

CD adapco Group

CAD/CFD Integration

TFAWS 2003

Chris Connor



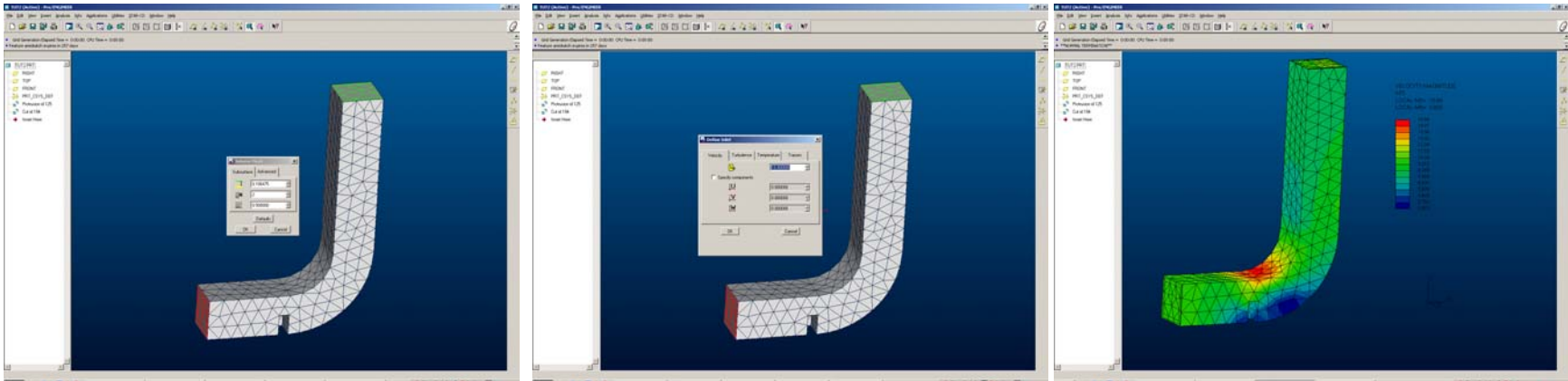
Overview

- CAD & CFD Integration
- Comet-Design & Star-Design

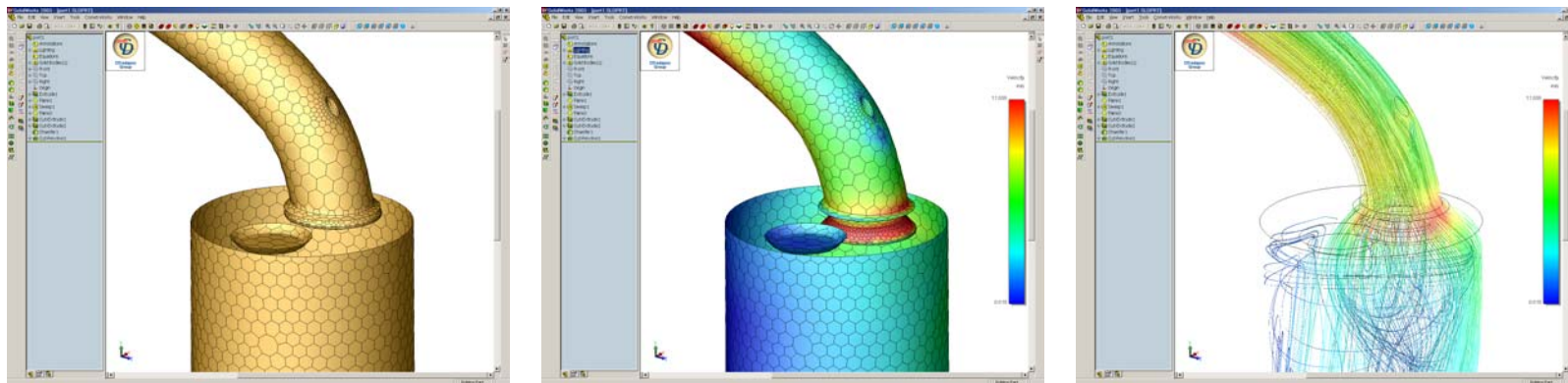
ALL THE TOOLS, ONE SIMPLE INTERFACE!

Meshing and CFD Integration with Existing CAD Packages

Pro/E: **Star-Pro/E, Comet-Pro/E**



SolidWorks: **Star-Works, Comet-Works**



Comet-Design & STAR-Design

The functions behind the scenes ...

Comet-Design:

- Solid modeling: **pro-cad**
- Surface prep and triangulation: **pro-surf**
- Volume meshing: **pro-volume** and **pro-am**
- Solver: **Comet** (tet/hex/trim/poly)
- Visualization: **pro-vis**

STAR-Design:

- Solid modeling: **pro-cad**
- Surface prep and triangulation: **pro-surf**
- Volume meshing: **pro-volume** and **pro-am**
- Solver: **Star** (tet/hex/trim)
- Visualization: **pro-vis**

“pro” tools

All “pro” tools are CD-adapco Group products, designed to provide complete Computer Aided Engineering solutions:

pro-cad

- Solid modeling package based on the Parasolid kernal (as is UG, SolidWorks, and others)
- Solids built as primitives
- Allows parametric design & re-design
- Exports IGES and .x_t Parasolid files

“pro” tools

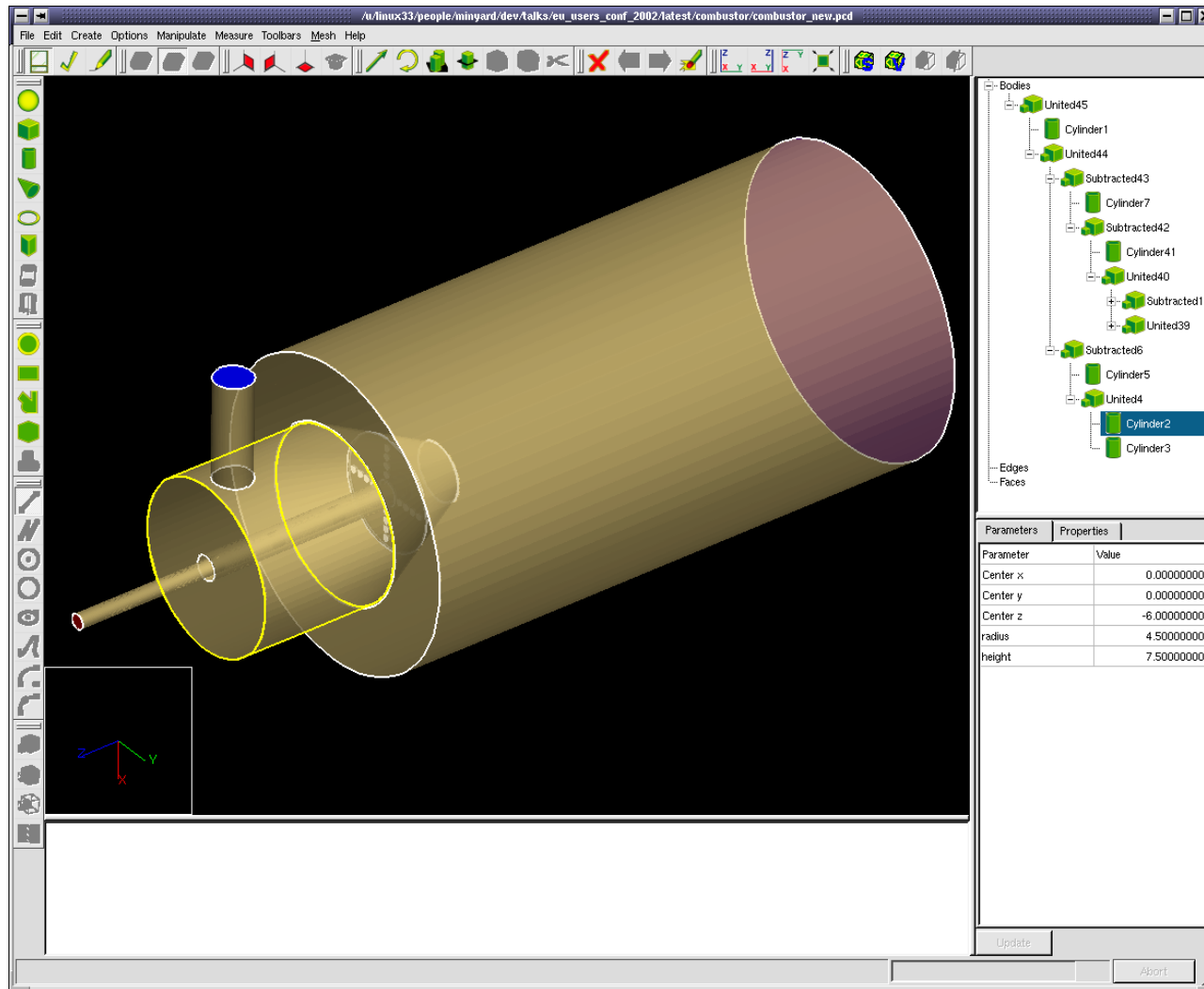
All “pro” tools are CD-adapco Group products, designed to provide complete Computer Aided Engineering solutions:

