Autodesk Solutions and UK BIM Level II

Frank Moore
AEC Senior Subject Matter Expert
Autodesk, Inc.
Today’s Topics

- Autodesk’s commitment to Standards in the AECO Industry.
- Autodesk Solutions and BS 1192-4 (COBie)
- Autodesk Solutions and PAS 1192-2 (Information Requirements)
- Introducing a COBie Solution for Autodesk Navisworks and BIM 360
- Questions
Autodesk’s commitment to Standards in the AECO Industry

- First major CAD vendor to release an open way (DXF) to get data in/out of our flagship product

- First major CAD vendor to run on Open Systems non-proprietary hardware

- Founded IAI now called buildingSMART

- Strong track record in supporting IFC including being in first wave of vendors to get the more rigorous IFC 2.0 Coordination View export certification for all three Revit tools

- Have made our IFC import/export for Revit Open Source
Autodesk is fully involved in the UK BIM initiative

- On the BIM Task Group core team
- On Technical Committees for the development of key documents
- Developing tools in support of the BIM initiative
  - Revit COBie export tool has been developed
  - BS1192:2007 workflow support within Autodesk Vault
  - Additional work in progress
- Represented on BIM 4 sub groups:
  - BTA (BIM Technologies Alliance for vendors)
  - BIM4IUK Management board
  - BIM4SME Chair
- To learn more: www.bimtaskgroup.org
Components of Level 2 BIM

- PAS1192-2 (for Capital Projects)
- PAS1192-3 (for Operational Phases of an asset)
- CIC BIM Protocol
- Government Soft Landings (GSL) (prepare clients for their asset)
- BS1192:4 (COBie UK Implementation)
- Common Classification
- Digital Plan of Works

Innovate UK (Technology Strategy Board) in Sept 2014 awarded this work to a consortium led by RIBA Enterprises with delivery in Spring 2015

Public draft published, comments due March 2015
Revit is integrated in RIBA Digital Plan of Works/BIM Toolkit
Autodesk Revit and BS 1192-4 COBie: Two methods for Creating COBie Drops

• The first method is via a plug-in for Autodesk Revit that assists the users in preparing their Models with COBie data and exports directly to both the United States and United Kingdom COBie spreadsheet standard formats. This COBie Extension for Autodesk Revit can be downloaded from: http://www.autodesk.com/campaigns/interoperability

• The second method can leverage the COBie plug-in for Autodesk Revit but instead of exporting directly to the spreadsheet, the data is exported to IFC using the “FM Handover Extended Model View” configuration option. FM Handover Extended Model view is also often referred to as COBie IFC. This solution is implemented in the IFC Open Source Exporter for Autodesk Revit. http://sourceforge.net/projects/ifcexporter/files/ https://apps.exhance.autodesk.com/RVT
COBie
Construction Operations Building Information Exchange

- What is COBie?
  - Internationally recognized data exchange standard
  - Exchange building systems information between design & construction with building owners
  - Format for delivering construction handover data
  - Alternative to paper based handover process as depicted in picture
  - Autodesk Involved with COBie since 2006
COBie
Construction Operations Building Information Exchange

- Facilities (or projects)
- Contact
- Floors
- Systems
- Register (equipment types)
- Spaces
- Components (named equipment)
- Documents (approved electron submittals)
- Installation (Make, Model, Serial #)

Project Lifecycle

Design + Documentation
BIM Modeling – Data Development

Construction

COBIE Worksheets 1 through 7

Project Delivery

© 2013 Autodesk

COBIE Worksheets 8 through 29
Creating a COBie-Enabled Project in Revit

Revit COBie Add-in

provides...

Revit Schedules echoing COBie Worksheets
OmniClass/UniClass Reference Table

OmniClass 13 Reference Table (Revit Key Table)

Parameters assigned to Revit objects to hold COBie data
**COBie Toolkit for Autodesk Revit**

**Basic Workflow**

**Setup**
Establish project contacts, and use a setup wizard to configure the default parameters for mapping Revit model data to the COBie data structure.

**Modify**
Manage the relationship between Revit Rooms and Spaces and COBie Zones, specify which families, types, and elements are exported, and perform batch operations on the current model.

**Export**
Configure the COBie export by specifying the worksheets to include, creation method, template, and export location.
COBie Toolkit for Autodesk Revit Task Overview

Setup

Manage Contacts
Create and manage complete contact records for each of projects COBie Contacts.

Default Settings
Efficiently configure an Autodesk Revit model for COBie using an intuitive step-by-step wizard.
COBie Toolkit for Autodesk Revit Task Overview

Modify

Zone Management
Utilize the Zone Manager to organize Revit Rooms and Spaces into COBie Zones.

Element Selection
Precisely control which family types, families, and even elements are included within COBie exports.

Batch Update
Ensure every item within a Revit model includes accurate data for essential COBie fields.
COBie Toolkit for Autodesk Revit Task Overview

Export

Select Worksheets

Tailor COBie exports to specific project requirements while maintaining alignment with COBie Deliverable requirements.

