

Simcenter STAR-CCM+ data analysis

Using interactive analysis tools to enhance confidence in design decisions

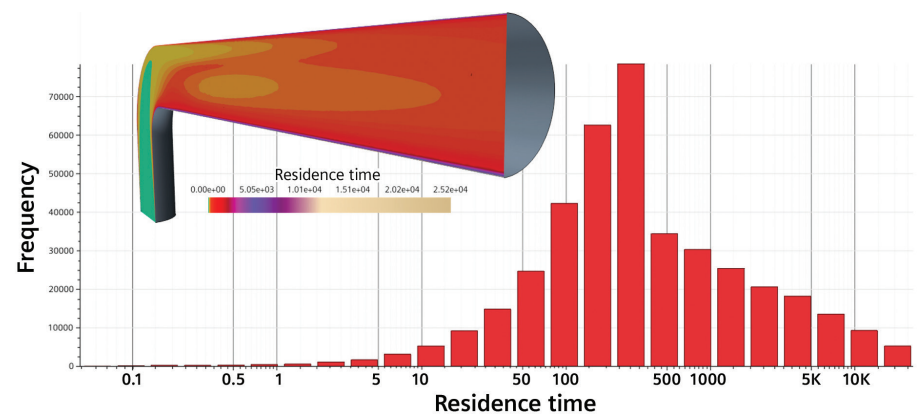
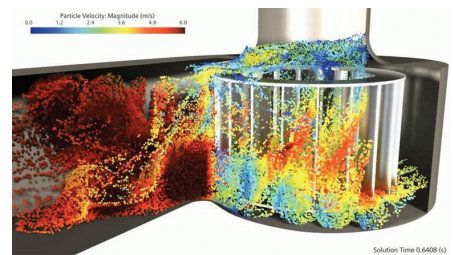
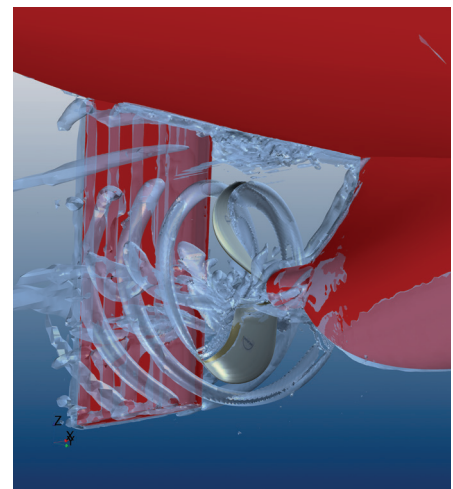
Benefits

- Save engineering time by working in a familiar, single and fully integrated environment
- Clearly communicate results to stakeholders with leading qualitative photorealistic visualizations
- Collaborate in immersive environments with Simcenter STAR-CCM+ Virtual Reality at every step of your simulation
- Increase confidence in design decisions using comprehensive quantitative reporting, monitoring and plotting tools

Summary

Improving simulation technologies and hardware capabilities enables companies to realize the full potential of simulation-driven design, accelerating the pace of product development cycles. Increasing simulation throughput provides a constant stream of information to guide your design process. It is critical that your analysis toolset can:

- Increase productivity to gain insight into the performance of your designs
- Drive decisions with advanced quantitative data analysis
- Communicate your results with qualitative visualization
- Make informed choices in collaborative environments



Simcenter STAR-CCM+ data analysis

Simcenter STAR-CCM+

Simcenter™ STAR-CCM+™ software saves valuable engineering time when managing, assembling, presenting and sharing simulation results. With Simcenter STAR-CCM+, Simcenter STAR-CCM+ Viewer and Simcenter STAR-CCM+ Virtual Reality, you can:

- Create information-rich reports and visually compelling plots in one environment
- Easily analyze and compare results from hundreds of simulations
- Avoid moving large data files by automatically identifying your best rendering resources for images and animations
- Work with the smallest amount of data necessary to make decisions with efficient transient data management tools