pro-volume: tetrahedral and polyhedral mesh generator

pro-am: automated trim mesh generator

pro-vis: object oriented post-processing and visualization tool

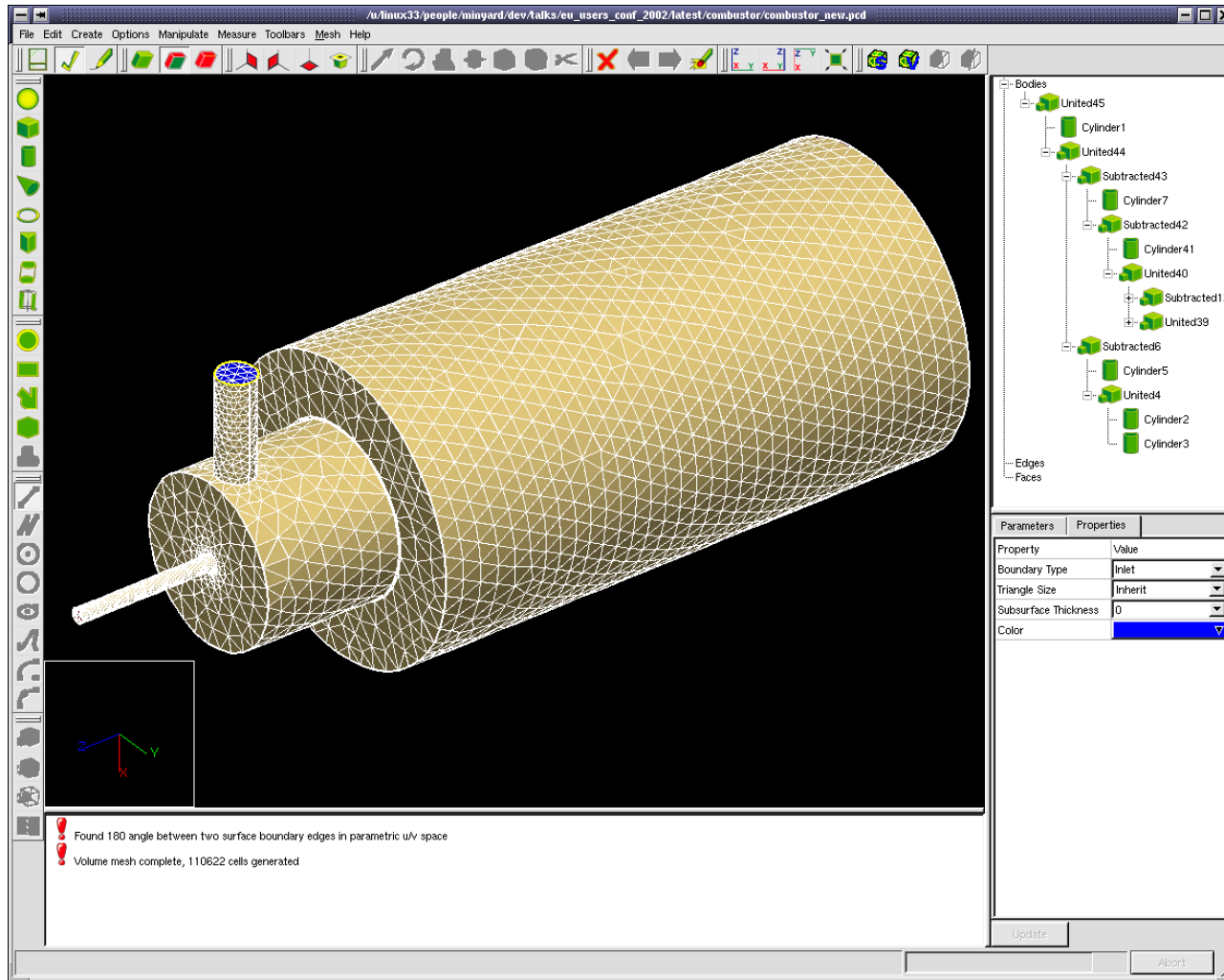
STAR-Design/Comet-Design: Solid Model



pro-cad

Path to tetrahedral mesh

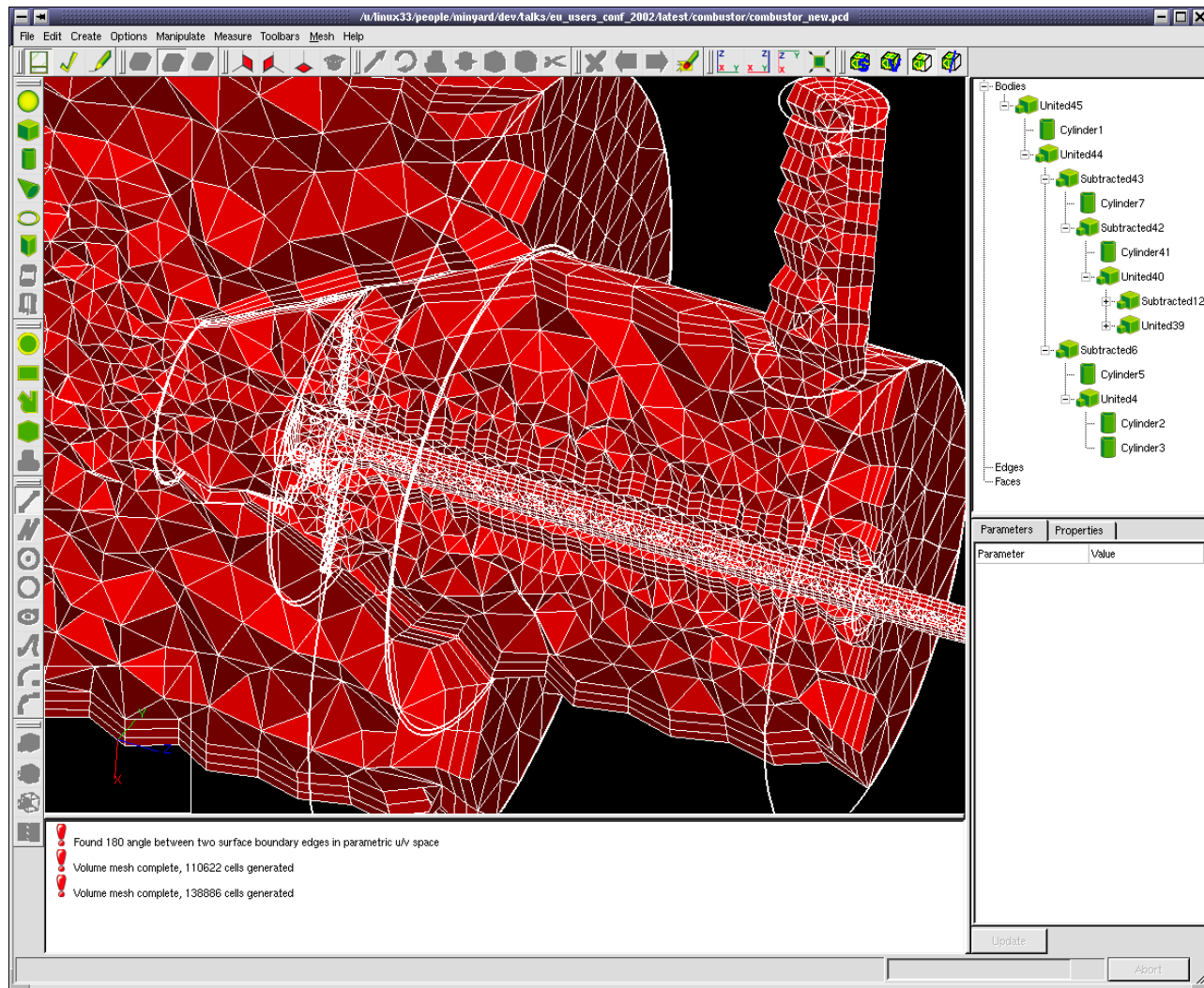
STAR-Design/Comet-Design: Surface Generation



