Introduction to ExSight

V6
R2013X

About this Course

Course objectives

Upon completion of this course you will be able to:

- Create complete Finite Element models
- Run and monitor the simulations
- View and evaluate simulation results
- Perform structural simulations (such as effects of material nonlinearity, large deformation, and contact)

Targeted audience

Simulation Analysts

Prerequisites

None

16 hours

Day 1

- Lesson 1 — V6 Overview
- Workshop 1 — Navigating V6
- Lesson 2 — Meshing
- Workshop 2a — Intersecting Pipes – Mesh
- Workshop 2b — Pump – Mesh
- Workshop 2c — Reinforced Panel – Mesh
- Lesson 3 — Material and Section Properties
- Workshop 3a — Intersecting Pipes – Materials and Section Properties
- Workshop 3b — Pump – Materials and Section Properties
- Workshop 3c — Reinforced Panel – Materials and Section Properties
- Lesson 4 — Steps and Static Simulations
- Workshop 4a — Intersecting Pipes – Step Definition and Loads
- Workshop 4b — Intersecting Pipes – Submission and Postprocessing

Day 2

Lesson 5	Loads, Restraints and Initial Conditions
Workshop 5a	Pump – Step Definition and Loads
Workshop 5b	Reinforced Panel – Step Definition and Loads
Lesson 6	Connections, Interactions and Rigid Bodies
Workshop 6a	Pump – Connections and Interactions
Workshop 6b	Reinforced Panel – Connections, Submission and Postprocessing
Lesson 7	Submitting and Postprocessing
Workshop 7	Pump – Submission and Postprocessing
Lesson 8	Dynamic Simulations
Workshop 8a	Vibrating Cantilevered Plate
Workshop 8b	Forming of a Channel
Workshop 8c	Pipe Whip
Lesson 9	Heat Transfer
Workshop 9	Pump – Thermal Analysis

Additional Material

- Appendix 1 Element Selection Criteria

Legal Notices

Revision Status

Lesson 1	12/12	Updated for R2013x
Lesson 2	12/12	Updated for R2013x
Lesson 3	12/12	Updated for R2013x
Lesson 4	12/12	Updated for R2013x
Lesson 5	12/12	Updated for R2013x
Lesson 6	12/12	Updated for R2013x
Lesson 7	12/12	Updated for R2013x
Lesson 8	12/12	Updated for R2013x
Lesson 9	12/12	New for R2013x
Appendix 1	12/12	Updated for R2013x

Workshop 1	12/12	Updated for R2013x
Workshop 2a	12/12	Updated for R2013x
Workshop 2b	12/12	Updated for R2013x
Workshop 2c	12/12	Updated for R2013x
Workshop 3a	12/12	Updated for R2013x
Workshop 3b	12/12	Updated for R2013x
Workshop 4a	12/12	Updated for R2013x
Workshop 4b	12/12	Updated for R2013x
Workshop 4c	12/12	Updated for R2013x
Workshop 5a	12/12	Updated for R2013x
Workshop 5b	12/12	Updated for R2013x
Workshop 5c	12/12	Updated for R2013x
Workshop 6a	12/12	Updated for R2013x
Workshop 6b	12/12	Updated for R2013x
Workshop 7a	12/12	Updated for R2013x
Workshop 7b	12/12	Updated for R2013x
Workshop 8a	12/12	Updated for R2013x
Workshop 8b	12/12	Updated for R2013x
Workshop 8c	12/12	New for R2013x
Workshop 9	12/12	New for R2013x

Lesson 1: V6 Overview

Lesson content:

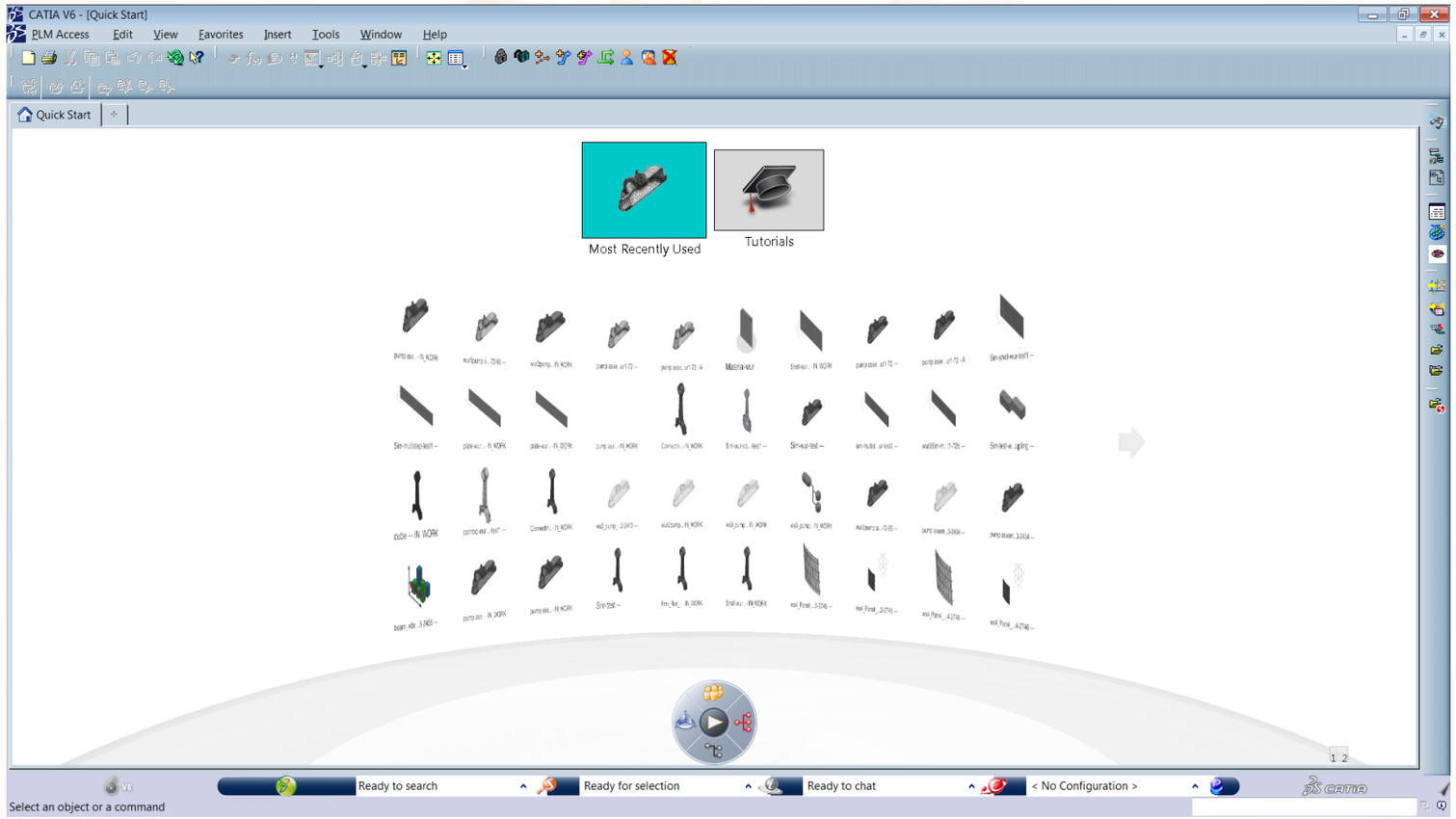
- What is PLM?
- What is V6?
- Working with the V6 Database
- Connecting to V6
- Selecting the Security Context and Roles
- Understanding the V6 User Interface
- Using the Navigation Tools
- Exploring the V6 Objects
- Authoring the Objects
- Importing and Exporting Data
- Saving Data
- Understanding Simulation Workbenches in V6
- Working with the ExSight Workbenches
- Understanding the Simulation Capabilities in ExSight
- Understanding Conventions in ExSight
- Workshop 1

