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# FIWARE Workshop

IIITD&M, Jabalpur, India

Rahul Tomar, Peter Muryshkin, James Clarke - 26 November 2016

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**"SMART CITIES ARE OF STRATEGIC  
INTEREST FOR ALL OF US"**  
FIWARE for Smart Cities



## FIWARE C2C Workshop IIIT, D&M, Jabalpur



FIWARE C2C Workshop  
Indian Institute of Information Technology  
Saturday, 26 November 2016 9am

Cluster 2 Cluster Workshop on FIWARE technology to understand generic enablers and how to use it in Smart Cities applications.

[www.fiware.in](http://www.fiware.in)



## Handling Authorisation & Access control to APIs Understanding Keyrock Generic Enabler

FIWARE brings a powerful framework that will allow you to setup Authorisation and Access Control policies based on widely adopted Security Standards (OAuth, XACML).

09:30 - 10:30



## Development of Context-Aware Applications using FIWARE

Orion Context Broker allows you to model, manage gather context information at large scale enabling context-aware application.

10:30 - 12:30



## Connection to the Internet of Things

IDAS IoT Agents allow your application to easily gather context information from sensors or actuate upon physical objects.

13:30 - 14:30



## Real time processing of Media Streams

Kurento allows you to process, in real-time, multimedia information so that you can incorporate into your application extended sensing capabilities based on cameras or microphones (detecting faces, crowds, plates,...)

14:30 - 16:30



## Practice all explained Generic Enablers

Try to develop any small application by using the explained Generic Enablers.

 <p><b>Identity Management - Keyrock</b> Identity Management Generic Enabler - Keyrock</p> <p>09:30 - 10:30</p> <p>Security</p>	 <p><b>Publish/Subscribe Context Broker - Orion Context</b> Orion Context Broker is an implementation of NGSI9 and NGSI10 with persistence storage based in MongoDB</p> <p>10:30 - 12:30</p> <p>Data/Context Management</p>	 <p><b>Backend Device Management - IDAS</b> Backend Device Management - IDAS (IoT Agents)</p> <p>13:30 - 14:30</p> <p>Internet of Things Services Enablers</p>	 <p><b>Stream-oriented - Kurento</b> Powerful software stack devoted to simplify the creation of complex interactive multimedia applications by exposing a rich family of APIs on top of WebRTC</p> <p>14:30 - 16:30</p> <p>Data/Context Management</p>
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Funded by the Delegation of the European Union to India

Figure 1 - Agenda





The Morning session was started with inaugurating FIWARE Lab by the Director of IIITD&M Jabalpur, Prof. Pramod Kumar Jain along with James Clarke (Waterford IT & FI-MEDIA coordinator), Peter Muryshkin (Fraunhofer IAIS, Germany), Rahul Tomar (CTO & Co-Founder Smart Cities Lab, Germany), Prof. M.P. Gupta (Dhanjay Chair Professor & Head - DMS at IIT Delhi, India), Abhishek Sharma (Beyond Evolution Tech Solutions, Gurgaon, India), Dr. Ruchir Gupta (Prof. IIITD&M Jabalpur), Dr. Pritee Khanna (Prof. IIITD&M Jabalpur) and 90 participants from the Institute and other organisation from Jabalpur and Aalto University, Finland. This is the first FIWARE Lab set up in India.

Immediately after the launch, Peter Muryshkin explained FIWARE Lab (as shown in Figure 2) to the attendees and how to open account in FI-Lab and start working with it.

**FIWARE Lab**  
 FIWARE Lab is a working instance of FIWARE available for experimentation. You will be able to setup the basic virtual infrastructure needed to run applications that make use of the APIs provided by FIWARE Generic Enablers deployed as a Service either globally or by you (as private instance).

[Request Community Account upgrade](#) [Sign up](#)

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[Our GEs](#) > See our Catalogue.

[FIWARE Lab nodes](#) > Learn about FIWARE Ops.

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Identity Manager

- Home
- Organizations
- My Applications

Home

**Applications** [Register](#)

**Cloud**  
<http://cloud.lab.fiware.org/>

**Workshop test**  
<http://localhost>

[View All](#)

**Organizations** [Create](#)

**Organization 1**  
 This organization is intended to be...

**field trail tsenso**

[View All](#)

**Figure 2 – FIWARE Lab**

All of the participants have created their trial account to go further with the workshop. After this, Rahul Tomar took over explaining the Generic Enablers (GEs) of FIWARE as per the agenda mentioned above. It was started by explaining the Keyrock Generic Enabler. Identity Manager (IdM) GE API specifications comply with existing standards for authentication and user and provide access information. The presentation on Keyrock can be downloaded from [here](#)<sup>1</sup>.