pro-surf

Path to tetrahedral mesh

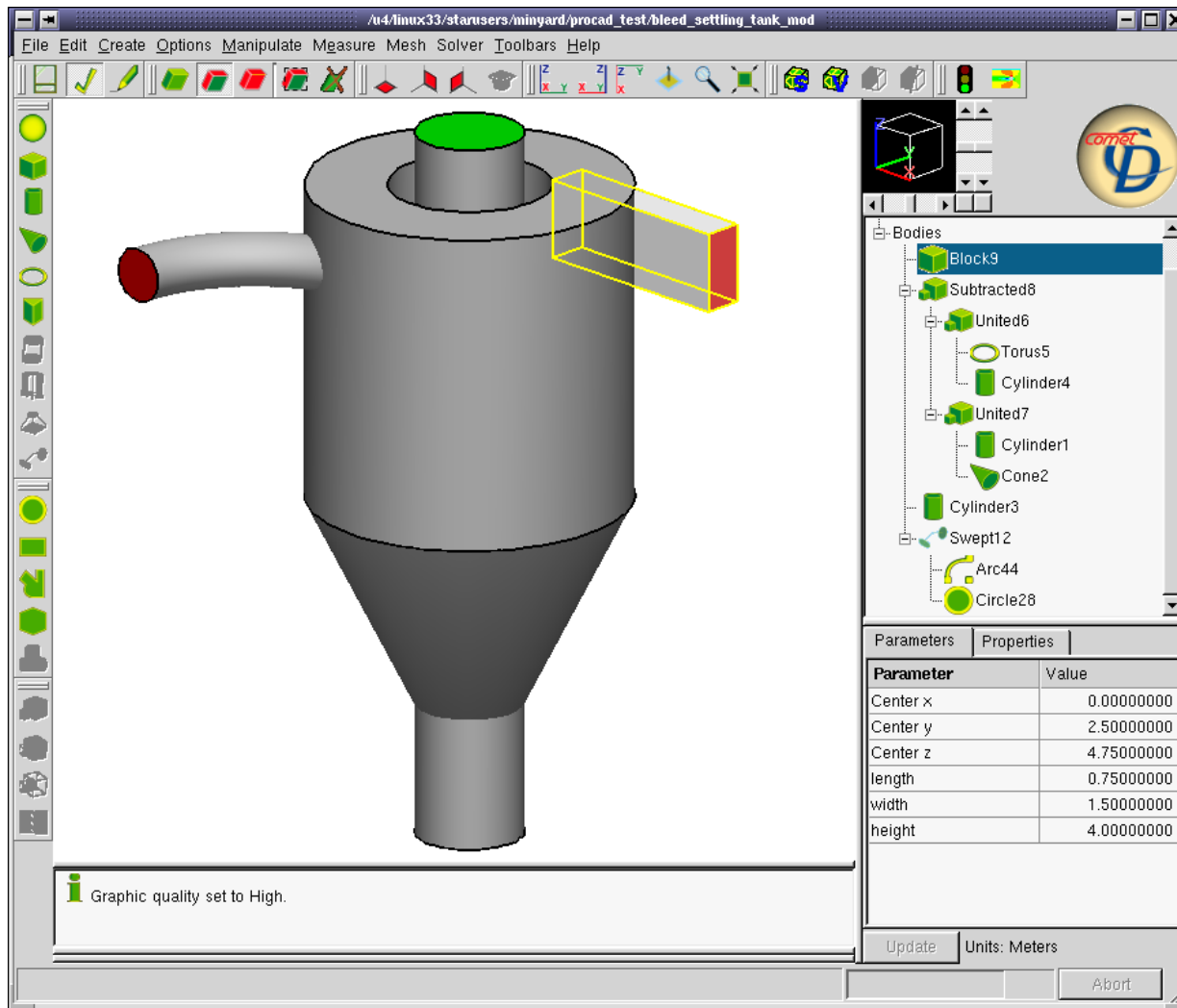
STAR-Design/Comet-Design: Volume Mesh



pro-volume

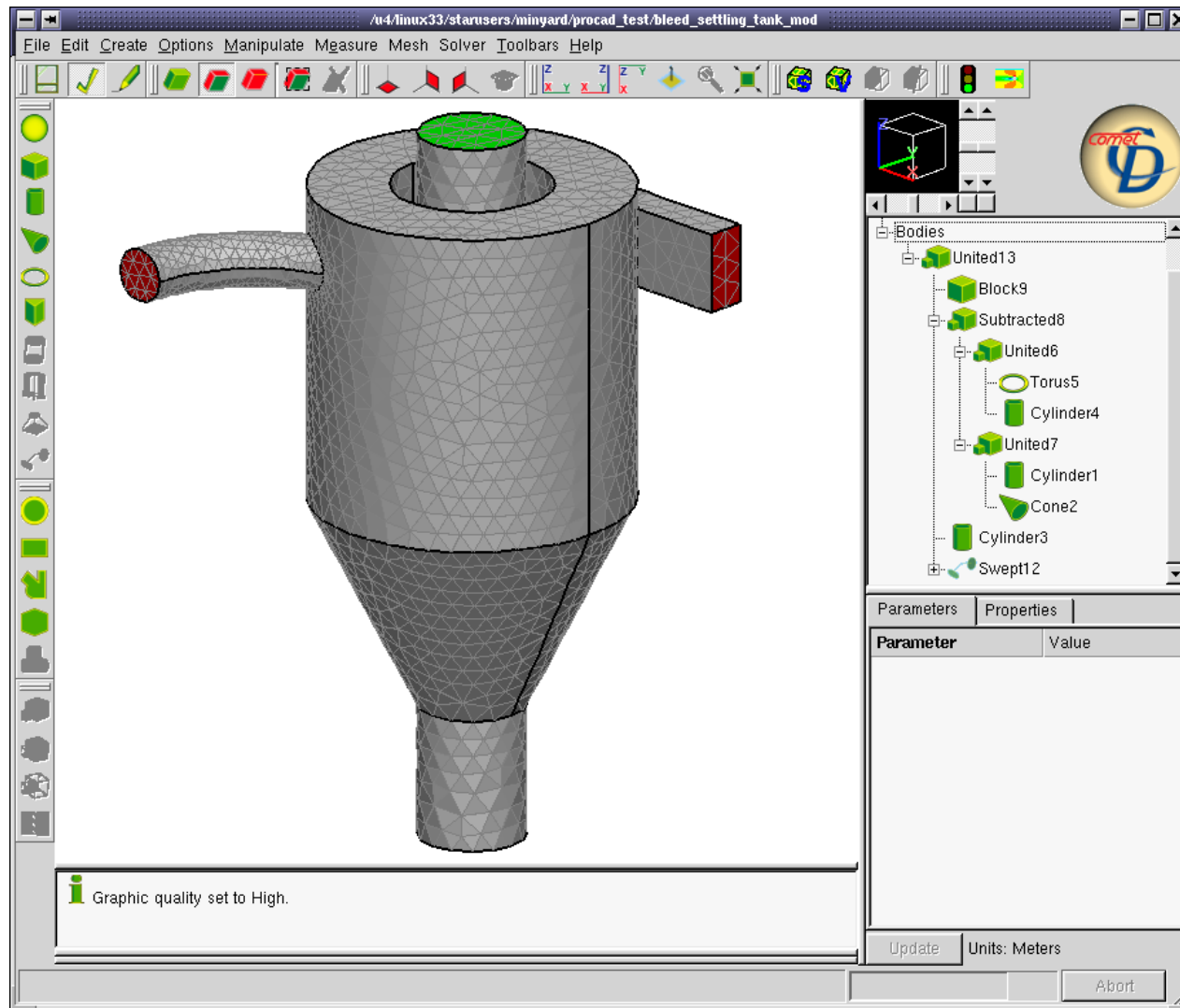
Path to tetrahedral mesh

STAR-Design/Comet-Design: Solid Model



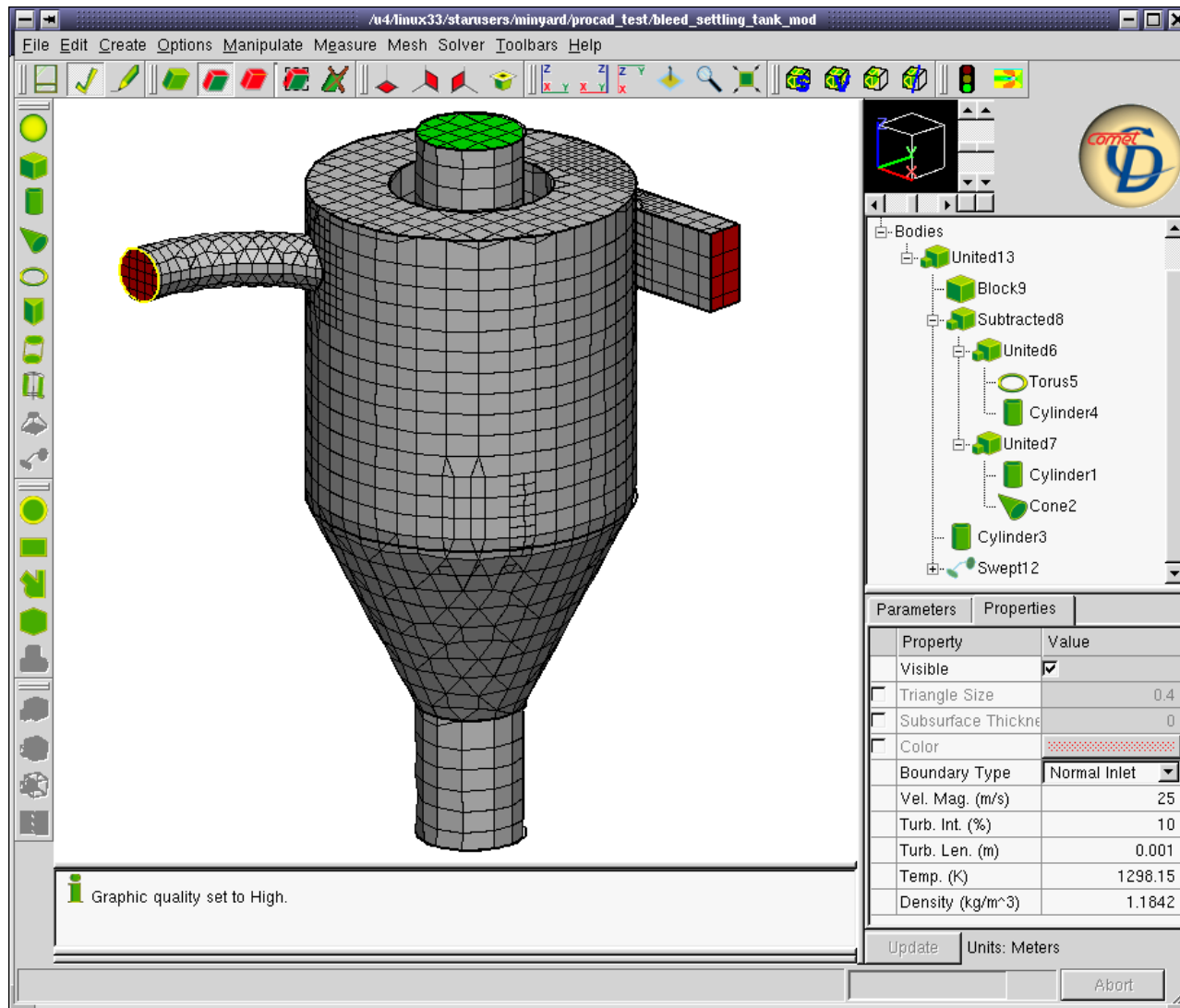
pro-cad

STAR-Design/Comet-Design: Surface Mesh



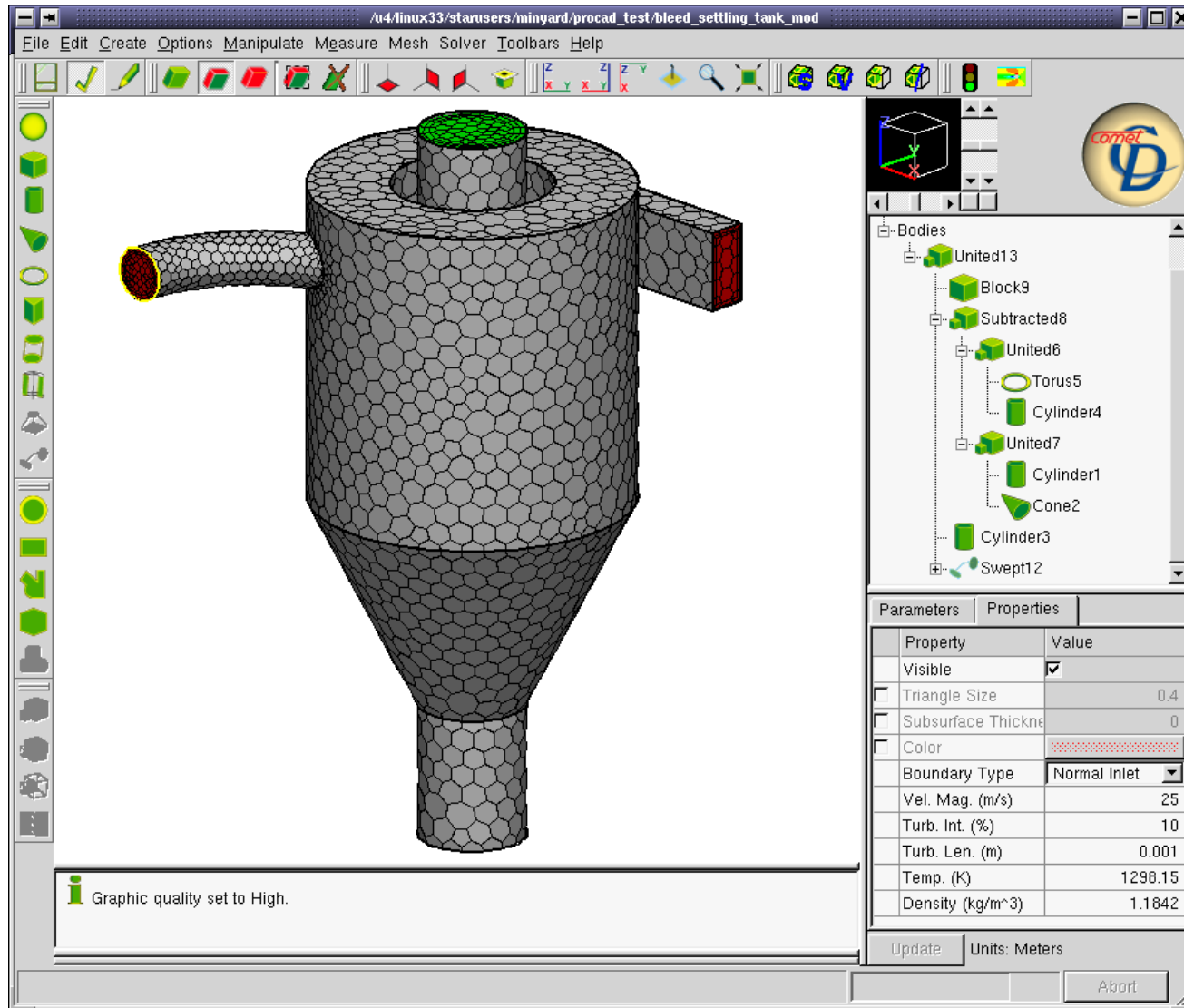
