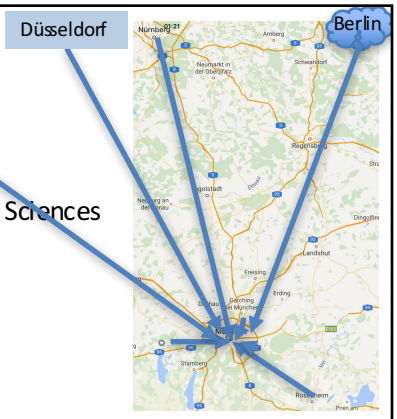
IFC Software Certification

Status

Next Steps

Prof. Rasso Steinmann



My
BIM-Hub Munich

- Professor for Building Informatics, Munich University of Applied Sciences
- Director, iabi-Institute of Applied Building Informatics gem. e.V.
  at Munich University of Applied Sciences

NEMETSCHEK GROUP

- Cooperation in BIM-Research and BIM-Standardisation

VDI

- Chairman, VDI Coordination Circle BIM
  -> German National BIM-Standard VDI 2552-Series
- Boardmember, VDI Society Building und Building-Services

- Chairman, buildingSMART German Speaking Chapter
- Board, ExCom, Standards Committees buildingSMART International
- Software Certification, buildingSMART International
- 20 years ISG-Implementer Support Group-Chair (retired 2016)

Why bSI-SW-Certification?

Build

OpenBIM-User

Confidence

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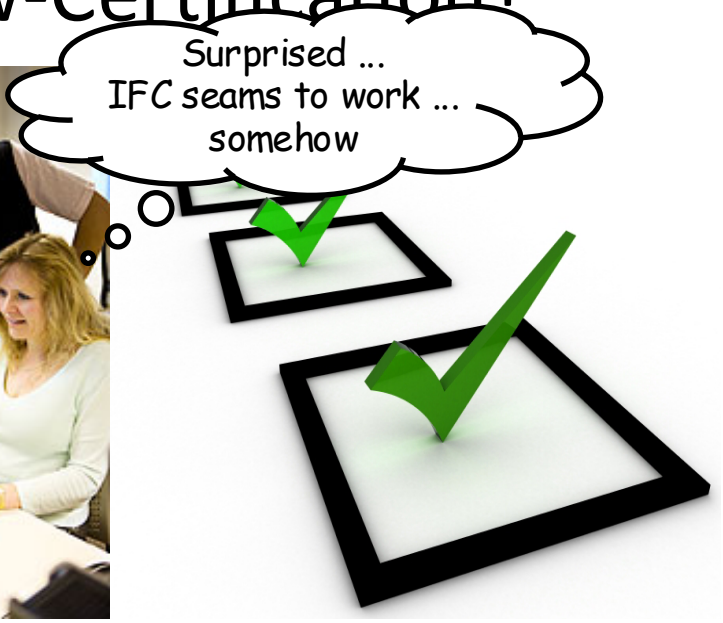

Why bSI-SW-Certification?

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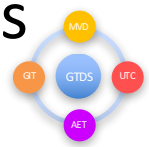
bS-IFC-SW Certification IFC2x3-Status



- Coordination View 2.0
  - Arch
  - Struct
  - MEP
- 33 Applications certified
- Import & Export
- Import-Only
- Information:
  - www.buildingSMART.org
  - www.buildingSMART-Tech.org

Next step: IFC4 SW-Certification

- Under preparation since 2015
  - Pilot start July 2016
- Information:
  - www.buildingSMART.org
- Start with 2 MVDs
  - IFC4-Reference View
    - Less than IFC2x3 Coord.View 2.0
  - IFC4-Design Transfer View
    - A bit more than IFC2x3 Coord.View 2.0 with specific scope
- More automated testing
- Improved test-cases (lessons learnt)
- Extensive usage of mvdXML
- New supporting cloud-platform
  - Driven by mvdXML
  - Supporting BCF

