Simulation process management
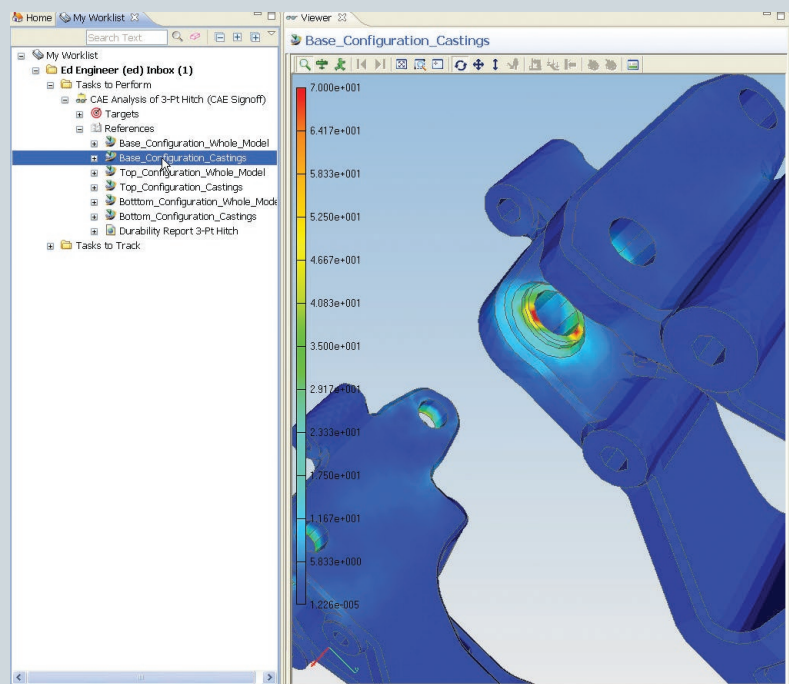
Managing simulation tools, data, process and workflow in a common, open PLM environment

Benefits
- Speed simulations by reducing time to find data and manage change
- Automate simulation processes in context of a wider development process to save time or release resources for other opportunities
- Improve products and make better decisions by providing visibility to the simulation process and results for program management and downstream operations
- Support increasing volumes and complexity of simulation work by eliminating bottlenecks in the engineering process
- Handle an increasing variety of product data while investigating more physics and more options
- Build and exploit a corporate simulation knowledge base
- Ensure compliance and facilitate process audits
- Start small and scale to deliver a complete set of supporting applications
- Minimize implementation costs and risk by leveraging Teamcenter's proven platform as your common infrastructure solution

Summary
Teamcenter® software's capabilities for simulation process management are specifically developed for engineers and analysts. Extending the core data model and integrating specialist simulation capabilities enables you to use Teamcenter – the world's leading digital lifecycle management solution – to manage simulations in the broader context of new product development. Engineering teams benefit by speeding simulation and using simulation knowledge more effectively to drive product improvement.

Teamcenter lets you can easily view, annotate and share CAE results.

While digital simulation is increasingly seen as the key to product development efficiency and increased profitability, it all too often becomes a process bottleneck. Analysis teams frequently work with obsolete data or deliver results too late to influence design direction. Program managers lack

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Benefits *continued*
- Ensure validity of results with a single source of data for design and analysis

Features
- Comprehensive, out-of-the-box simulation data model
- Data model fully extensible to support specific needs
- Support for both CAE-only and integrated implementations
- Unique CAE structure manager to manage CAE assemblies and data
- Comprehensive classification and search capabilities
- Structure mapping to simplify creation of simulation structure for complex assemblies
- Structure map builder to create, revise and share structure maps
- Process framework to configure and launch external tools
- Ability to create, manage and deploy standard CAE workflows
- Lightweight JT™ data format viewer to interrogate and markup 3D data, including FE models, results and animations in a CAx-neutral environment
- Ability to visually compare design and simulation structures
- Ability to manage complex metadata associated with simulation, including solution parameters and results

visibility and struggle to gain insight because CAE results are only viewable with analyst help.

