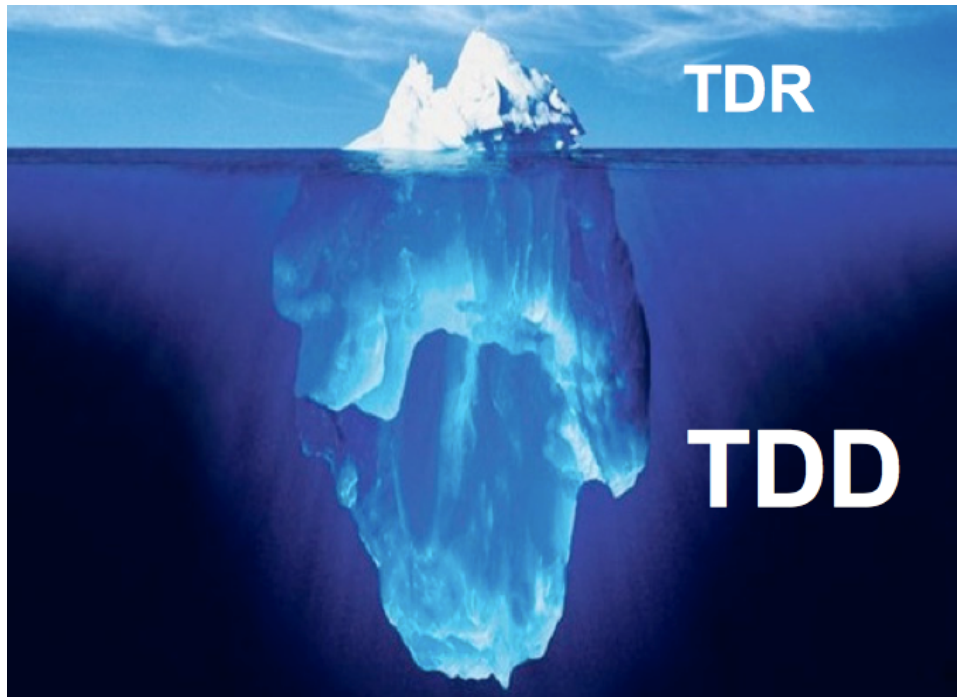


CAD Model Upload to EDMS



Benno List DESY –IPP–
20.1.2012
ILC ML & SCRF BTR
Tsukuba, KEK, 19.-20.1.2012



EDMS and Tech. Design Documentation

TD Phase Deliverables

Technical Design Report (TDR)



Documents primary TDR deliverables

- 1 Results and status of Risk Mitigating R&D
- 2 Updated Reference Design
- 3 Updated VALUE estimate
- 4 Project Implementation Plan
- 5 Technical risk assessment and future R&D

Readable
6-9 months to write

Supports

Summarises

Technical Design Documentation (TDD)



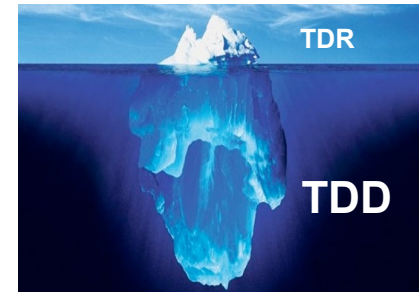
Reference Documentation
Structured and linked

Basic design documentation

- Parameter tables
- Requirements
- Specifications
- Design documents
- Drawings (2D)
- CAD-3D models
- ...

ILC-EDMS

Cost information
Schedule



Important goal to consolidate all technical documentation in EDMS in a structured fashion



TDR and TDD

- Technical Design Documentation (TDD) is the comprehensive source of information about all design work performed in TDP-II
- TDR is a human-readable synopsis of the TDD
- The TDD is stored in the DESY EDMS
- Central part of TDD: 3D CAD models
- In EDMS, CAD models are **linked** together with accompanying information to provide explanations and ensure **traceability** of the design

Item Information - Windows Internet Explorer

https://ilc-edms.desy.de:444/TC70ILC/controller/home

international linear collider

Search [] Home Exit DESY

Advanced Search... Lars Hagge

Main Menu Classification

Select View: ILC

- ILC TDP
 - Accelerator Design and Integration
 - Accelerator Systems
 - Conventional Facilities & Siting and Global Systems
 - Cost Estimation
 - Project Management
 - Superconducting RF Technology
 - Technical Design Documentation

Check Out Submit Item Reports Bookmark History More Actions...