Supported by

iabi

apstex
VISUALIZE YOUR DIGITAL KNOWLEDGE

AEC3

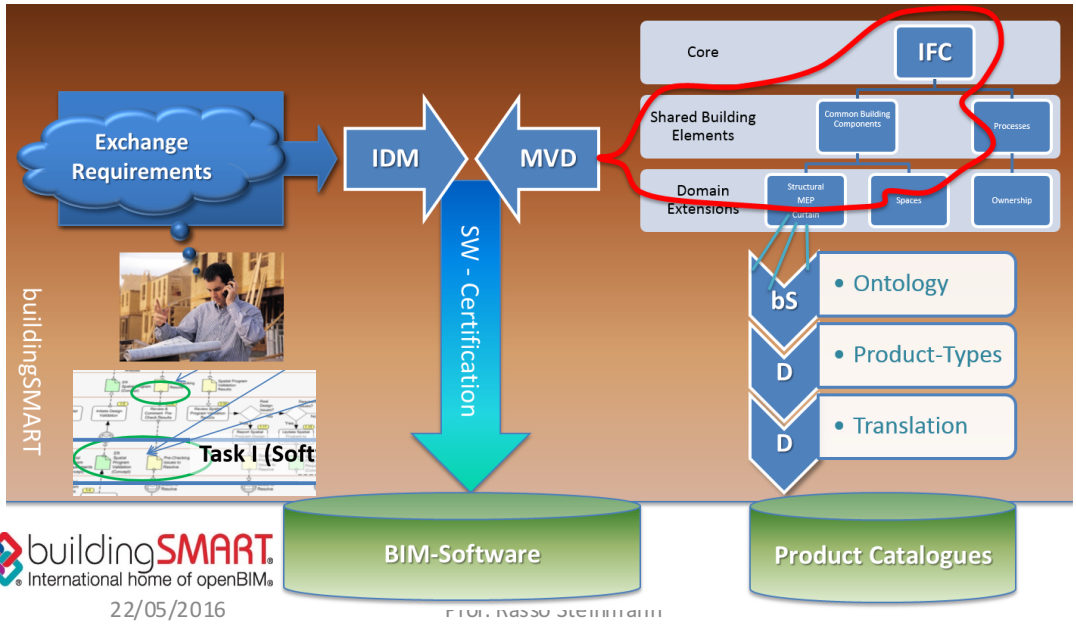
IFC2x3-Cert will stop, as soon as IFC4-Cert starts

- Why IFC2x3-Cert still today:
  - IFC2x3-Coord.View 2.0 is widely implemented in the market
  - It will take at least 2 years until similar market penetration of IFC4 will be achieved
  - Way to go if an application wants to be compliant with many and especially the leading IFC-supporting applications, today

Certification 2005 > 2010 > 2016

2005 – IFC1.51	2010 – IFC2x3	2016 – IFC4
Ability Check	Quality Check	Improved Quality Check
Coordination View 1.0	>Coordination View 2.0 - 3 Sub-Views - Arch-Struct-MEP **- Options and alternatives!** **- Green, Yellow, Red – Still Certified**	> Reference MVD - Arch-/Struct-/MEP-Export - Import for viewing and/or referencing > Design Transfer MVD ***- Which Exchange Requirements?***
Random test cases	Testing instructions - Calibration files for export - Guided import testing	Improved testing instructions - Calibration files for export - Guided import testing - **Support via BCF**
MVD-Prosa	MVD-Prosa (XML-Prototype)	mvdXML
	Partial usage of mvdXML	Full usage of mvdXML
	Manual set-up	mvdXML-driven set-up - Also test-case-specific mvdXML
	Implementer agreements in Prosa	Implementer agreements in mvdXML or code as far as possible
		Scalable for multiple MVDs
Manual testing in Workshops -> not scalable	Automated export testing	Improved automated export testing mvdXML-based
Excel-Sheets to manage certification	Web-based management platform Oracle DB -> scalable auditing teams	Cloud-based management platform Latest Cloud-tech -> scalable size and performance -> Scalable auditing teams