pro-surf

STAR-Design/Comet-Design: Trim Mesh



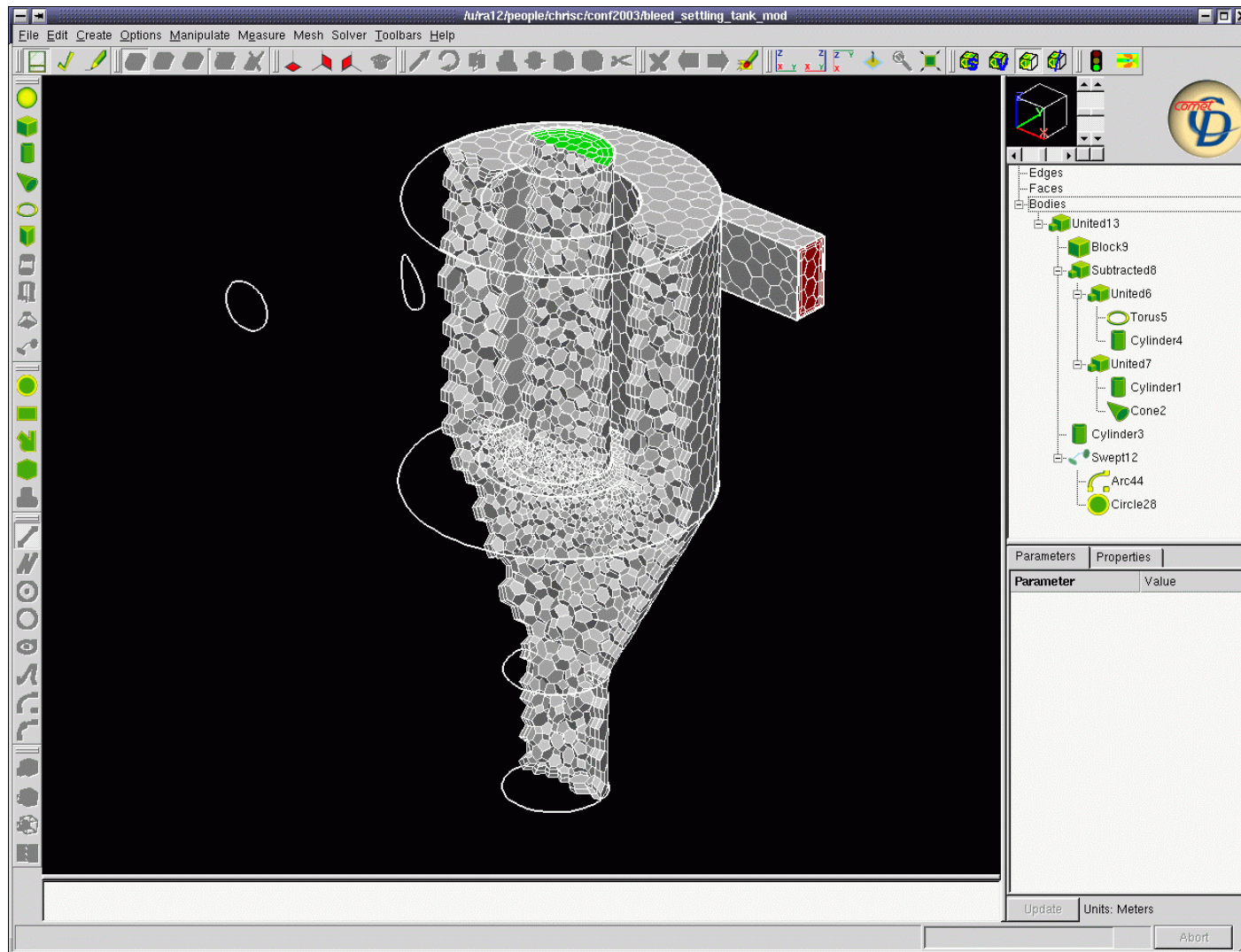
pro-am

Comet-Design: Polyhedral Volume Mesh



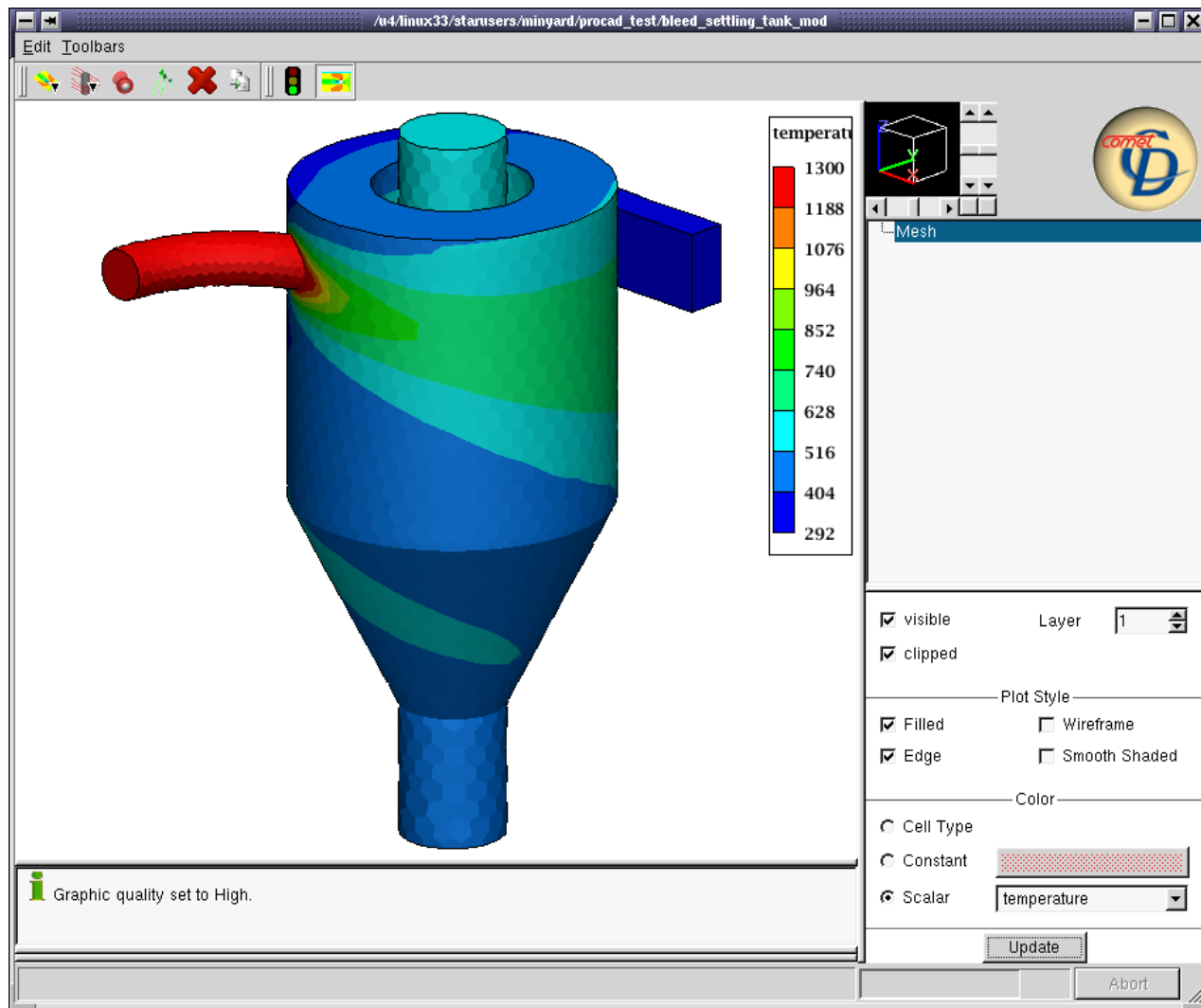
pro-volume

Comet-Design: Polyhedral Mesh



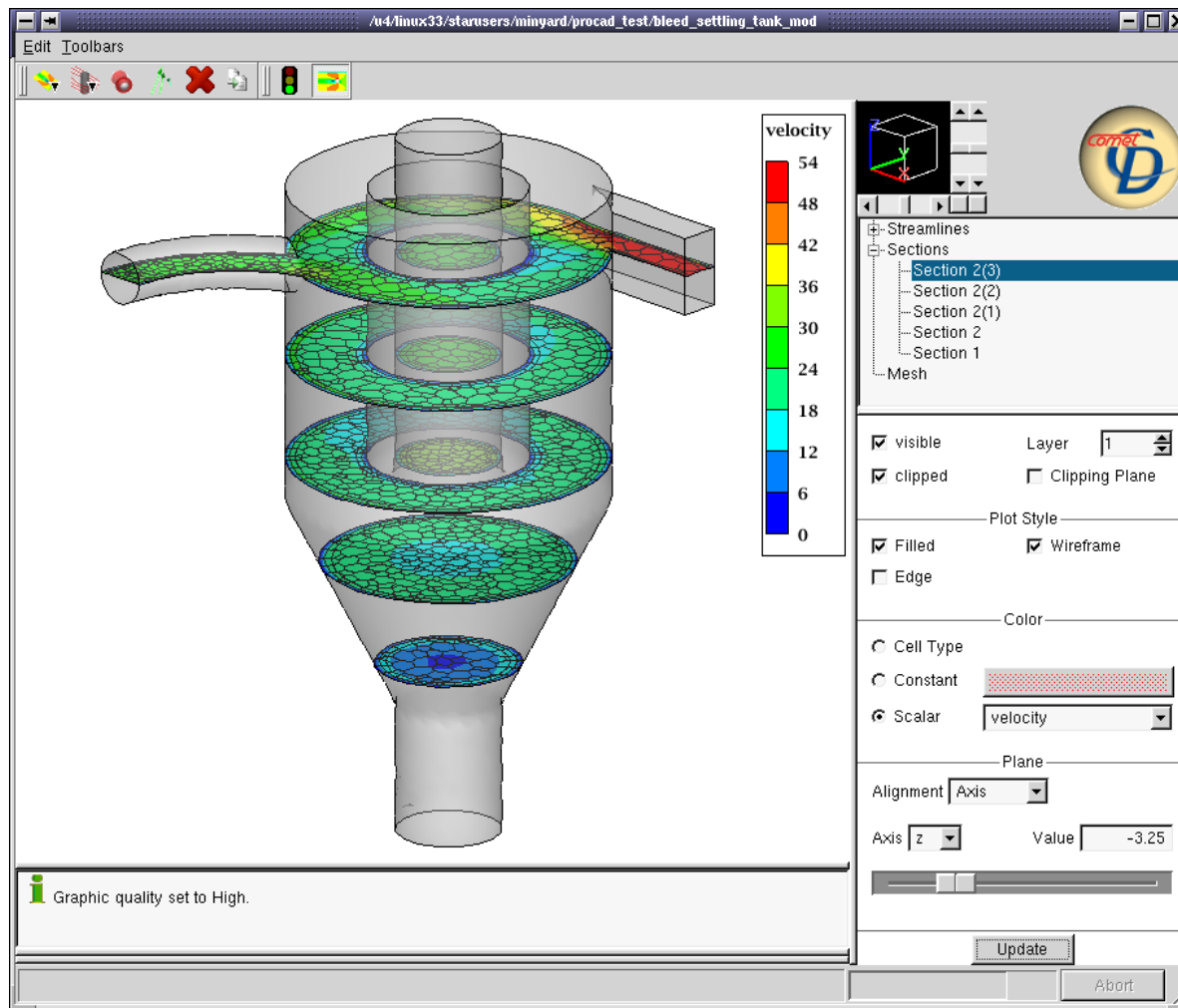
pro-volume

STAR-Design/Comet-Design: Visualization



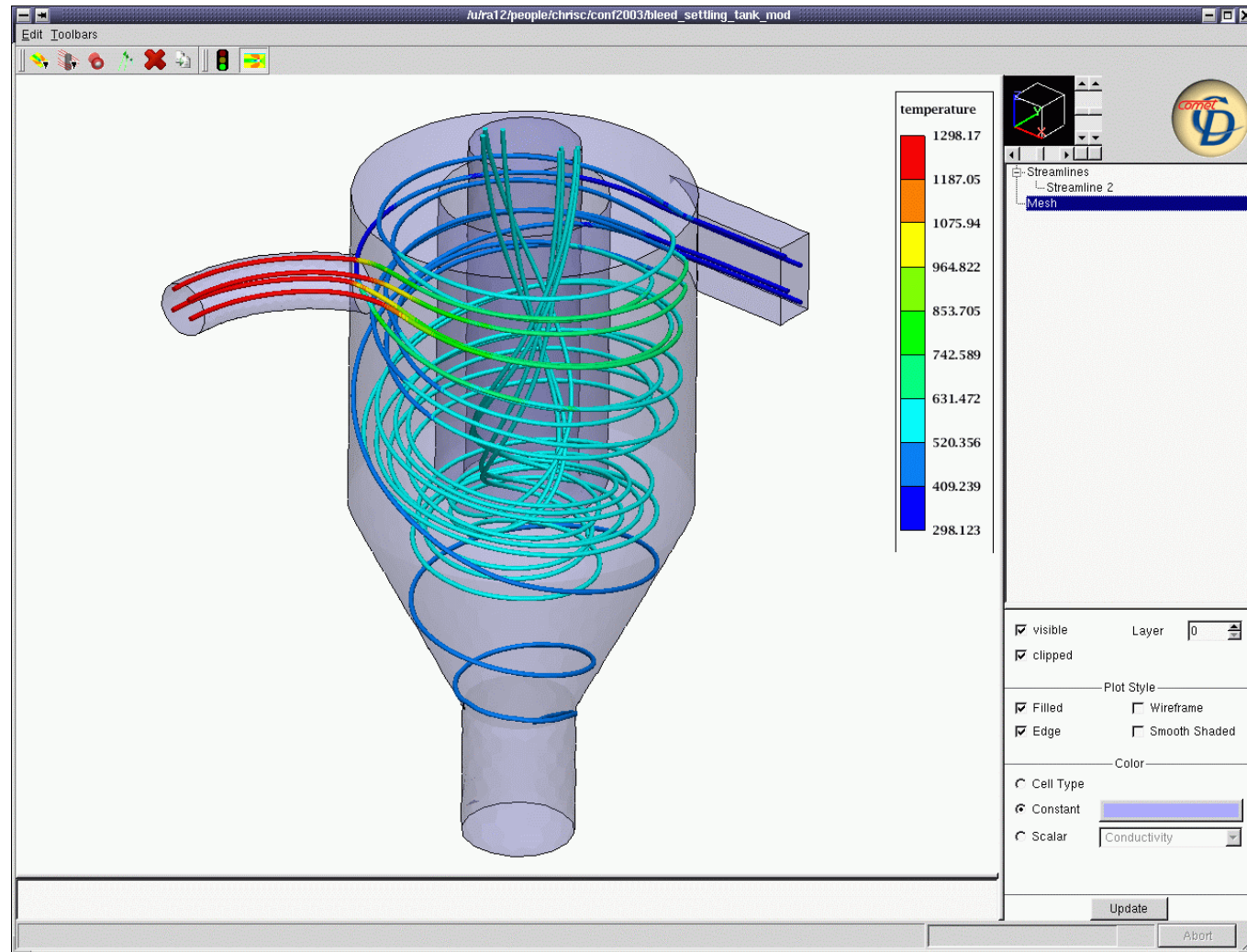
pro-vis