Generic Part , D0000000531557.A.1.1 , Item Info : Summary

Summary Assembly Structure Properties Related Items Files Assignment Classification Reviewer/Approver All Versions Access

Related Items	Properties	Preview Image(s)
<p>Attaches</p> <p>There are no attached files</p> <p>Related Items</p> <p>Has Description : 2 objects</p> <p>Name</p> <ul style="list-style-type: none"> Construction of a Full Scale Superconducting Undulator Module for the ILC PS A.1.1 Development of a Superconducting Helical Undulator for the ILC Positron Source A.1.1 <p>Has Design : 2 objects</p> <p>Name</p> <ul style="list-style-type: none"> ILC SC Helical Undulator Placeholder A.1.1 ILC SC Helical Undulator Prototype A.1.1 <p>Is used by Generic Part : 1 object</p> <p>Name</p> <ul style="list-style-type: none"> PS Sub-Systems A.1.1 	<p>Name: PS Undulator</p> <p>Description: Design and technical description of PS undulator</p> <p>Sub Type: Assembly</p> <p>Access Scheme in Use: Project: ILC_WBS</p> <p>Designated Access Scheme (Project): ILC_WBS</p> <p>Creator: Szepielak_Daniel</p> <p>Work Status: Working (in Vault)</p> <p>More Properties...</p>	

System Status: OK

Applet com.sdrc._metaphase.wcc.ssoapplet.SsoApplet started

Local intranet 100%

6

Item Information - Windows Internet Explorer
 https://ilc-edms.desy.de:444/TC70ILC/controller/home

international linear collider

Generic Part , D0000000531557.A,1,1 , Item Info : Summary

Summary | Assembly Structure | Properties | Related Items | Files | Assignment | Classification | Reviewer/Approver | All Versions | Access

Properties

Name: PS Undulator
 Description: Design and technical description of PS undulator
 Sub Type: Assembly
 Access Scheme in Use: Project: ILC_WBS
 Designated Access Scheme (Project): ILC_WBS
 Creator: Szepielak_Daniel
 Work Status: Working (in Vault)

Has Description : 2 objects

- Construction of a Full Scale Superconducting Undulator Module for the ILC PS,A,1,1
- Development of a Superconducting Helical Undulator for the ILC Positron Source,A,1,1

Has Design : 2 objects

- ILC SC Helical Undulator Placeholder,A,1,1
- ILC SC Helical Undulator Prototype,A,1,1

Preview Image(s):

System Status: OK

Applet com.sdrc._metaphase.wcc.ssoapplet.SsoApplet started

Has Description : 2 objects

Name

- Construction of a Full Scale Superconducting Undulator Module for the ILC PS,A,1,1
- Development of a Superconducting Helical Undulator for the ILC Positron Source,A,1,1