The Basis for Software Certification
IFC – IDM – MVD



MVD – Model View Definitions

IFC2x3 MVD

- Prosa specification
  - Human readable only
- Excel-Sheets
- XML-Prototype

Source: www.eltern wissen.de

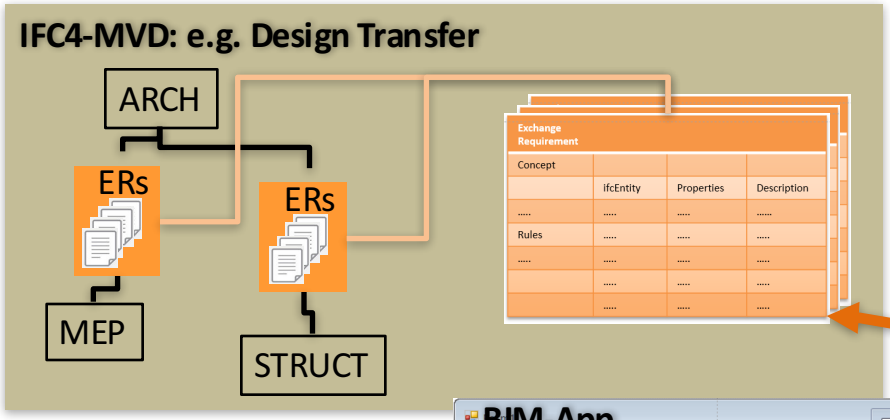
IFC4 MVDs

- mvdXML
  - Computer readable
- Can be used by:
  - Automated testing tool
  - Certification platform
  - Software implementers
    - Triggering IFC-SW-Interfaces with wide scope

MVD in Detail

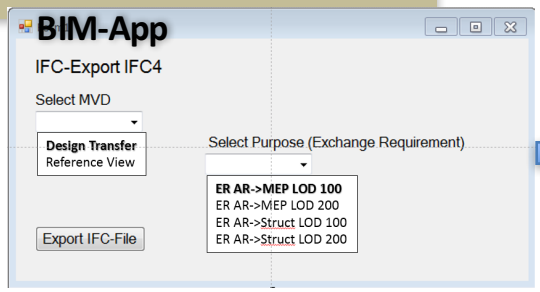
- Root concepts (building components, e.g. Wall, Space, Railing)
  - Series of Concepts (units of functionality)
    - e.g. GUID, History, Placement, Geometry Box, Geometry Axis, …
    - e.g. Geometry Body (Swept Solid, Clipping, CSG, Explicit, Mapped, …)
  - Concept rules
    - e.g. specific enumeration-ranges for properties
    - e.g. requirements for geometry for a specific purpose
- Exchange Requirements
  - Fulfilling specific purposes
  - Scenario driven focussed requirements
  - Defining a subset of an MVD
- Test-specific MVDs
  - Specifying a subset of the MVD focussing for the purpose/content of a specific test
  - e.g. tests focussing on specific concepts

MVD / Ex.Requ. / BIM-Apps



Exchange Requirements:
Part of an MVD
Scenario/Purpose driven
Domain specific
LoD-specific (Level of Detail)
LOD-specific (Level of Development: 100, 200,...)
Contractual Data Drops
HOAI-Phases
... COINS, MMC, iModel, ...

