

Lifecycle visualization clearance database server

Using automated, rules-based checking to perform thorough and cost-effective product design validation

Benefits

- Automates your checking and reporting process to facilitate faster, repeatable and more accurate clearance evaluation
- Accelerates time-to-market by speeding up your clearance analysis process and minimizing design rework
- Fosters product innovation by enabling designers to study more design alternatives in the same timeframe
- Reduces design cost by enabling design engineers to integrate the entire product digitally
- Reduces overall development cost by enabling product makers to catch design flaws early in the lifecycle before they result in costly manufacturing impacts
- Improves product quality by eliminating the ad hoc manufacturing adjustments that need to be performed to adjust for previously undetected clearance problems

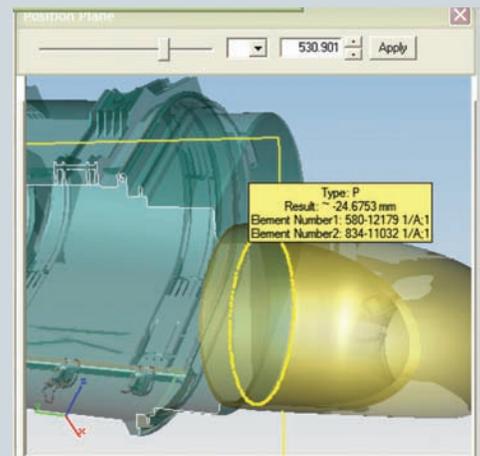
Summary

Teamcenter® software's lifecycle visualization suite provides an optional analysis solution that can be augmented with the clearance database (db) server option enabling you to detect, resolve and manage spatial interference and interface issues programmatically as they arise during a product's lifecycle. Automating the process you use to analyze clearance conditions identifies design flaws that would otherwise delay release of new product offerings, increase their costs and/or jeopardize their quality. The clearance db server option's rules-based capabilities are especially appropriate for determining how changing design decisions impact pairs of parts in your product design.

Automating your clearance analysis process

Teamcenter's lifecycle visualization suite provides an analysis solution with a robust clearance server option to automate the process that checks complex product designs for interferences and other spatial conditions. Typically, clearance db users adopt the following process when performing this kind of clearance analysis:

- Users establish specific rules that define what parts in their product design should be checked against one another, as well as any spatial requirements that should be considered. As a product design evolves, these part pairs provide a repeatable basis for validating product design in terms of specific clash and clearance conditions
- Users initiate the clearance analysis by instructing Teamcenter to evaluate the product design in accordance with these previously defined conditions
- Teamcenter flags all potential clash/clearance problems and writes these flagged conditions into a database that designers can access on an enterprise basis
- Users can view these flagged conditions and review their impact using a Teamcenter-maintained 3D digital mockup



TEAMCENTER

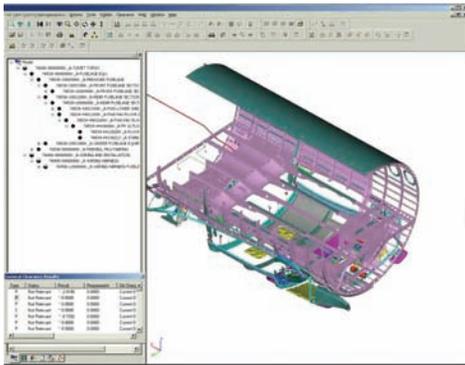
www.siemens.com/teamcenter

SIEMENS

Lifecycle visualization clearance database server

Features

- Optional add-on to Teamcenter's lifecycle visualization analysis add-on module (included with named user analysis license)
- Automated clearance analysis
- Database storage of clearance issues and their related status
- Access to the clearance db server (via the clearance db client) through Teamcenter's clearance manager interface
- Stored filters (search criteria)
- Generation of text reports
- Color reporting using 3D geometry
- Windows and Unix support



- As users view these conditions and assess their validity, they can instruct Teamcenter to capture, document and track these issues until they are appropriately resolved
- After design engineers correct their designs and resolve the identified clearance problems, Teamcenter removes the corrected problem from the clearance database

Use case

One of Siemens PLM Software's customers estimates that it is saving approximately 70,000 hours each year by using the clearance db solution. The company expects to increase its savings to more than 135,000 hours per year as it expands the use of clearance db across all of its product lines.

Business context

Typically, companies implement clearance db because the process for performing clearance analysis on complex products can be time consuming and costly without a rules-based capability for repeatedly analyzing a product's high-level digital mock-up, checking for clearance conditions and systematically rechecking these conditions over the course of a design's evolution.

Companies are particularly interested in avoiding late-cycle fixes when parts or tools are being released to manufacturing – or worse, when impacts occur after parts and tools have already been released and are in production. Early clearance analysis methodologies checked a complex product's parts one part at a time. Many product makers believe that an automated process for rules-based clearance analysis can save each designer hundreds of hours when contrasted with these earlier approaches.

Equally important, without a real-time rules-based process, product makers have no assurance that some discrepant parts

have not slipped through. This risk is especially critical during the early phases of product development when configuration and design definitions change quickly. Without an automated rules-based process, designers frequently are required to go through weekly clash reports in hard copy form. These high-volume reviews often place an enormous burden on a product's release schedule.

The clearance db server is particularly effective because it enables designers to establish a part pairs database that defines which specific parts should be checked against each other on a repeated basis. An individual definition might instruct Teamcenter to abide by the following rules:

- Don't analyze any rubber seals for interference conditions
- Flag any exhaust system parts that appear within 50 mm of any electrical system parts
- Don't report any contact-only issues (0 to .01 mm)

Capabilities

The clearance db server option provides the following capabilities:

- Checks clearance conditions only when necessary, thereby eliminating redundant checking that otherwise takes place when clearance issues are reviewed
- Minimizes the number of results that you need to evaluate by applying rules-based, condition-based approach to clearance analysis
- Facilitates an automated clearance analysis process by providing end users with the most recent data/analysis in a constantly updated digital mockup
- Enables you to analyze and manage your clearance issues across multiple product configurations, derivatives and options by integrating your clearance analysis process into a Teamcenter-managed product lifecycle

Contact
Siemens PLM Software
Americas 800 498 5351
Europe 44 (0) 1276 702000
Asia-Pacific 852 2230 3333

www.siemens.com/teamcenter

© 2011 Siemens Product Lifecycle Management Software Inc. All rights reserved. Siemens and the Siemens logo are registered trademarks of Siemens AG. D-Cubed, Femap, Geolus, GO PLM, I-deas, Insight, JT, NX, Parasolid, Solid Edge, Teamcenter, Tecnomatix and Velocity Series are trademarks or registered trademarks of Siemens Product Lifecycle Management Software Inc. or its subsidiaries in the United States and in other countries. All other logos, trademarks, registered trademarks or service marks used herein are the property of their respective holders.
X3 3236 1/11 C