Has Design : 2 objects

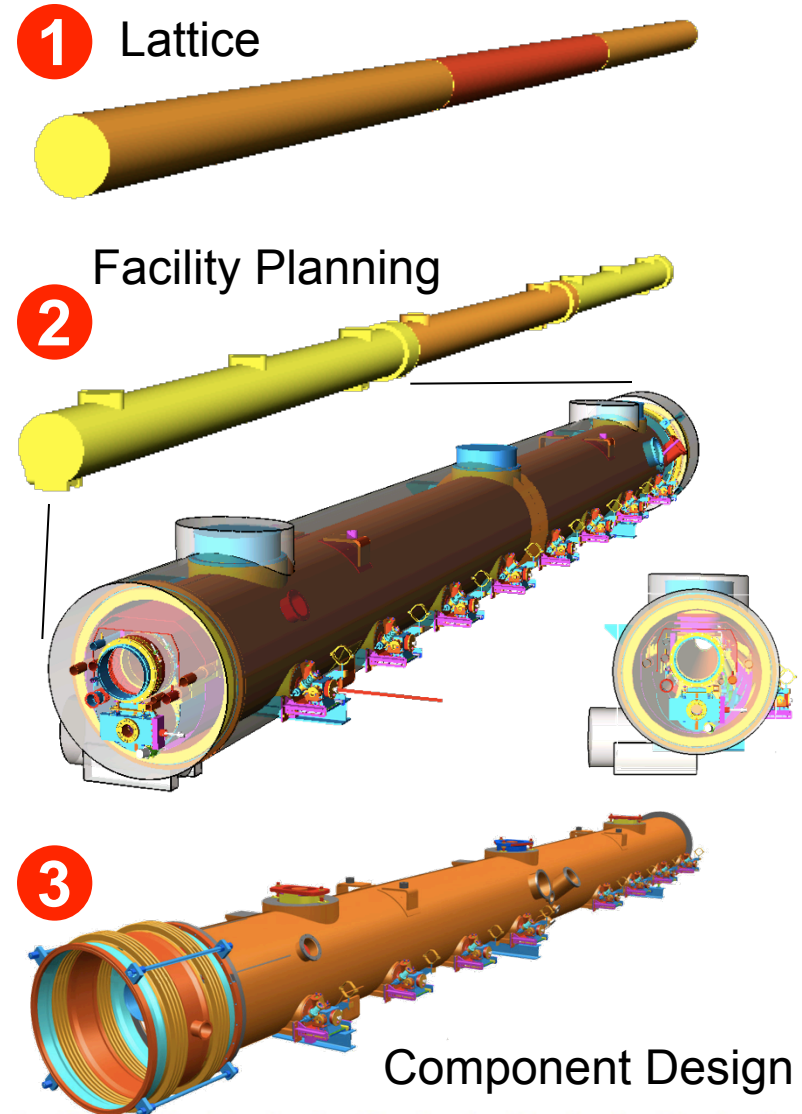
Name

- ILC SC Helical Undulator Placeholder,A,1,1
- ILC SC Helical Undulator Prototype,A,1,1



3D Models in a Nutshell

- Use **Placeholder** models for facility planning
- Use **Detailed Models** for component design
- Avoid clashes by ensuring **Placeholder > Detailed Model**
- Note: Facility planning and component design are decoupled
→ **need no sequencing**

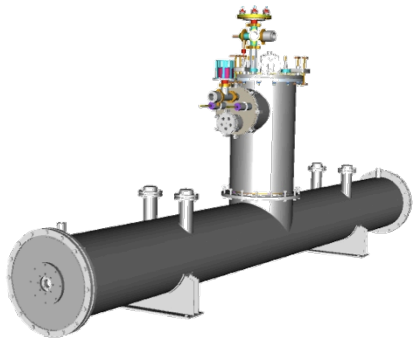
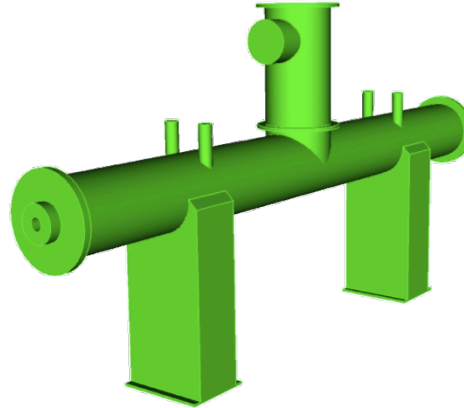
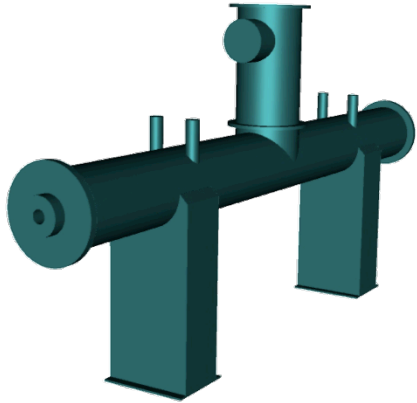




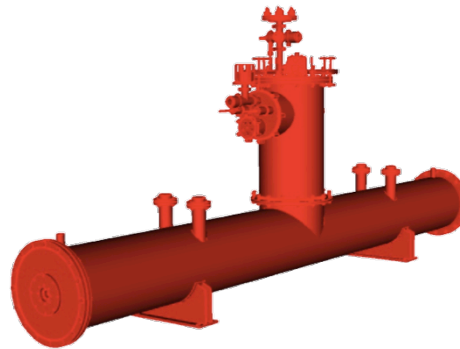
Example: Compare Undulator Placeholder and Detailed Design

Undulator Placeholder ...