An IFC-File correlates with an ER of a MVD



IFC-File

IFC4-MVDs

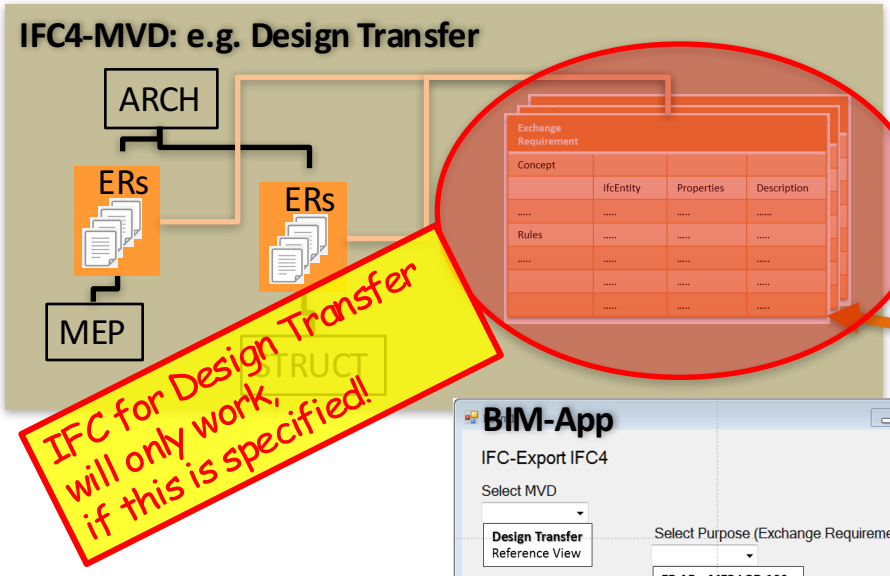
Reference View

- Export from
  - ARCH
  - MEP
  - STRUCT
- Import into
  - Viewers, Collaboration Tools
  - MEP, STRUCT, ARCH
  - **For Viewing and Referencing only**
- Change Request
  - Via BCF

Design Transfer View

- Export from
  - ARCH
  - MEP
  - STRUCT
- Import into
  - Arch
  - MEP
    - HVAC, Heating, Plumbing, Electrical
  - Struct
    - Concrete, Steel, Timber
  - **For Using transferred data**
- Change Request
  - Via BCF
- **Undefined:**
  - **Specific ERs**

MVD / Ex.Requ. / BIM-Apps



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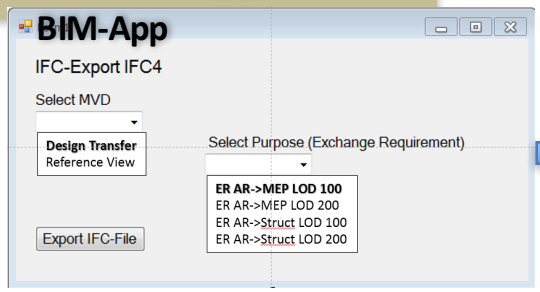
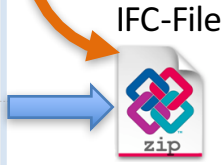
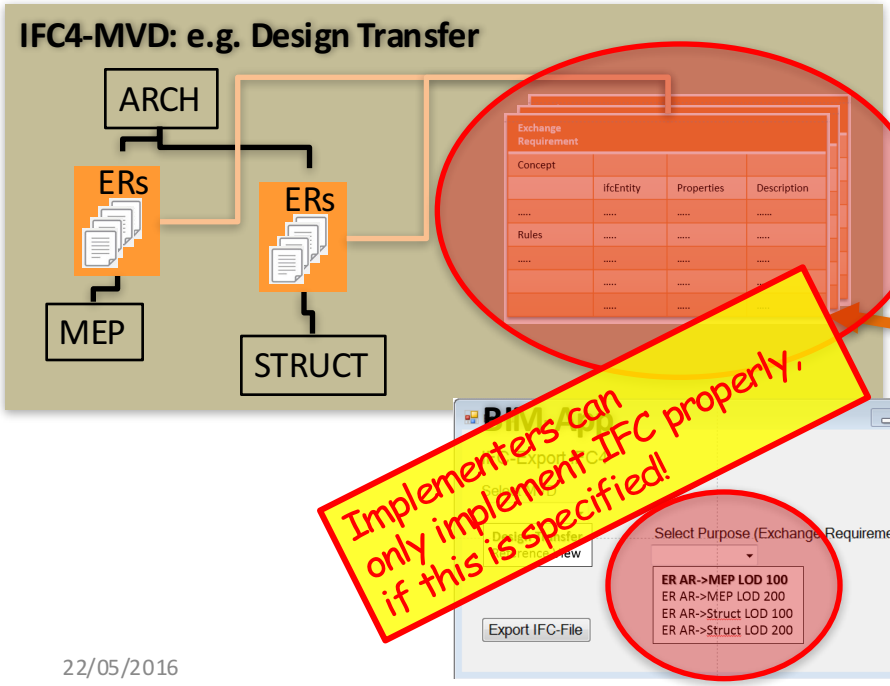