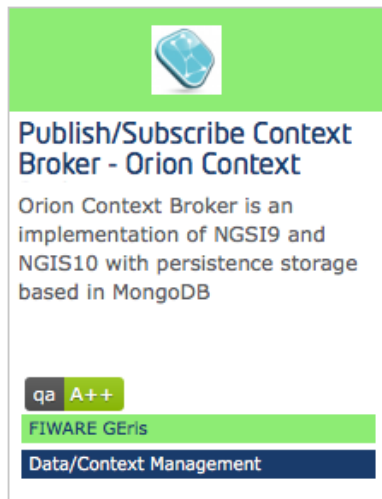
**Identity Management - KeyRock**  
 Identity Management Generic Enabler - KeyRock

qa A+ **FIWARE GErIs** Security

For explaining the concept even better, codes have been presented to the developers. The code can be downloaded from the GitHub repository. [GitHub Tutorial Link](#)<sup>2</sup>.

<sup>1</sup> <https://www.dropbox.com/s/lgbfiv718bxxi8m/Keyrock.pdf?dl=0>

<sup>2</sup> [https://github.com/1605200517/fi\\_delhi2016/tree/master/keyrock.tutorial](https://github.com/1605200517/fi_delhi2016/tree/master/keyrock.tutorial)

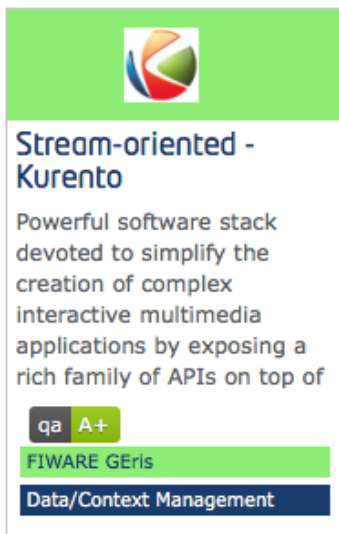
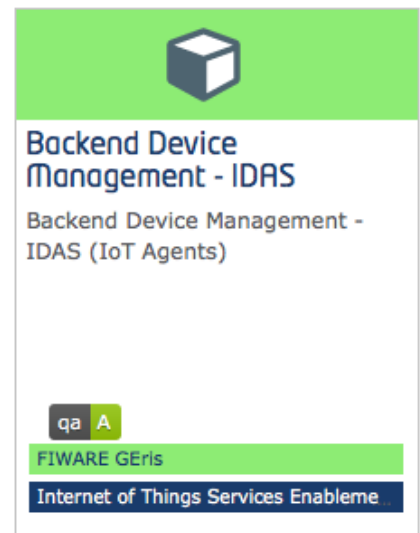


A second GE, [Orion Context Broker<sup>3</sup>](#), was presented in front of the attendees. The Orion Context Broker is an implementation of the Publish/Subscribe Context Broker GE, providing the NGS19 and NGS10 interfaces. Using these interfaces, clients can carry out several operations:

- Register context producer applications, e.g. a temperature sensor within a room;
- Update context information, e.g. send updates of temperature;
- Being notified when changes on context information take place (e.g. the temperature has changed) or with a given frequency (e.g. get the temperature each minute);

- Query context information. The Orion Context Broker stores context information updated from applications, so queries are resolved based on that information.

In the afternoon session, a third GE that was presented entitled IDAS. IDAS IoT Agents translate IoT-specific protocols into the NGS1 context information protocol, which is the FIWARE standard data exchange model. It was explained how developers do not need this component if their devices or gateways natively support the NGS1 API.



Finally, the GE Kurento was presented. The *Stream Oriented GE Kurento* is a multimedia platform aimed to help developers to add multimedia capabilities to their applications.

In the hands-on sessions, the participants significantly worked with all these Generic Enablers to understand how to use NodeJS for developing applications.

The selection of Jabalpur as the venue for the FIWARE Lab workshop is important since Jabalpur was announced by the Government of India in seventh place in the list of first 20

smart cities under 'Smart Cities Mission', where the aim is to identify challenges and explore opportunities in order to support creativity and interdisciplinary collaboration required for development of smart cities. IIITD&M Jabalpur, EU-INDIA FI-MEDIA project<sup>4</sup>, funded by the Delegation of the EU to India, and Smart Cities Lab organised the full day hands-on developers workshop on FIWARE technologies specifically for Smart Cities, including IoT. There were over 90 attentive participants for the entire day at the workshop and follow up activities are being planned.

<sup>3</sup> <https://www.dropbox.com/s/tx0rd4ri274ac0z/Orion-Context-Broker.pdf?dl=0>

<sup>4</sup> <http://www.bic-fimedia.eu/>