STAR-Design/Comet-Design: Visualization



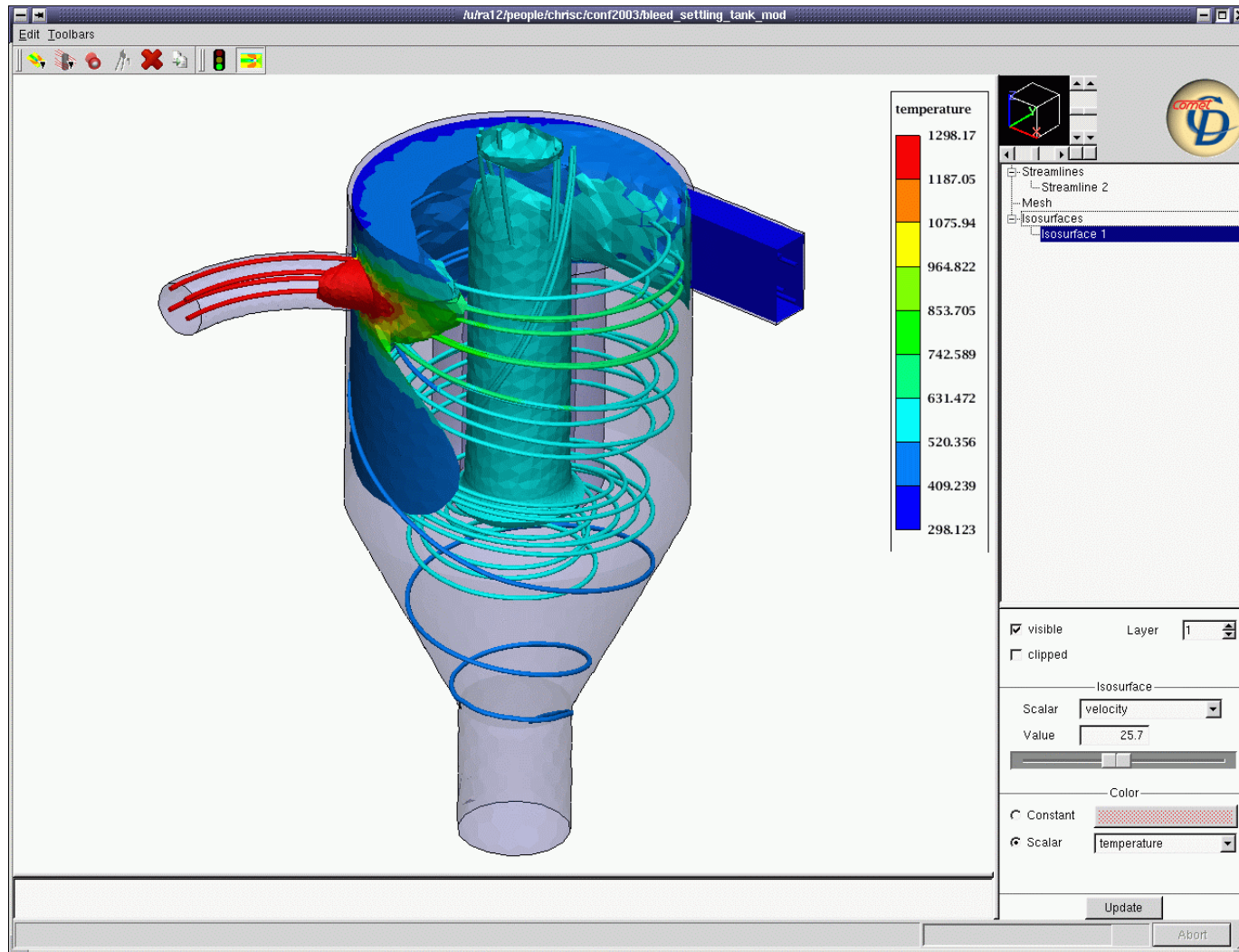
pro-vis

STAR-Design/Comet-Design: Visualization



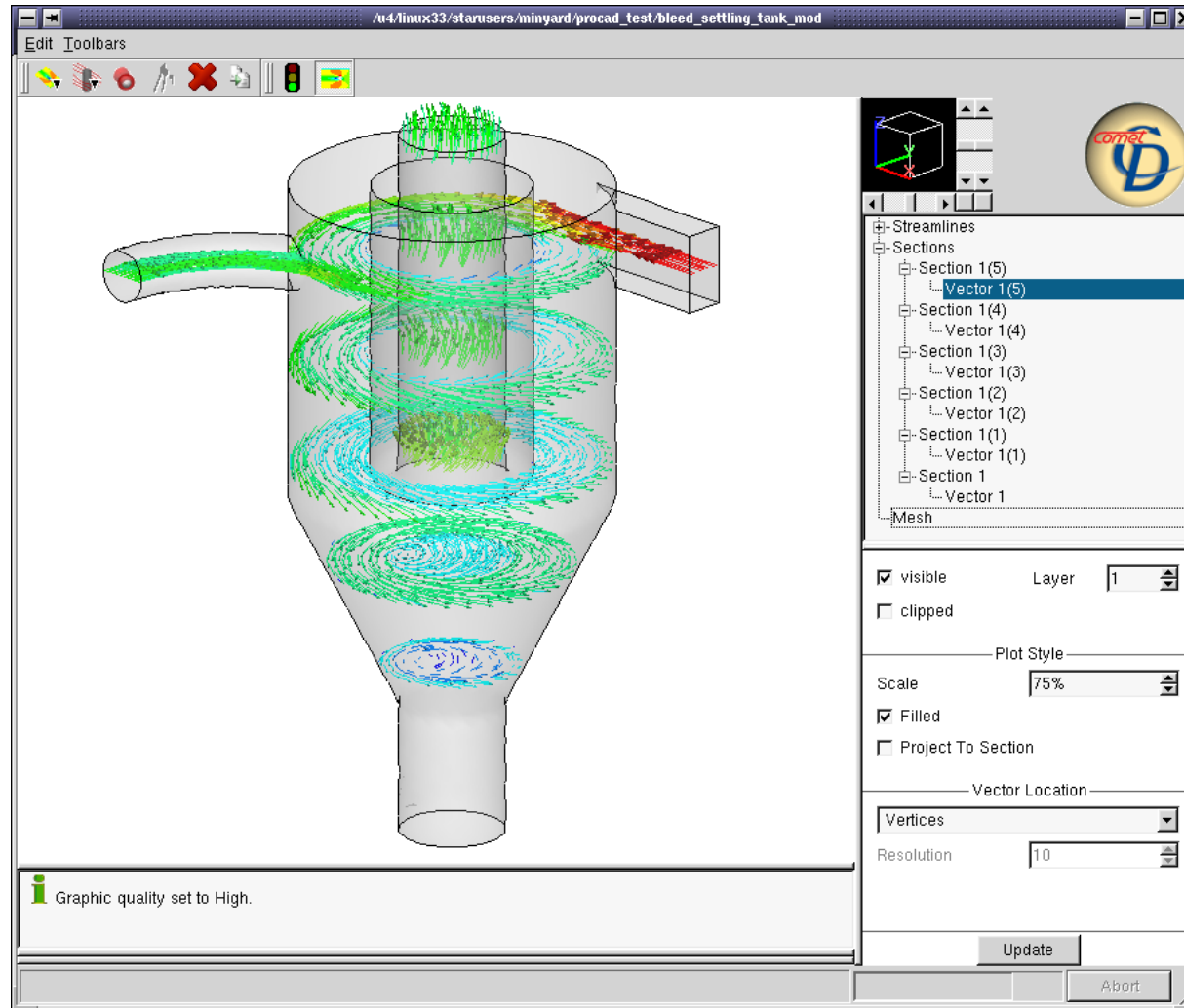
pro-vis

STAR-Design/Comet-Design: Visualization



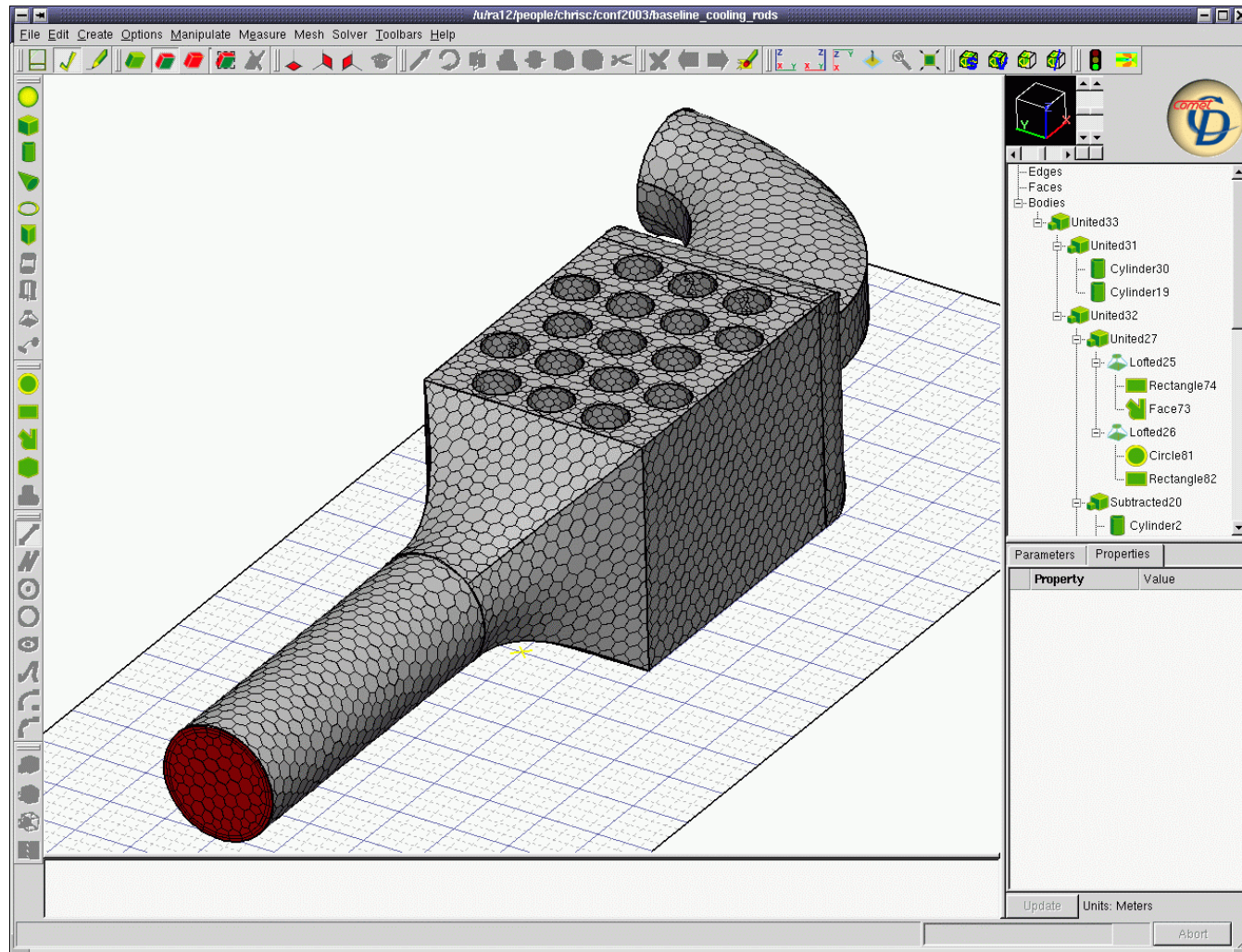
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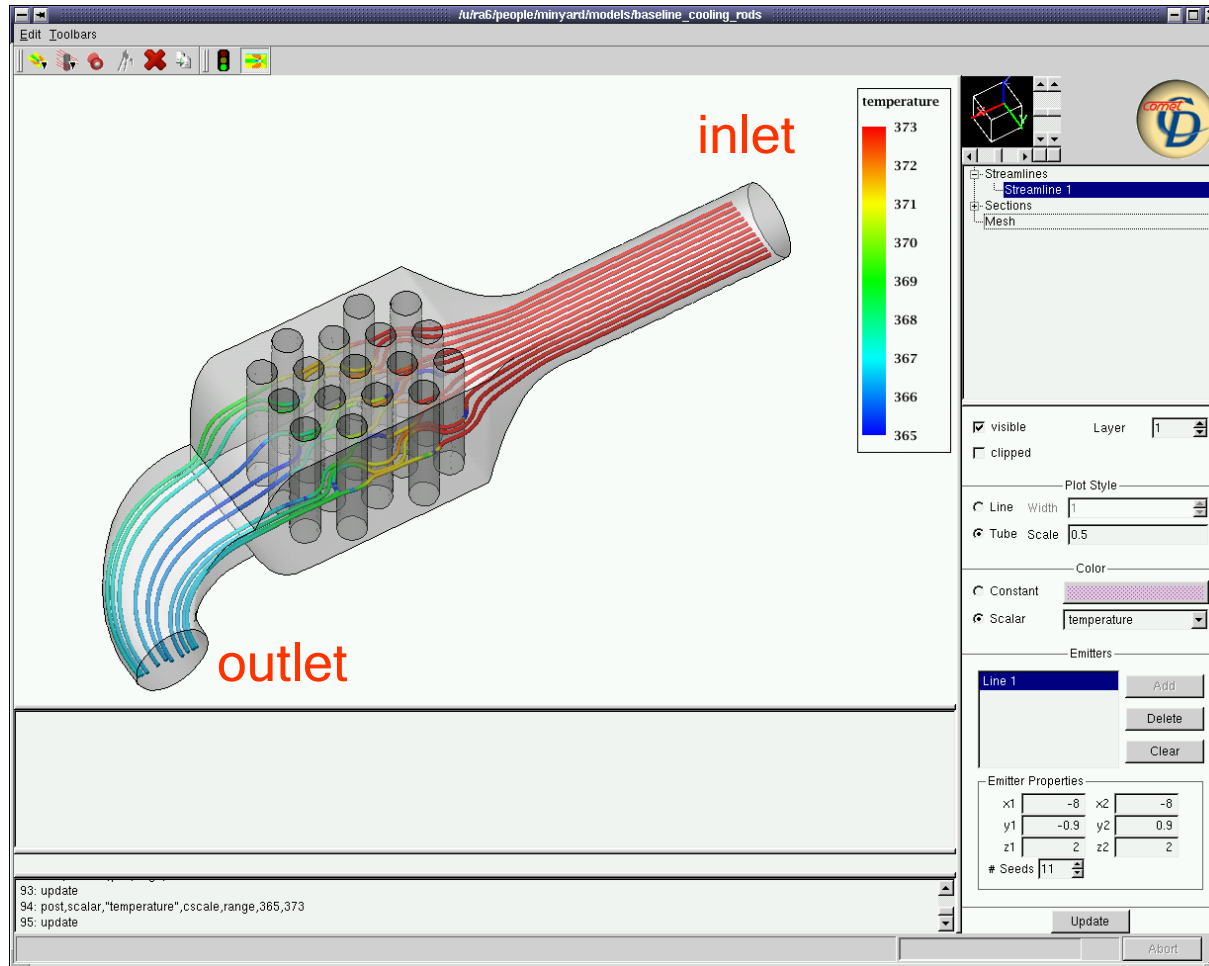
pro-vis

