- Inclusion of Bug-fixes and new features already developed by T.I. ("Amsterdam" branch)
- Java GAL
- Cleaning-up log messages and levels

Detailed task list
and milestone planning accessible at:

http://jemma.energy-home.org

"Bleeding edge" version always on the GitHub repository

Planned release date
January 31st , 2014

Energy@home

After Milestone 0.1…

- Planning of timing and task allocation for milestones 0.2 and following is currently on-going
- A numbers of directions already planned through early discussions:
  - Introduce features to enhance reliability (automated unit/system testing, possibly using the actual demonstrator, continuous integration, etc.)
  - Ensure compatibility with all the different models of gateway HW
  - Systematic approach in checking compliance with all parts of the E@h specifications and use cases
  - Implement existing standards draft of promising open standards (e.g. OSGi alliance RFCs, etc.)
  - …
- The WG will also organize public events (e.g. Hackatons, workshops for researchers and young developers, etc.) to foster adoption by users outside the association

The Energy@home Demonstrator

- Showcased by the association at the EU Utility Week (Amsterdam) and … at this workshop!

– After November 26: It will be moved **ISMB** Laboratories in Torino
– Always accessible to Energy@home partners and their visitors
– Kept operational and accessible by developers
– Updated in real-time with the latest JEMMA releases

2014 Planning

- [**Jan. 7**] Demonstrator on-line
  - *installed at ISMB and accessible on-line by partners*
- [**Jan. 31**] Release 0.1 *(feature freeze @ end of Dec. 2013)*
  - *Java GAL, GUI, improved documentation*
- [**Feb. 28**] Demo kit
  - *replicable into selected universities*
- [**June 30**] Hackaton
- [**Sept. 30**] Release 0.2
  - *Major refactoring/simplification, at least one IP device integrated, Storage supported, Generalized Cloud provisioning*
- [**Dec. 31**] Release 1.0

Thank you for your attention !!!

http://jemma.energy-home.org

Riccardo Tomasi <tomasi@ismb.it>