Teamcenter makes global engineering teams more effective by enabling them to perform simulation-specific data, workflow and process management in the context of a complete digital product development environment.

Simulation data, assembly and change management

Teamcenter's simulation process management capabilities are designed specifically for engineers and CAE analysts. Teamcenter provides a rich, out-of-the-box data model to manage CAE-specific geometry, meshed models, run-ready decks, results and reports. You can configure Teamcenter solely for CAE data or to manage simulation data in context with product data.

You can easily find and re-use the right data, including requirements, designs, existing models and results of past work. When designs change, you can visually compare and update models. Teamcenter provides the following simulation data, assembly and change management capabilities:
- *Full configuration management and product structure management* capabilities to coordinate CAD and CAE so that "as-analyzed" represents "as-designed" and "as-built" states
- *Change management and work management* capabilities to ensure that geometry changes trigger timely re-analyses and that results are fed back to product development and resolved; in addition, these capabilities enable standard and repeatable processes for both specialists and occasional users
- *Structure mapping* to rapidly and consistently use the right geometry for the right analysis

- *Powerful search* capabilities enabled by tight integration with design, as well as data organization tools
- *Access to product data in the right context*, including access to configuration design data, product structures, requirements, specifications, change orders and other relevant data
- *Batch meshing* support to automate key simulation process steps
- *External process framework* to connect with CAE tools for modeling, analysis and post processing tasks

Integrated simulation workflows and 3D visualization

Programs are more effective using standard workflows to initiate, monitor, review and approve simulation work. You can quickly find all simulation work related to a specific product variant or configuration and view structural, fluid, and motion results in a fully interactive environment without needing expert tools. Teamcenter provides the following capabilities.
- *Standard engineering workflows* to enable you to plan and incorporate CAE activities
- *CAE activity tracking and auditing*, including the ability to handle sign-offs
- *In-context access to simulation data* for an increasingly diverse population of users
- *Lightweight CAE model and results representation*, including the ability to view, zoom and annotate these representations for structural, fluid and motion analyses
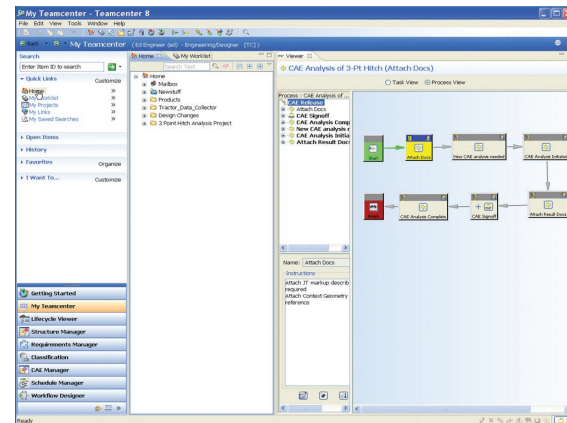
Capabilities leveraged from Teamcenter platform

- Requirements management to ensure performance targets are visible to every stakeholder
- Project and program management to plan and monitor CAE tasks
- Document management to support your reporting needs and ensure compliance
- Management dashboard reporting to provide greater visibility to your simulation processes

Open, secure and scalable platform for simulation management

For companies that employ tens, if not hundreds, of different CAE applications, integration and data management can be challenging and potentially expensive. Teamcenter addresses this issue with a scalable framework that you can use to easily configure and launch your CAE applications and automatically store results with the correct relationships to existing data. Teamcenter's open and scalable simulation management platform facilitates the following capabilities.

- *A common enterprise and workgroup infrastructure* that enables engineers to leverage your existing information technology resources
- *CAD and CAE system independence* that allows distributed teams to use their design authoring system-of-choice (60 percent of Siemens PLM Software's installed PLM seats manage multi-CAD data)
- *Security and multi-site collaboration* that reflect proven Teamcenter capabilities

Plan and include CAE activities in engineering workflows.

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