Comet-Design: Polyhedral Volume Mesh



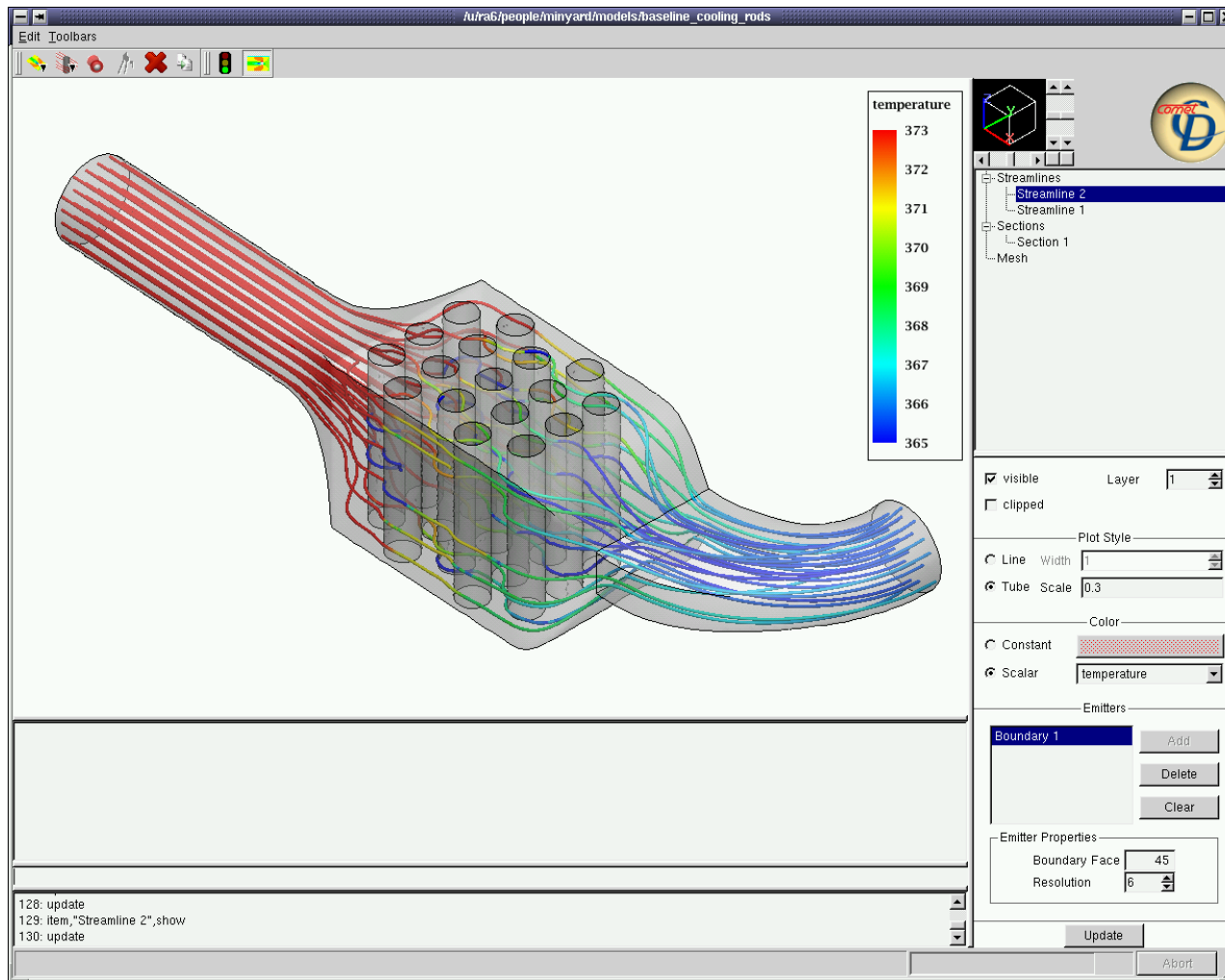
pro-volume

STAR-Design/Comet-Design: Visualization



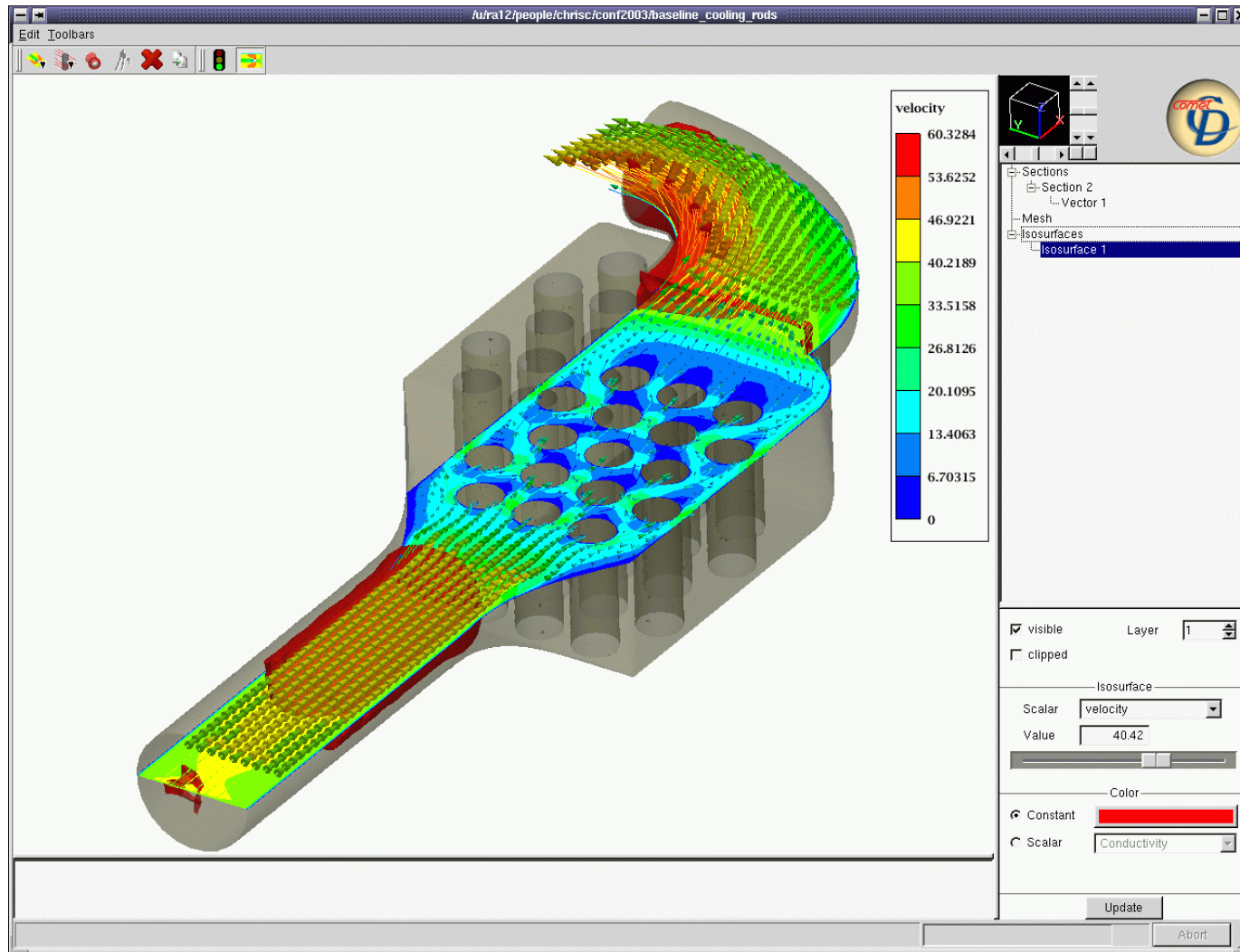
pro-vis

STAR-Design/Comet-Design: Visualization



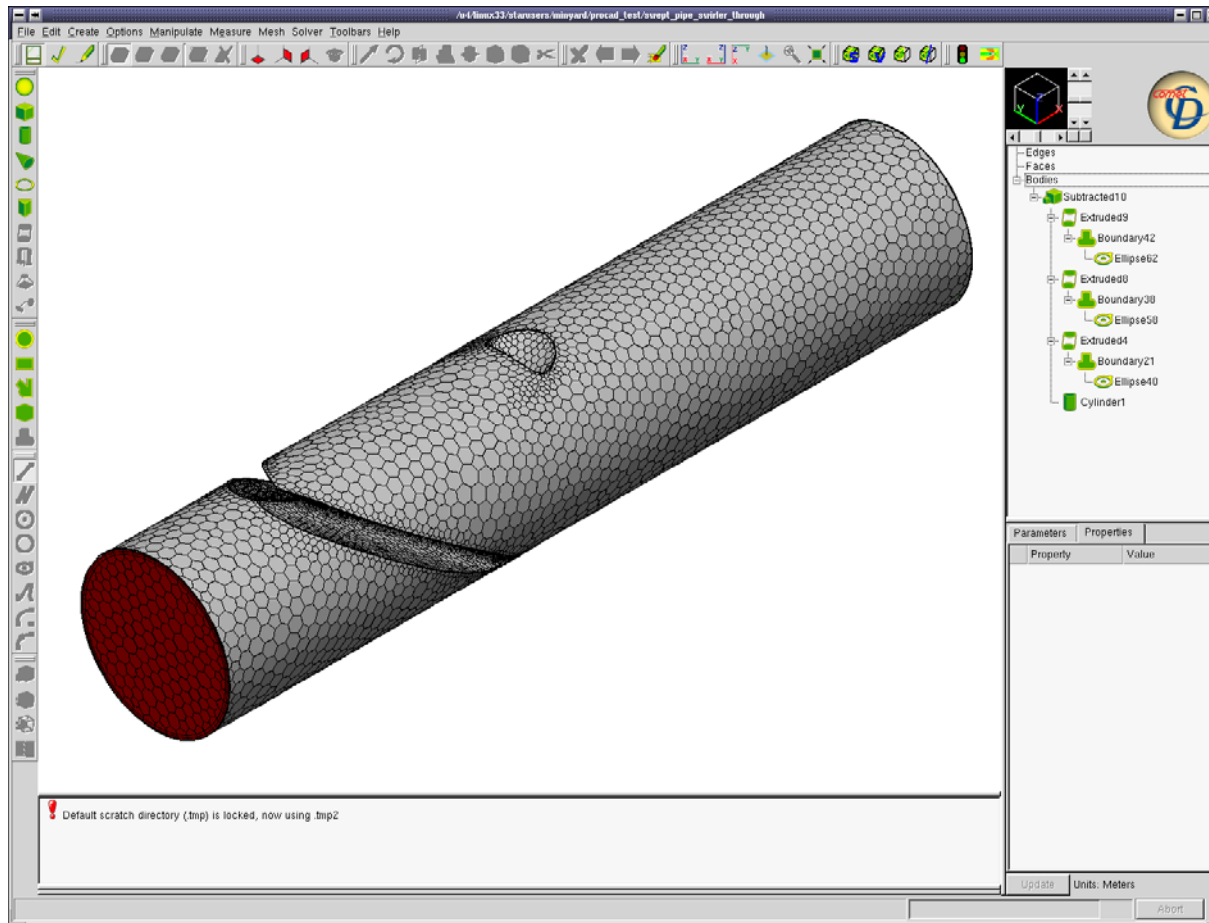
pro-vis

STAR-Design/Comet-Design: Visualization



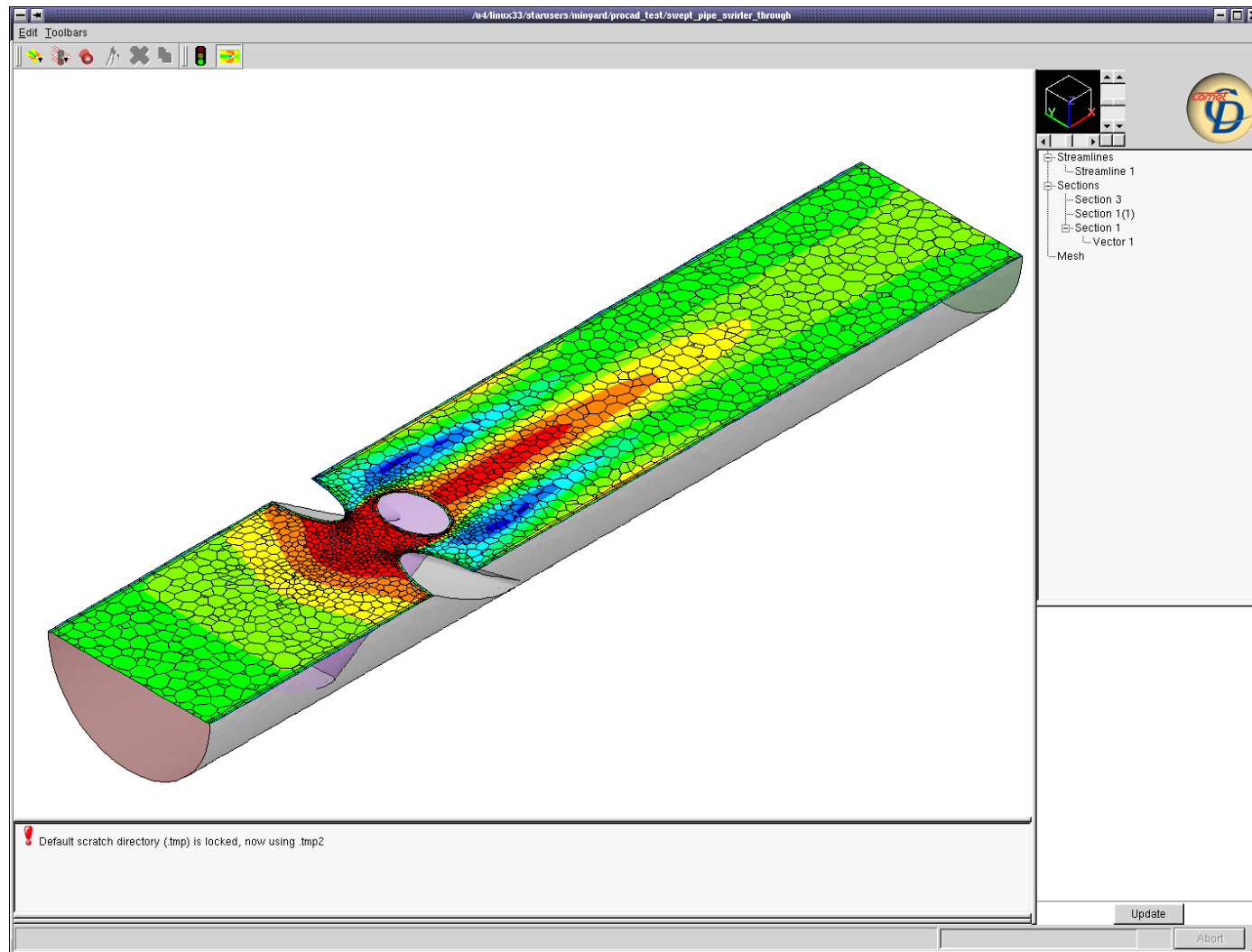
pro-vis

Comet-Design: Polyhedral Volume Mesh