Export Action

Easily start COBie projects by creating a new spreadsheet, or keep existing spreadsheets up-to-date with an append option.
COBie Extension for Autodesk Revit

Feature Summary

**Workflow within Revit**
Facilitate the export of COBie data without leaving the Autodesk Revit application.

**Dynamic Zone Management**
Innovative Zone Manager dynamically manages separate Revit Rooms and Spaces as COBie Zones.

**Parameter Mapping**
COBie fields are pre-mapped to the correct Revit Type and Instance parameters.

**Flexible Export Options**
Maintain full control over every piece of data exported from Revit to a COBie spreadsheet.
Maturity Levels Model and Revit COBie Toolkit

- Diagram from BIS-BIM Strategy March 2011
- Revit COBie Toolkit apples to Maturity Level 1-2
- Revit’s IFC also supports Maturity Level 2
- Autodesk Consulting/Resellers can help for both level 2 and beyond
Data “Templates”
Assign predefined set of data fields to Revit Components

Data Functions
Live data connection – users can work with data attributes in Revit, by component

Revit Worksession
• Live linking of data to Revit Components
• No export/import process
• Rests on SQL standard
• BIM 360/Navisworks

Revit API
• Customizable

External Database
• Enterprise Applications – IWMS, EAM, ERP …
• Analysis and Reporting Tools

SQL Data Model
• ODBC Data Exchange

Revit Components
Overview of the Revit Model Checker

Background

- Originally developed for the U.S. Army Corps of Engineers (USACE)
  - Created version 1.0 in November 2011
  - Currently working on version 4.0

- Goal was to create an add-in for Revit that would:
  - **Reduce** the amount of time USACE would spend reviewing submitted Revit models
  - **Create** something that aligned with USACE BIM Requirements (UBR)
  - **Integrate** Inside of Revit for Simplified Workflows
Overview of the Revit Model Checker
Creating Model Checkers for Others

- The success of the USACE version highlighted a need…
  - Many owners / agencies are creating or already have their own BIM Requirements
  - Checking compliance to these requirements is challenging

- Autodesk Now Has Available
  - An easily distributable, royalty free model checker shell
  - A model checker configuration authoring tool
Revit Model Checker Summary

**BIM Requirements**
Define what Revit models submitted to your organization should include.

**Consultant Pre-Check**
Models originate in alignment with your BIM requirements.

**Project Based Level of Detail**
Teams can configure project-based requirements, allowing the checker to scale to any Project Execution Plan.

**Automatic Model Checks**
Spend minutes, not hours verifying models submitted by consultants comply with your BIM requirements.
Revit Model Checker for COBie
Revit Model Checker for COBie
Revit Model Checker Key Points

- **Automated Validation**
  - Automates many time consuming tasks associated with submitting models.
  - The Revit Model Checker performs checks for many BIM PxP Sections, but not all, focusing on the most time consuming checks.

- **Design Tool**
  - The Revit Model Checker is designed to aid in the design process.
  - The Current USACE Revit Model Checker was built by Autodesk, and distributed freely to all those working on USACE Projects.
  - The Generic Revit Model Checker requires an implementation engagement to integrate your standards and create configuration file.
Autodesk’s Infrastructure Solutions and COBie

- Autodesk’s Civil 3D and Infraworks support IFC!

- Autodesk is fully supportive of the buildingSMART International initiative underway to align and formalize support for Infrastructure data schema’s and MVD’s in IFC

- We look forward to having actionable Infrastructure Model View Definitions that we can export to from our infrastructure titles

- Supporting UK Task’s group Infrastructure Pilots
PAS1192-2: (Specification for information management for the capital/delivery phase of construction projects using BIM)
Autodesk Vision for Project Delivery and Collaboration

Deliver complete, accurate, connected, digital information across the project lifecycle for whoever needs it, whenever they need it, wherever they are.
Vault for On-premise Collaboration and Data Management

Organize, distribute, & provide secure access to all project data while capturing milestones, history & intelligence

Central Repository for Project Data

AEC Design Tool Integration

Flexible, Scalable Distribution of Data

© 2013 Autodesk
Autodesk Solutions and PAS 1192-2

Inside the Firewall/On Premise Data Management and Collaboration Solution

- Autodesk Vault Professional
- Proven solution with roots in the Manufacturing Space
- Provides Extended team access
- Integrated with Autodesk AEC authoring tools and Navisworks
- Quick Start/PAS 1192-2 Configuration available from Autodesk Partner Cadline

scott.woolven@cadline.co.uk
Autodesk Solutions and PAS 1192-2

Cloud/Mobile Data Management & Collaboration Solutions

- Autodesk BIM 360
- Great at hosting WIP, Shared and Published Data
- Today not as robust as Vault for implementing a complete CDE
- Autodesk is actively investigating options for enhancing BIM 360 for
  - Providing a more robust CDE
  - Complying with Security Protocols