MVD / Ex.Requ. / BIM-Apps



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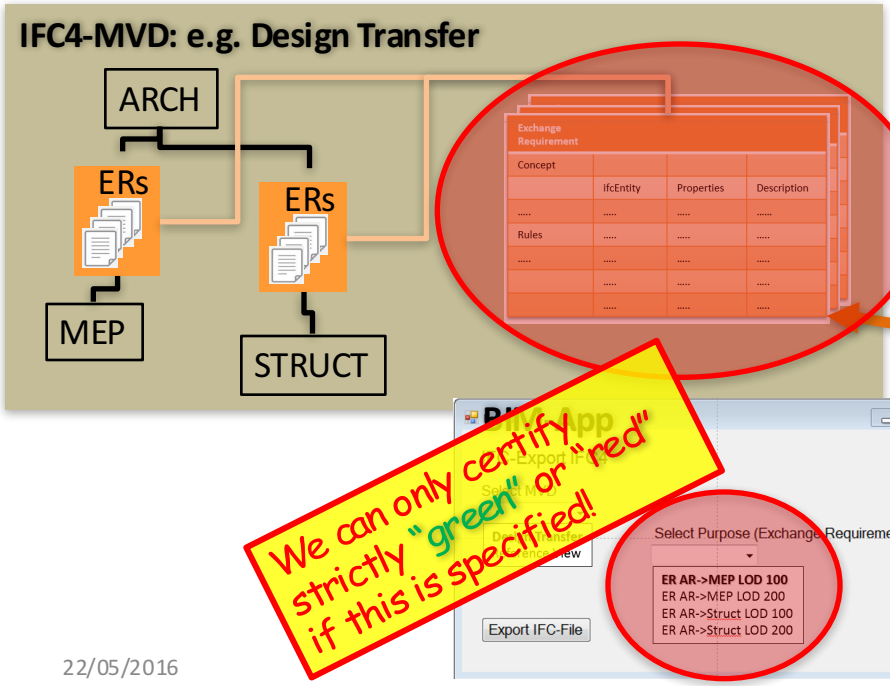