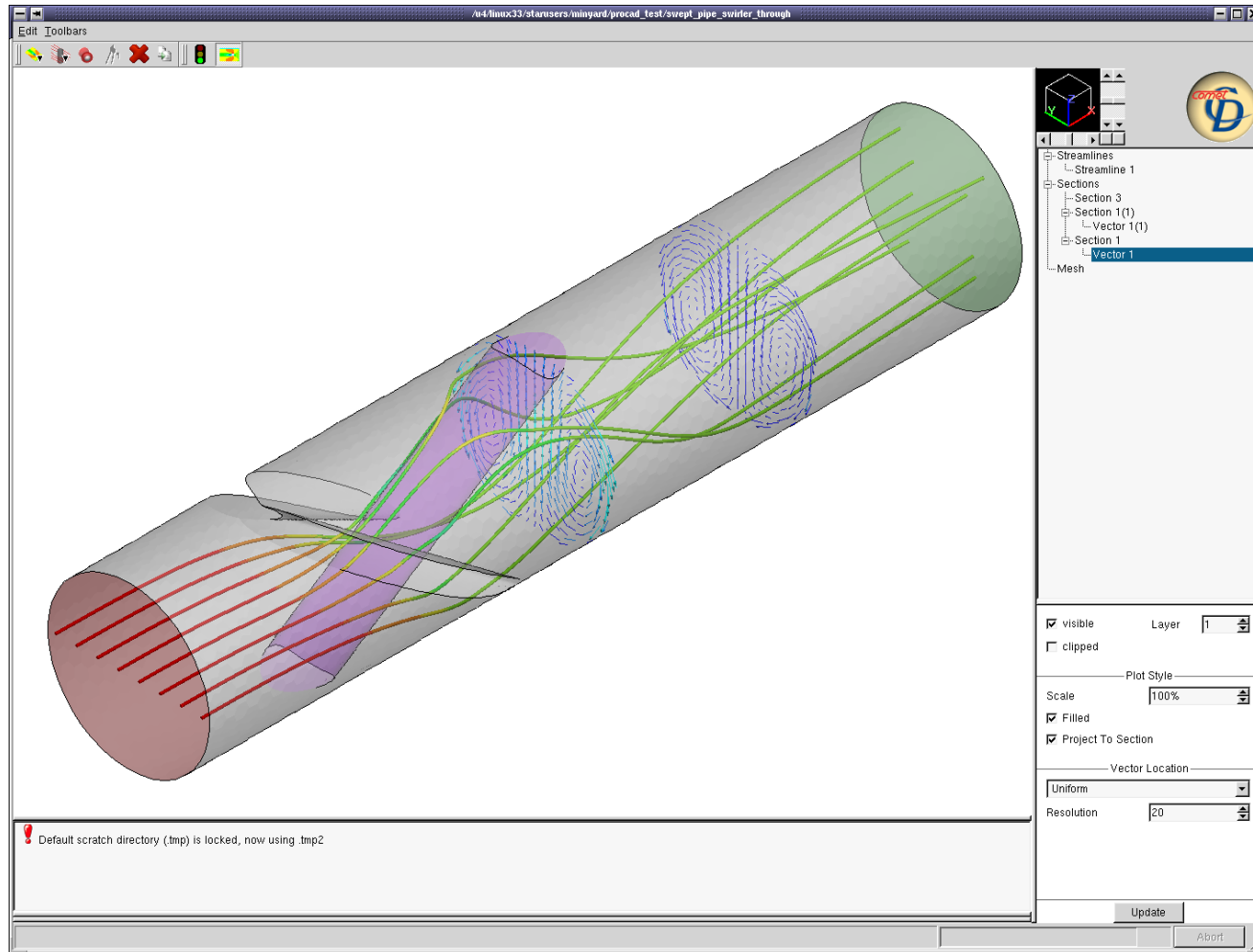
pro-volume

STAR-Design/Comet-Design: Visualization



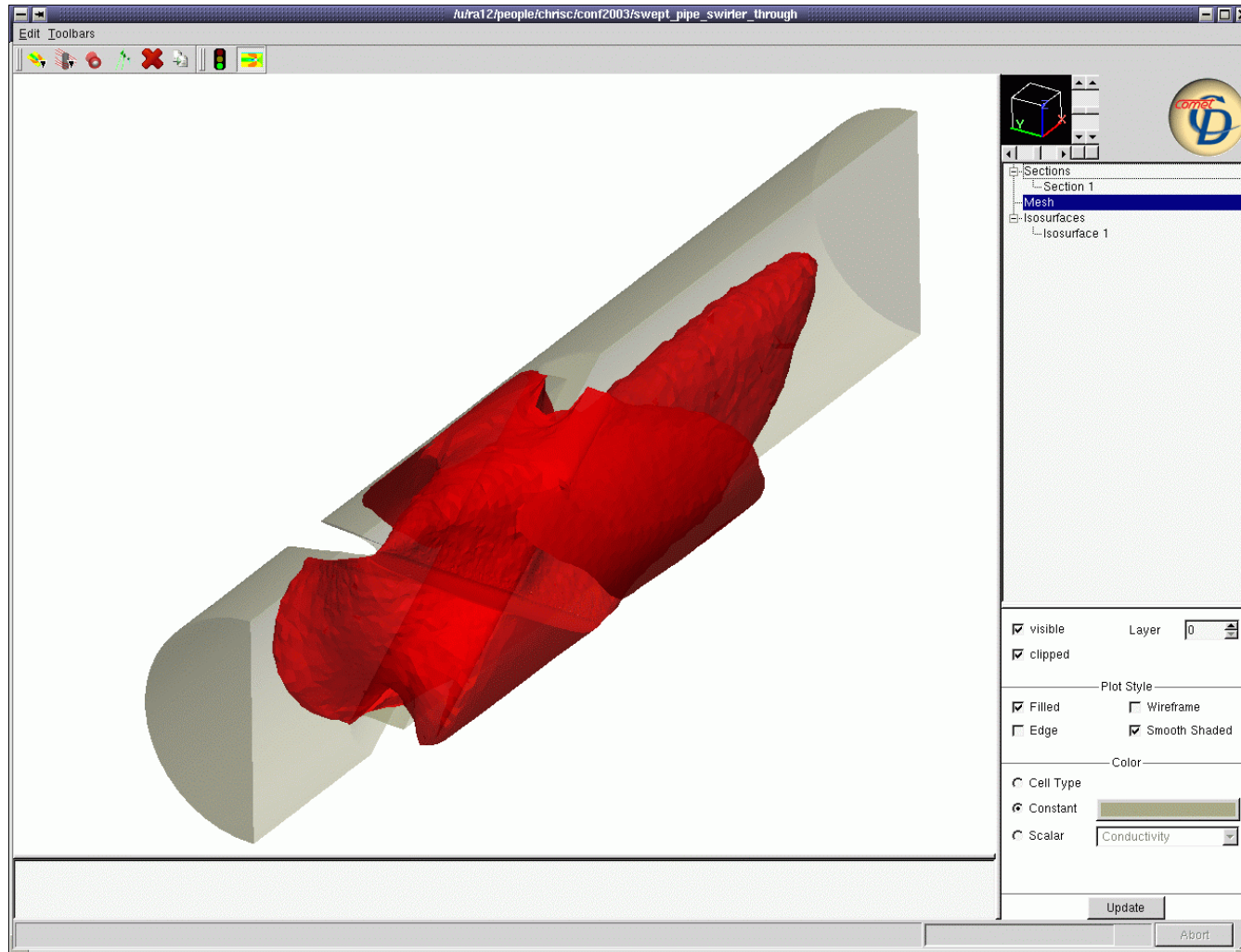
pro-vis

STAR-Design/Comet-Design: Visualization



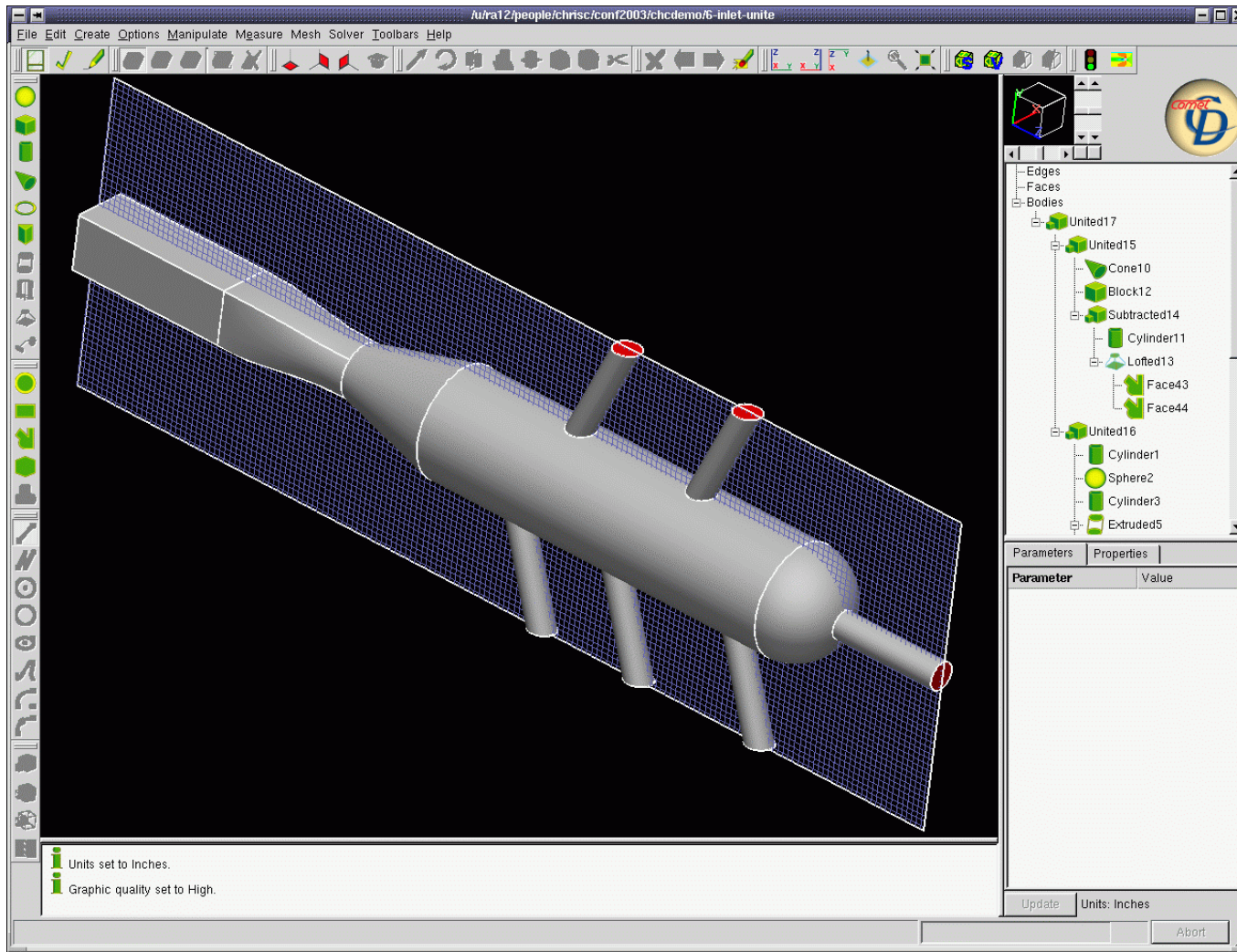
pro-vis

STAR-Design/Comet-Design: Visualization



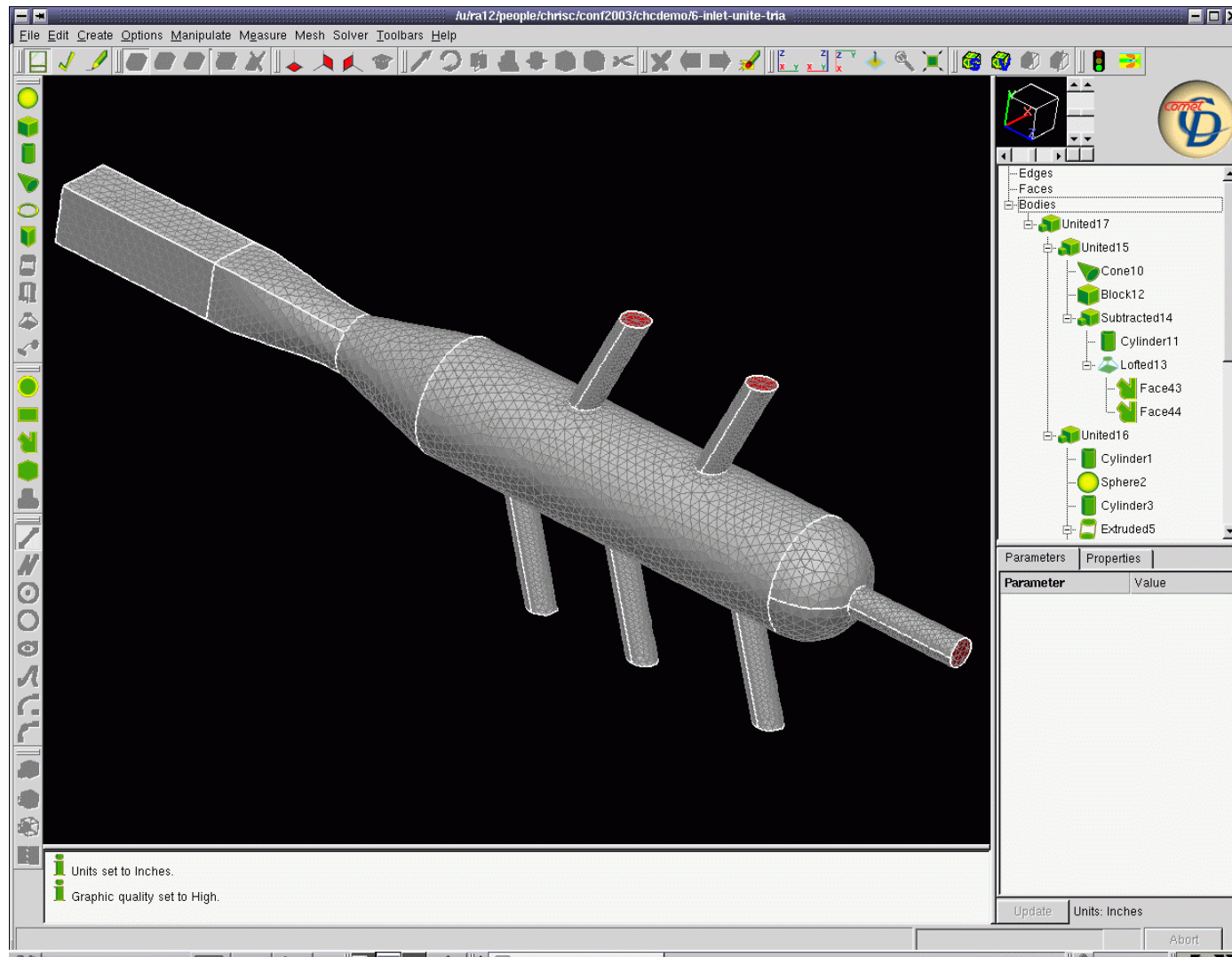
pro-vis

STAR-Design/Comet-Design: Solid Model



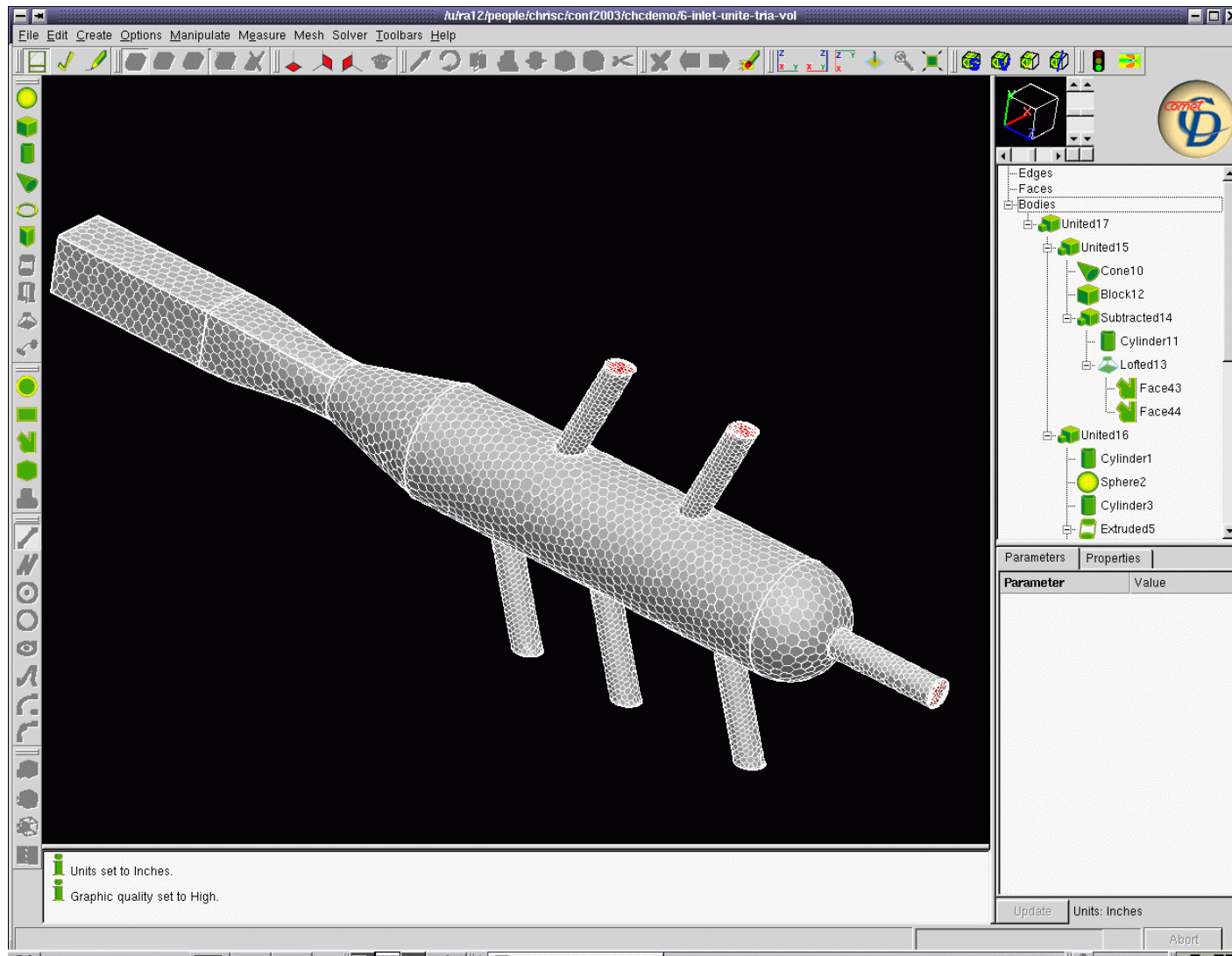
