



Energy@home

ENERGIA@HOME

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



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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: Java Energy Management Application** 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

<http://www.energy-home.it>

(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

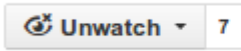

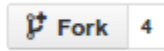
- To develop and maintain the reference implementation of the Energy@home software, based on the JEMMA open source project;
- To collaborate with other WGs to ensure that newly adopted features and technical solutions developed by different partners can be integrated effectively and harmonically;
- To develop and maintain the demonstrator showcasing the use cases defined by the Association;
- To set-up open events to foster integration and diffusion of the open source project.

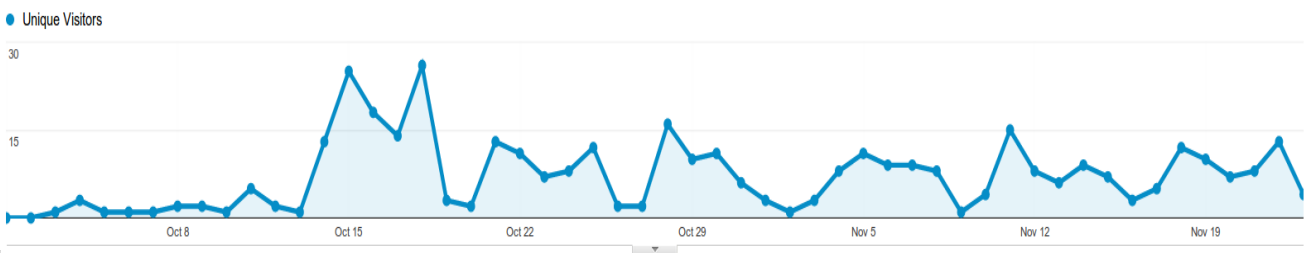
Working Group: Who and How ?









- The Demo and Reference Implementation WG is currently counts around 15 active Members
- The group will use the dedicated private mailing list and holds 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

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  6
  4



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*

The screenshot shows a web interface for managing issues. On the left, there are filters for 'Assigned to you' (0), 'Created by you' (11), and 'Mentioning you' (0). Below these is a 'Milestone: 0.1' section with a progress bar and '13 open issues - Due in 2 months'. A 'Labels' section lists 'Feat. Request' (1), 'Nonfunctional' (3), and 'Task' (7). A 'New label' form is also visible. The main area displays a list of 13 issues, each with a title, status, and assignee. The issues are:

- Integrate and release the JAVA GAL as a JEMMA component (#40)
- Simple use case implementation as a tutorial for developers (Feat. Request) (#36)
- Analysis of application performances (PROFILING) (Nonfunctional) (#35)
- Import bugfixes/improvements already available in the T.I. repository (Task) (#29)
- Fix Eclipse warnings (Task) (#28)
- Write tutorial for Flexkey/gateway/plugs (Task) (#27)
- Create section on the website for "compliant/tested hardware" (Task) (#26)
- Deploy binaries to Maven Central (#25)
- Provide some high-level description of the JEMMA Architecture on the Wiki (Task) (#24)
- Clean-up and re-organize logging system (e.g. log4j, apache logging, ops4j.pax.logging, etc.) (Nonfunctional) (#23)
- Define a good strategy to handle dependencies towards legacy code (GAL/JGAL) and external project e.g. zigbee4osgi (Nonfunctional) (#13)
- We should describe the proposed JEMMA SW management processes to the community (Task) (#10)
- Review of documentation of all bundles and key APIs (Task) (#9)

*Planned release date
January 31st, 2014*

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



- **[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 !!!

Energy@home

Welcome to JEMMA

Welcome to the home page of **JEMMA** - Java Energy ManageMent Application framework.

Open Energy Awareness

JEMMA allows you to deploy Energy Monitoring and Management Applications in homes via a low-power gateway device running Linux.

Smart Appliances, Home Electricity Meter, Smart Info, Home Gateway, HAN Home Area Network, JEMMA, WEB

Download JEMMA v0.0.1

Documentation

Source Code

JEMMA is a open-source (LGPL) framework which implements the [Energy@home specifications](#) for energy monitoring and management application. JEMMA currently supports the [ZigBee Home Automation 1.2](#) and the [ZigBee Gateway Device](#) standards resulting from of a collaboration between the [Energy@home Association](#) and the [ZigBee Alliance](#).

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<http://jemma.energy-home.org>



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