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Automating the Workflow of Data from Revit with Autodesk Forge Data Exchange

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Learning Objectives

- Discover the possibilities Autodesk Forge Data Exchange API provides.
- Start working on your own Autodesk Forge Data Exchange-based solution.
- Learn more about analytical models and properties.
- Learn about being an early adopter of the newest technology.

Description

Exchanging data from Revit software to other applications is very often a file-based and time-consuming task. In our case, it's typically based on an IFC export from Revit. This IFC file is then imported into another application and the result is imported into Revit by an add-in that reads a text or Excel file. We've addressed these challenges with the Autodesk Forge Data Exchange API, exchanging only the necessary subset of data. This API is still in beta and there are two possible cases that we may demonstrate on Autodesk University. The first one is to use the Autodesk Forge Data Exchange API to automatically get the analytical model from Revit, open it in a structural analysis application, do the analysis there, and then send the result automatically back to Revit. The results can then be used to create structural reinforcement and to suggest changes to the model. The other case is based on sending properties data back and forth between Revit and applications that handle building specifications, prices, and sustainability data.

Speaker(s)

Frode Tørresdal is head of development of the BIM and Structural Engineering department and sustainability manager of Norconsult Informasjonssystemer. He has been a developer on various BIM and CAD platforms since he started working in the company in 1999. In the last years Frode has worked a lot with the Forge platform and has also spent some time investigating augmented and virtual reality.

If you have any questions related to this topic, feel free to contact me on my LinkedIn profile:

<https://www.linkedin.com/in/frodetoe/>

Marius Jablonskis is currently engaged as Digital Transformation Leader in Norconsult, a leading Norwegian interdisciplinary engineering and design consultancy. Operating at the intersection of strategy, design and technology, to derive insight, shape interaction, drive integration and unlock the innovation. Digital roadmaps and strategies, internal and external relationships, collaborations with clients to deliver digital transformation, developing ideas into change initiatives while driving sustainable growth.

Marius has extensive experience in finite element analysis and simulation for both structural and mechanical industries.

What is Forge Data Exchange?

The documentation explains it this way: Individuals and companies around the globe work across disciplines and tools to create the awesome products, buildings, and experiences of today and those of the future. Collaborating seamlessly across those project teams and apps – many developed by Autodesk – has become more important than ever. Forge Data Exchanges help you unlock your data and give you the flexibility to share the right bits with the right stakeholders at the right time – no matter the app or industry you work in.

We have been in the vanguard team testing out this API from a very early stage. We will go thru two cases where we have tested the API.

- Calculating carbon footprint based on properties in Revit. Calculations are done in a demo web app and gets property data from the Revit model by using exchanges.
- Structural analysis of Revit models. The analysis can be done with Robot in Revit, but often other software is used. We will here show how we have used Forge Data to seamlessly load geometry and properties into othe structural analysis application.