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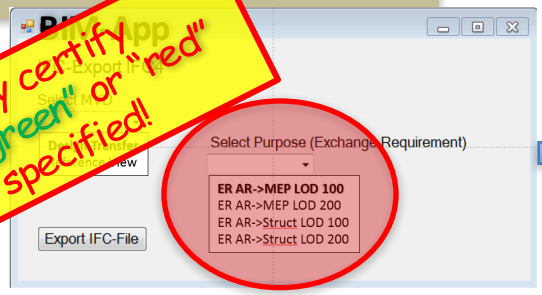
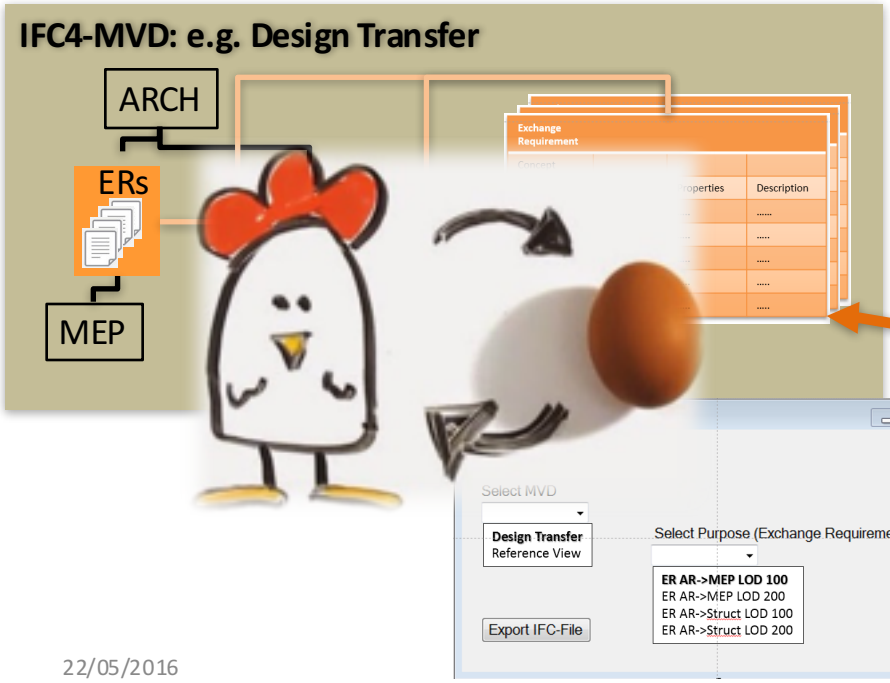


We can only certify strictly "green" or "red" if this is specified!

IFC-File

MVD / Ex.Requ. / BIM-Apps



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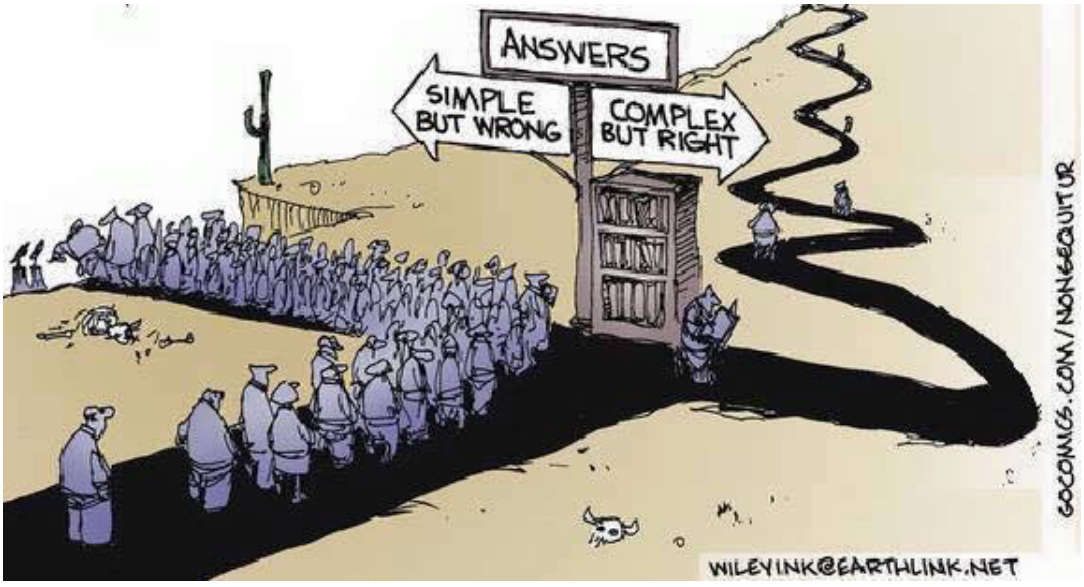
Questions / Discussions