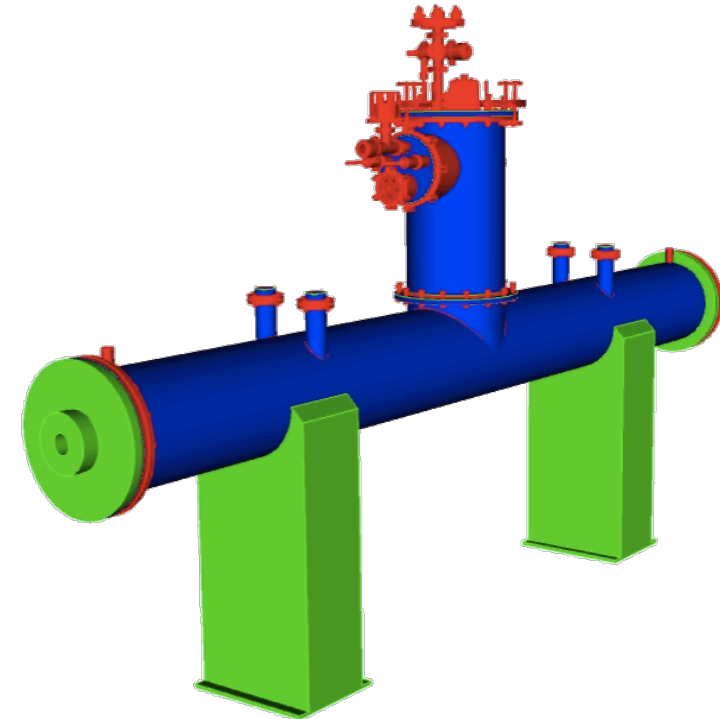
... is colored green in comparison:



Undulator Detailed Design ...



... is colored red in comparison:



Comparison:
Blue = common geometry
Red / green geometry only in respective model



3D Models in EDMS

- Models created outside DESY are imported via STEP files into I-DEAS and stored in EDMS
- EDMS provides JT-files for efficient visualization
- Native CAD files are not stored (except for I-DEAS)
- Purpose of CAD model storage in EDMS:
 - Reference of existing designs
 - Visualization, verification, analysis of models using VisView JT viewer or free tool JT2Go:
http://www.plm.automation.siemens.com/en_us/products/teamcenter/lifecycle-visualization/jt2go/
(available in English and Japanese, for Windows)
 - VisView is a professional tool, allows to measure, cut, compare models, and visualize extremely large models (complete XFEL!)



Design evolution

Question raised by Paolo yesterday

- EDMS: Import new ZIP files
- EDMS does not host the native CAD files
- For XFEL, complete CAD models of buildings are updated (imported), integrated and released biweekly → it works
- Exchange of native-format CAD files would require additional effort → is this needed?



Questions to be answered today

- Which models are available? From whom?
- What are the native formats?
- Any access restrictions / confidentiality issues?
- Which EDMS Teams are needed?
 - **Currently: ILC_Cryomodule_CAD_Team**
 - **Create an ILC_Cavity_CAD_Team?**
 - **Create ILC_Cryogenics_CAD_Team?**
 - **Separate teams for Asia / America wanted?**
- How is the plug compatible interface documented / specified?

How to proceed

- Send me (Benno.List@desy.de) zipped STEP files
 - **Email: limit: 8MB for attachment**
 - **URL (ftp server, web server)**
 - **Dropbox**
- At the same time, provide a description:
 - **Name of the model**
 - **Description (about 2 sentences)**
 - **Author(s), Institute**
 - **Date**
- Files will be imported at DESY
- Coordinate system: vertical axis is y, beam axis is z
- Some iterations may be required (colors, hierarchy)
→ contact with our engineers (N. Welle, S. Sühl) can be provided



CAD models

- S1-Global CAD model?
- Is the T4CM model up to date?
- Quad package design from FNAL
- Dedicated models of Cavities, tuners?

- Can we prepare a complete CAD model of a piece of tunnel