1 hour

Workshop 1: Navigating through V6

In this workshop you will learn to navigate through the V6 platform. After completion of this exercise, you will be able to:

a. Connect to a V6 database
b. Use basic V6 navigation tools



30 minutes

Lesson 2: Meshing (1/2)

Lesson content:

- Introduction to Meshing in V6
- Workflow Overview
- Creating a New Finite Element Model Representation
- The Advanced Meshing Workbench Layout
- Generating Meshes in ExSight
- The Octree Meshers
- Creating Octree Tetrahedron Meshes
- Creating Octree Triangle Meshes
- Creating Surface Meshes
- Working with the Surface Mesher
- Using the Surface Rules Mesher
- More on Creating 3D Solid Meshes
- Generating Sweep 3D Meshes
- Creating Tetrahedron Filler Meshes

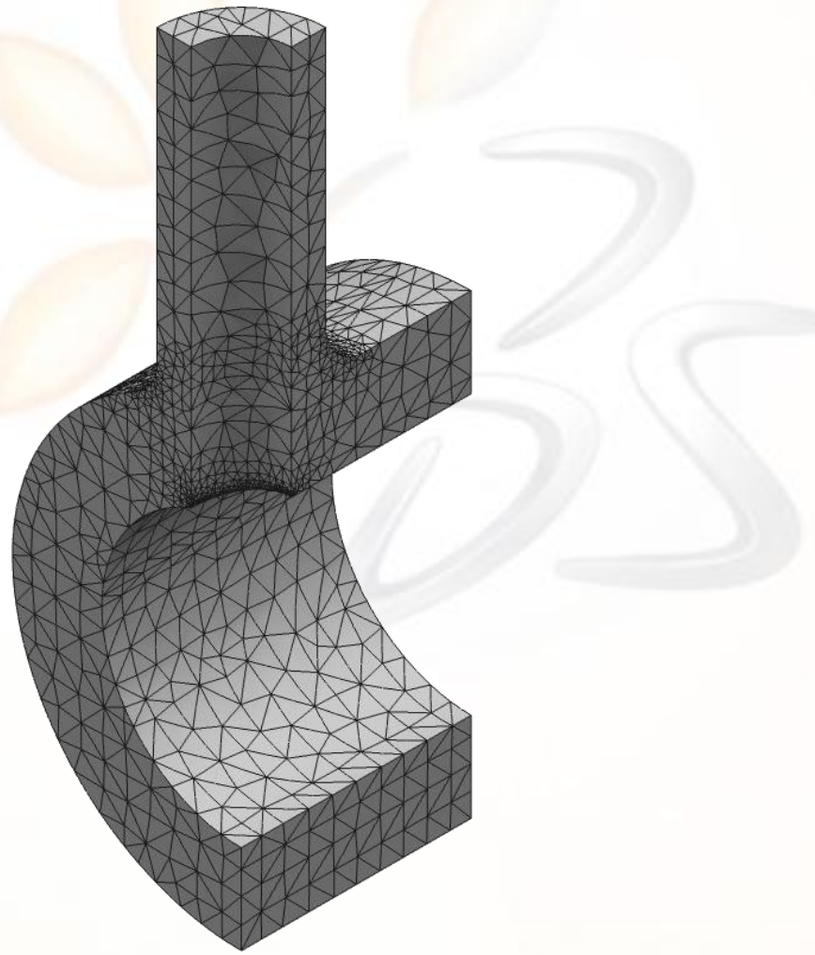
1 hour

Workshop 2a: Intersecting Pipes – Mesh

In this workshop, you will create a good quality tetrahedral mesh on the three-dimensional intersecting pipe model.

