Attendees

- Pieter Pauwels [UGent]
- Georgios Lilis [TUC]
- Georgios Giannakis [TUC]
- Kyriakos Katsigarakis [TUC]
- Jun Wang [Curtin Univ]
- Zohreh [DCU-Lero]
- Matthew Waychoff []
- Wendelin Sprenger [Züblin]
- Kris McGlinn [TCD-Adapt]
- Odilo Schoch [ETH Zürich]
- Anna Wagner [TU Darmstadt]
- Peter Bonsma [RDF]
- Thomas Krijnen [TUE]
- Claudio Mirarchi [Polimi]

Excused

- Erika Mata [IVL Sweden]
- Ana Roxin [University of Burgundy]
- Georg Schneider [Fraunhofer IBP]
- Mads Holten Rasmussen [DTU Copenhagen]
- Lewis John McGibbney [MCMA]

Date and time

- 27/07/2017
- 17:00 CEST

Agenda

1. update on ontologies for linked building data: Git updates, charter updates, website updates (Pieter)
2. storing and using 3D geometry on the web for building data (Kyriakos, Thomas, Georgios)
3. need for an industrial interest group? (Sandra)

Minutes

1. Update on ontologies for linked building data: Git updates, charter updates, website updates (Pieter)

The group currently is a community group, with light requirements for joining the group. We have considered for a while now to turn the community group into a working group. A working group requires a number of active W3C members, more regular meetings, and a track towards standards that need to be delivered. This has always been discussed with Phil Archer and Felix Sasaki from the W3C. As they have left W3C, the communication now takes place with Francois Daoust. The scope for a working group is

described in the charter (https://w3c-lbd-cg.github.io/lbd/charter/). This charter has been revised over the past few weeks to be up to date with latest activities, including feedback by Francois.

The charter now includes the following deliverables:

- Building Data on the Web Best Practices
- BOT - Building Topology Ontology
- PRODUCT - Building Product Ontology
- PSET - Building Element Property Ontology
- GEOM - Geometry Ontology
- Alignment with building control and automation domain
- Alignment with building units and measurements domain

It is somewhat unclear still whether or not we should include infrastructure.

The Git repository has been updated to reflect the above charter content. It contains many of the relevant documents, e.g. charter, participants, and ontologies - https://w3c-lbd-cg.github.io/lbd/

Peter Bonsma: Geometry is not really included? Is it true that these ontologies focus on semantics, rather than the geometry.
Pieter: We should not focus on the software that does the geometric handling. What we can include is a serialisation for geometry.
Peter: Ontology for representing the data, I think this is important.

2. Storing and using 3D geometry on the web for building data

Presentation by Kyriakos Katsigarakis:
“Building Data on the Web - Building Geometry & Placement” (OptEEmAL)
Need to be able to combine BIM and GIS (in particular 3D, CityGML)
Problem - Have BIM model (IFC) and want to generate a simulation model (energy plus)
BIM+GIS to BEPS

Wendelin: How are we moving away from these existing standards to represent Geometry on the Web?
Kyriakos K: I will discuss in later slides.
Wendelin: One issue in construction is the proprietary nature of building product data. If they are in an open format, they do not have parametric properties. The question for me would be whether we can use the geometry formats from other sectors, and extend them within the web domain so that product data can be made available.

Kyriakos: Convert models into SIM XML
Peter: What is the XSD for SIM XML. You can describe spheres, squares, etc.? For example, IFC has a T profile definition, is this included in SIM XML?
Ans: We only use those profiles relevant to energy, considering the project scope, and T profiles are more relevant for structural analysis.
Peter: Is the geometry ‘a copy’ of / close to IFC geometry?
Kyriakos K: Yes, but it represents the data. SIM Model changes the hierarchy of this description and provides greater detail, and makes querying easier, for example, all walls that have the same material set, or all windows in a specific wall.
Peter: I.e. the same geometric data is in SIM as IFC, but the way it is represented is different.

Pieter: If we want this on the web, what representation do we use? Alternatively, we could store the transformation process to go from CityGML to SIM XML.

Wendelin: Our use case needs parametric definitions of geometry. We need the equation-based representation to be part of the linked data, instead of focusing again on the serialised, typically mesh-based geometry.
Thomas: What do you mean with this equation-based approach? What is the closest equivalent you can give as an example?
Wendelin: I call it parametrics, but the definitions can vary. So, the geometries are represented as an equation, e.g. length = 2*width.
Thomas: Did you have a look at ways to represent this?
Wendelin: IFC has excluded this, but it is something the construction industry requires, if product data and their geometries are to be exchanged across different systems.
G.N.: How large are these representations, are they more efficient in terms of size/storage?
Wendelin: The main advantage of being application independent, is that size is not an issue. We can store a huge set of data separately, and before it is loaded in any application, the data is reformatted and made smaller, so that it can be put into an application.

Thomas: What about glTF? (developed by Khronos group) This is getting a lot of traction lately. It is not equation-based, but we likely should support this.
Peter: In general for the web, we have a flow of “real geometry”, vertices, polygons etc. to maximise re-use. This is typical data, which is relatively easy to do queries on, e.g. contains, within, distance/nearby, etc. I agree also with Wendelin that this equation-based approach is needed. I would say that these geometries are in fact much more lightweight (or can be).
So, I see two ways: JSON- or glTF-like, which can support aforementioned queries, or using a more semantic, equation-based approach, aiming to grasp the semantics behind the geometry. Rules, e.g. width*length, can be used also. Storage can be reduced, but complexity can increase.
Thomas: Which tools can generate and parse these representations? We also have to consider adoption. If you say geometry, most people think of polygons.
Peter: If you define something like this, who can use it?
Wendelin: We must agree on a schema?
Pieter: Based on which option? Should we define based on one of these approaches?
Wendelin: What is missing is a schema on how to define those equations.

Kris: There is no reason why we cannot support more than one representation. For the next meeting, maybe we can begin to demonstrate examples of how the different approaches can represent geometric data, and how this can be published and queried on the web.

3. Need for an industrial interest group? (Sandra)

This item will be postponed to a later meeting.

Previous minutes

https://docs.google.com/document/d/1RRc5XQI5jciafKZiqkTGHC-AIYX0PQF5M4ugWEhD_PM/

Next Call

10 August 2017 17:00 CEST