Capabilities

Productivity

- Watch your results evolve in real time with live (in-situ) processing or perform comprehensive analyses after your simulation runs are complete
- Automatically utilize the best rendering resources available regardless of whether you are working on your local workstation or a cluster
- Store only the needed information with Field/Solution histories for best-in-class transient data management
- Use logic-based automation and Java™ macros to save time and make your data analysis workflows more robust and repeatable

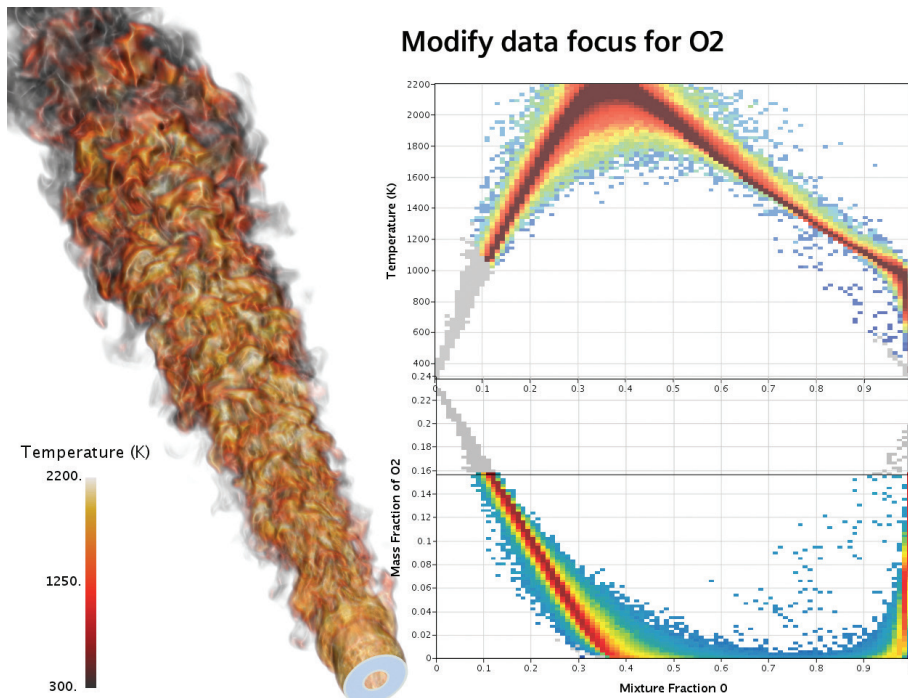
Quantitative data analysis

- Draw from an extensive set of pre-defined reports to produce actionable information

- Create customizable monitor-based statistical reports or use field monitors to gain deeper insight
- Use standard plotting tools (XY, chart, histogram, bubble) to show trends and effectively present numerical data
- Perform signal processing with data set functions (Fourier transforms, frequency bands), leveraging solution histories for transient data management
- Use field histories to create time derivative field functions using stored results for different time steps

Qualitative data analysis

- Use Screenplay (keyframe animation tool) to create animations to effectively communicate results to a broad range of stakeholders
- Apply photorealistic rendering techniques to any scene to reduce the time and effort needed to comprehend complex geometries and results
- Add supporting context to your scenes and plots with annotations
- Choose from a large set of derived parts to visualize results on plane cuts, use streamlines for flow patterns and apply volume rendering techniques to gain a deep understanding of complex physical phenomena



Decision making

- Use synchronized side-by-side views to quickly and interactively identify visual differences between multiple simulations
- Use dashboard-style layouts and design manager to standardize data analysis across simulations
- Easily share results with Simcenter STAR-CCM+ Viewer, a free standalone tool with no license required
- Make more informed decisions by using Data Focus to create plots and charts with interactive criteria of interest to analyze complex relationships in data
- Use collaborative virtual reality (VR) in real-time immersive environments to accelerate decision making irrespective of your team's location



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