After completion of this exercise, you will be able to:

a. Open the ExSight workbench and create a Finite Element Model Representation
b. Create a good quality tetrahedral mesh on a solid geometry



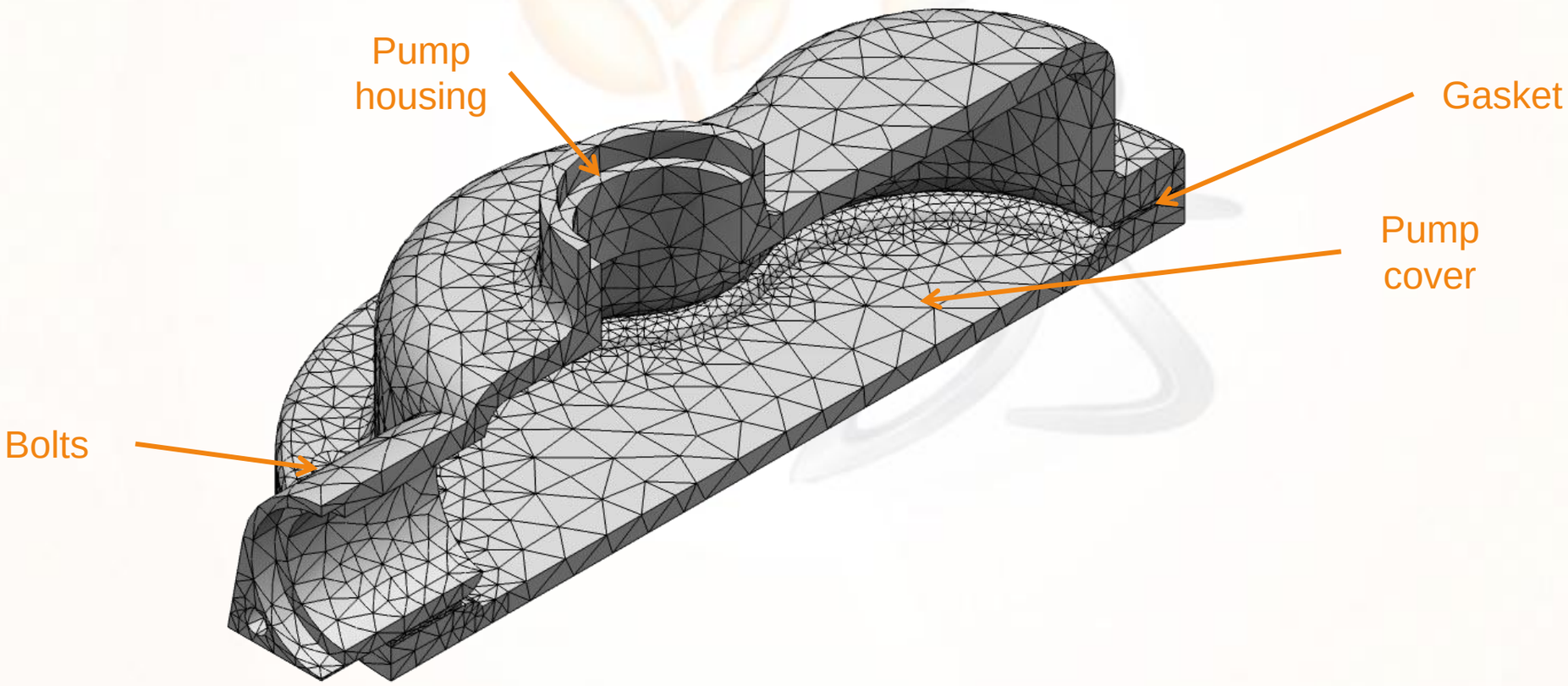
20 minutes

Workshop 2b: Pump – Mesh

In this workshop you will create a Finite Element Mesh Representation for the pump assembly. You will mesh each part with tetrahedral elements.

After completion of this exercise, you will be able to:

a. Create an ExSight simulation for a CATIA Product
b. Create a Finite Element Mesh Representation
c. Mesh the different parts of an assembly with tetrahedral elements



30 minutes