pro-cad

STAR-Design/Comet-Design: Surface Mesh



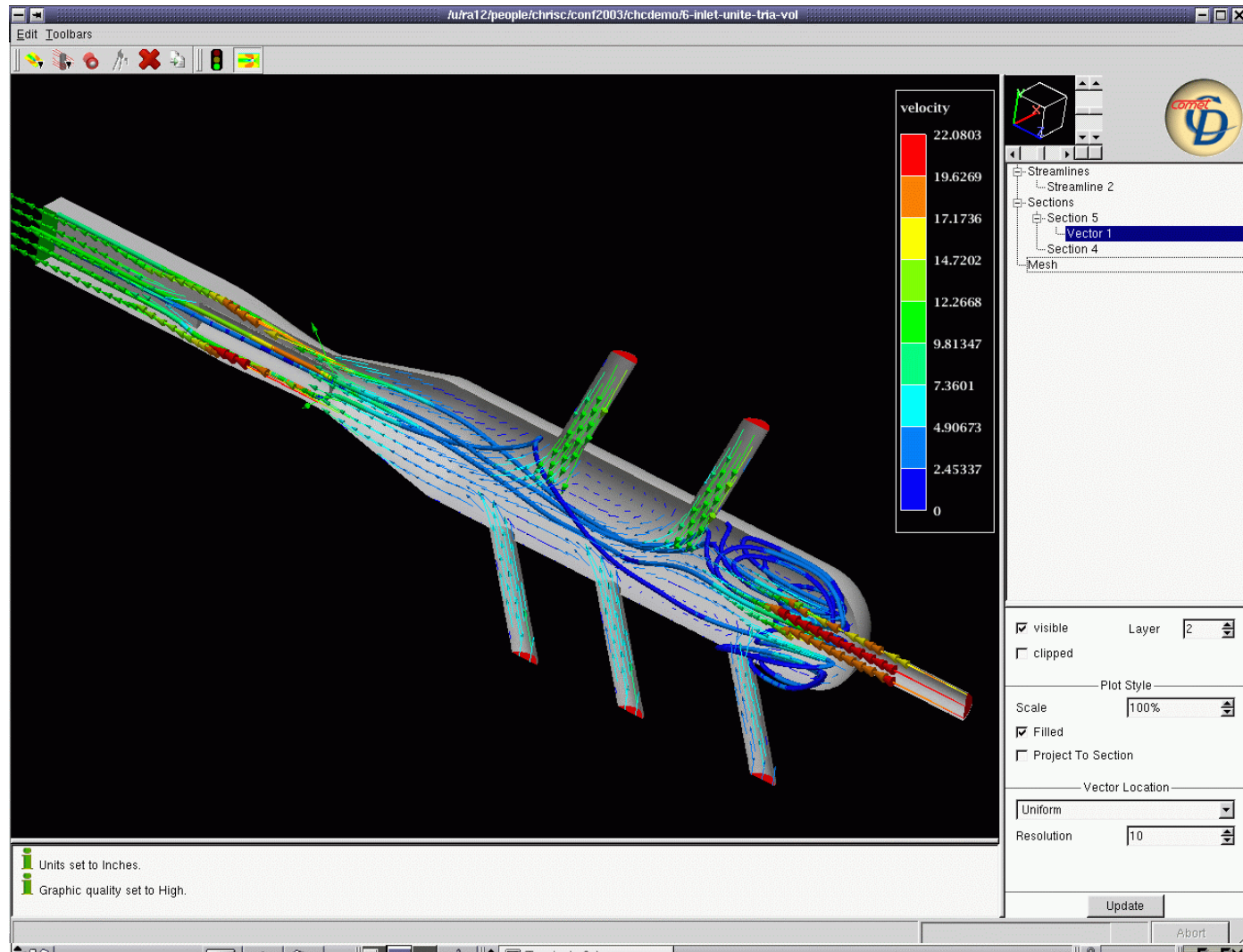
pro-surf

Comet-Design: Polyhedral Volume Mesh



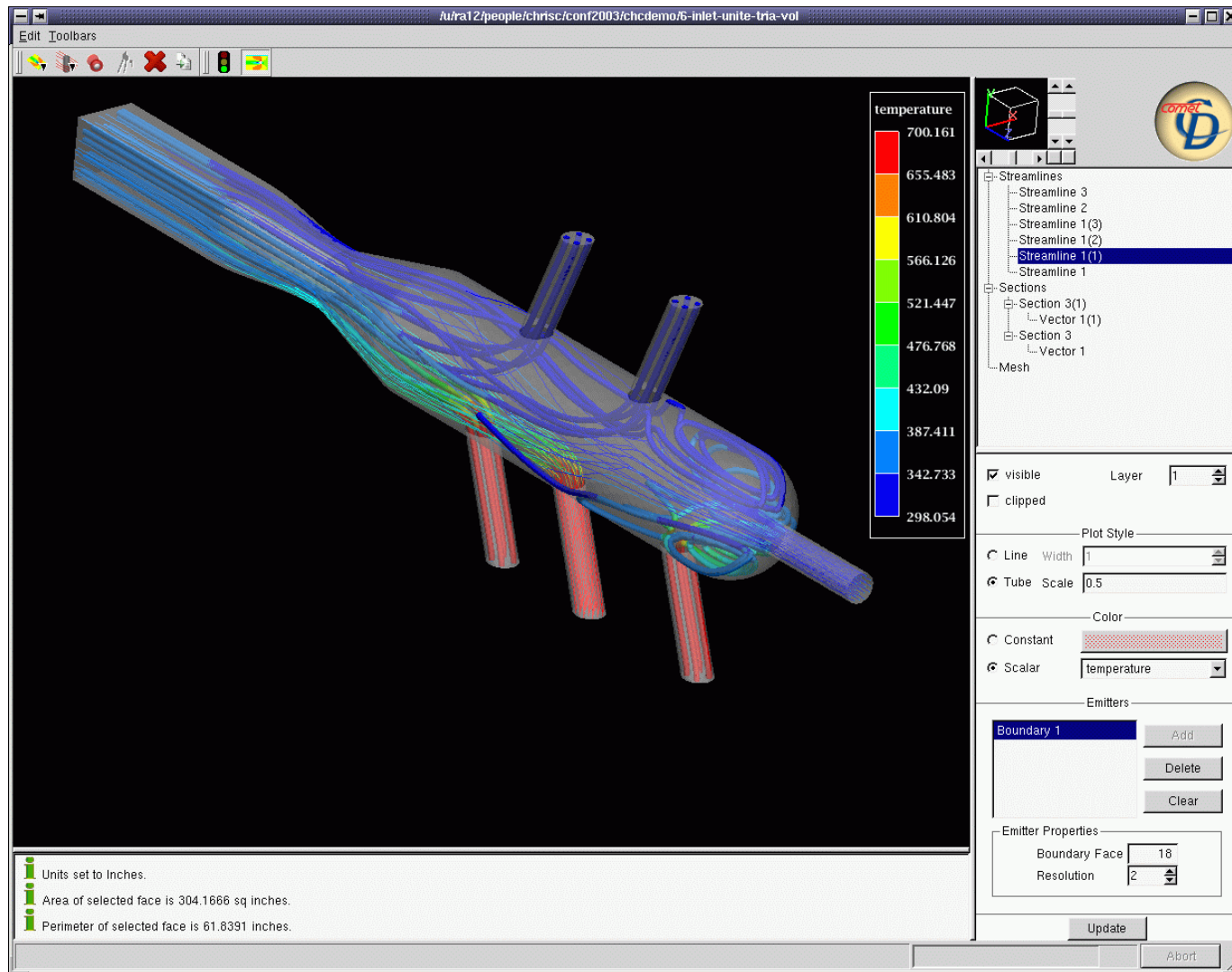
pro-volume

STAR-Design/Comet-Design: Visualization



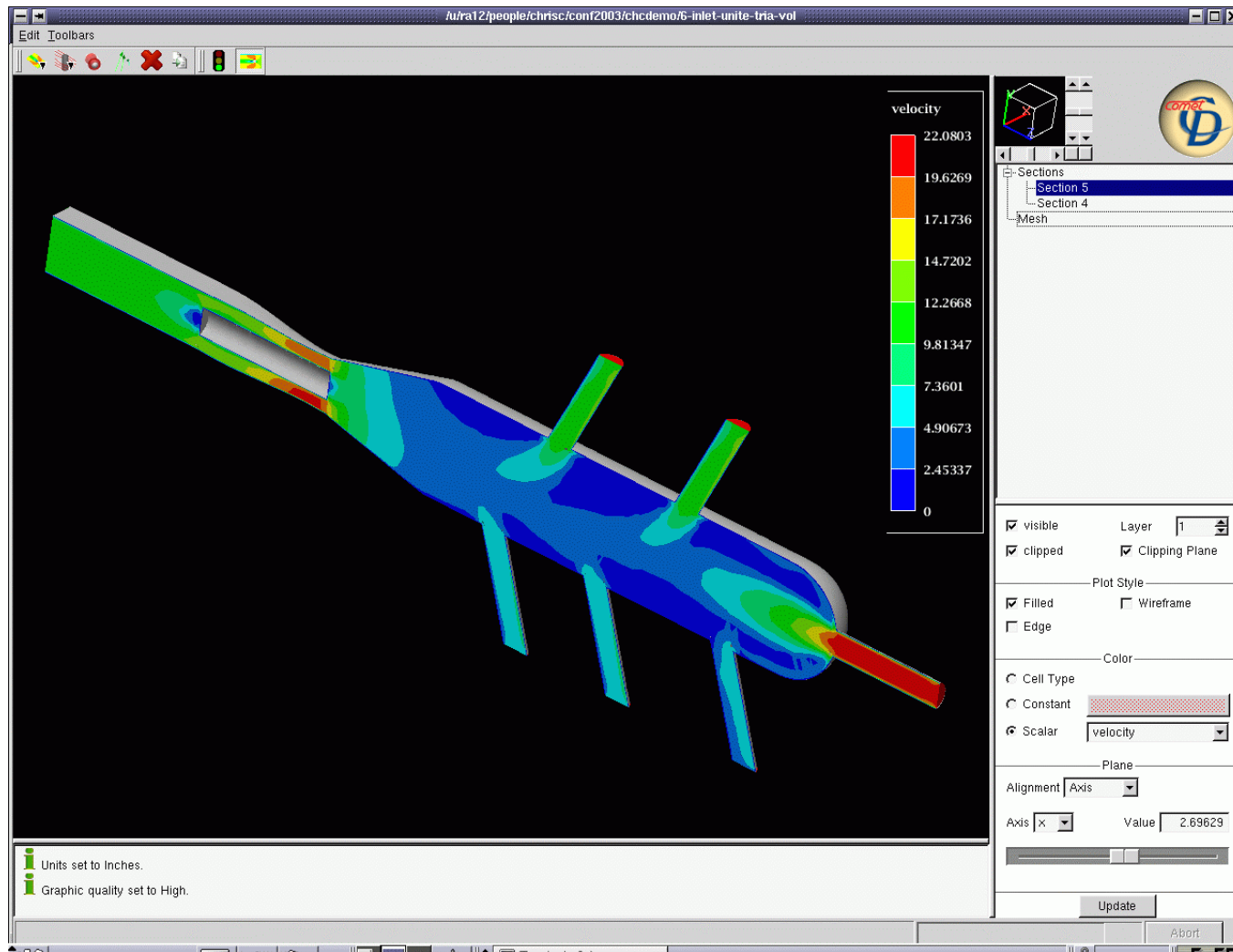
pro-vis

STAR-Design/Comet-Design: Visualization



pro-vis

STAR-Design/Comet-Design: Visualization



pro-vis

END