

Integration of 3D city models and BIM: GeoBIM

Instructors:

Francesca Noardo, Open Geospatial Consortium Europe (Belgium)

e-mail: fnoardo@ogc.org

Ken Arroyo Ogori, Delft University of Technology, 3D geoinformation group (The Netherlands)

e-mail: k.ogori@tudelft.nl

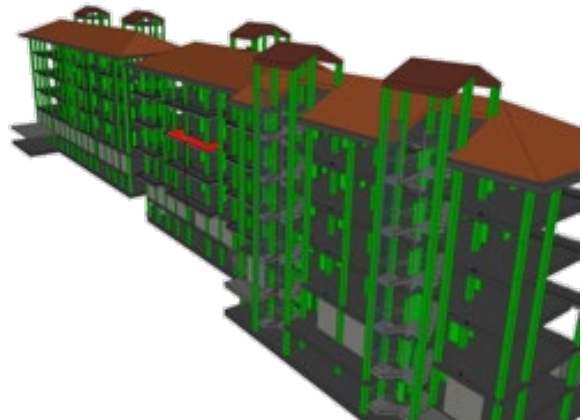
Dates: March 6–17, 2023

Target audience: Staff of national mapping agencies, graduate students in the fields of geomatics and spatial data management, or other fields related to applications such as geography, buildings and constructions and others.

Preconditions: There is no precondition for attending this course; everyone can participate. Some previous knowledge about Geographical Information Systems (GIS), 3D city models, Building Information Models (BIM), CityGML, CityJSON, IFC, data integration, may help, as well as the attendance of the previous EuroSDR course “GeoBIM – Basic principles and Use cases” (EduServ 19th).

Course objectives: By the end of this course, students should be able to:

- Explain the integration and interoperability concepts and the main features and differences of GIS/3D city models and Building Information Models and respective reference standards.
- Compare two different datasets to define the potential integration and the necessary actions to achieve a suitable integration for a use case.
- Convert a BIM dataset into a Geo- one.
- Convert a Geo- dataset into a BIM one.



Topics tackled:

- An initial introduction about the concepts of interoperability, integration and the use cases having the advantage of data integration will be presented.
- The two specific kinds of data involved in the ‘GeoBIM’ integration, i.e., 3D city models and Building Information Models (BIM), will be explained, including their current features, the related Open standards and the respective differences and specificity of each.
- According to the progress made in the last few years, both on the technical and on the theoretical side, this course will teach an approach to guide and define the GeoBIM integration based on the needs of use cases. A method to compare two datasets (a GIS or 3D city model

and a BIM) in order to analyse their potential integration and define the actions necessary to get to an integrated dataset will be proposed. Students will be able to exercise it with data.

- Two examples of conversion procedures, one Geo to BIM and one BIM to Geo, will be explained as one of the steps necessary for the integration workflow.

Module 1: Data integration, 'Geo' and 'BIM' (Francesca Noardo / Ken Arroyo Ohori)

In this module, the basic theory and knowledge will be explained, and students will get familiar with the concepts related to the data integration, including GeoBIM, the involved data, the respective standards and the challenges currently hindering a smooth and effective integration.

Module 2: Potential integration assessment and planning (Francesca Noardo)

Given two datasets, a method and guidance will be explained to students to assess, preliminary and in higher detail, whether they can be effectively integrated and what actions should be planned towards an effective integration.

Module 3: BIM to Geo (Ken Arroyo Ohori)

An example of conversion BIM to Geo will be shown, and students will have the opportunity to practice with it.

Module 4: Geo to BIM (Ken Arroyo Ohori)

An example of conversion Geo to BIM will be shown, and students will have the opportunity to practice with it.

