

As-built bill of materials management

Capturing the build record of your physical product

Benefits

- Improve reliability and safety by tracking part design to physical parts, application of parts, and software configuration for statistical analysis
- Effectively support regulatory and compliance audits by meeting product history and disposal requirements
- Improve recall and warranty processing by leveraging detailed knowledge about your physical products in the field, including their serial, lot and configuration
- Facilitate better impact planning by leveraging an accurate record of the product from engineering through manufacturing
- Improve value chain synergy by facilitating part traceability and providing a record for your as-built products
- Support test article and prototype build and context documentation for development records

Summary

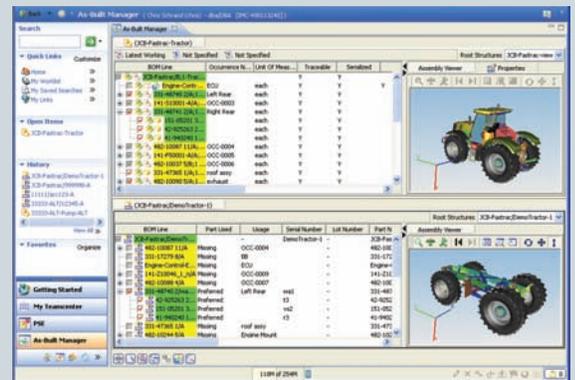
Teamcenter® software's as-built functionality for bill of materials management establishes the official build record of a physical product as assembled, enabling you to support product verification, document deviations, warranty claims and environmental compliance. As-built functionality is especially valuable for managing information about increasingly complex products comprised of hardware, electronics and software components with unique configurations that pertain to different product models and different market segments.

Value of as-built BOM management

Even "simple" products can be very complex with a mixture of hardware, electronics and software components, each designed to work in multiple product configurations. The Teamcenter as-built functionality for bill of materials management enables you to manage manufacturing data inside your product lifecycle management (PLM) environment by closing the loop between product engineering and production.

Teamcenter is able to track traceable parts by serial and/or lot numbers – as well as manage the actual resources in your manufacturing process. These capabilities provide accurate build records of the assembled product that you can use to accelerate product and process improvements and drive your quality analysis, material consumption, manufacturing verification and conformance/compliance initiatives.

Teamcenter enables you to create a "should build" product structure that can be compared against the as-built record to identify alternate, substitute and preferred parts for your manufacturing process, as well as missing parts



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Benefits *continued*

- Streamline your reconciliation and validation process by ensuring that the as-built configuration complies with allowable configurations, documentation and approved deviations
- Improve data integrity by providing a neutral configuration structure that multiple teams can leverage to define common product models and variants

Features

- Configuration management from product planning/definition to as-built product configurations
- Neutral product structure support that ensures accurate applicability of parts to product variants and retrieval of baseline design structure in variant and effectivity context
- Change management across the complete product lifecycle
- Ability to define multiple part types including traceable (serial, lot), neutral (expected), alternate, substitute types
- Configuration of lot and serial definitions
- Structure management capabilities including neutral (should build), physical and discipline structure views; generation of physical structures from neutral structures; structure links; import/export of structures and data from MES via PLMXML; and structure baselines

and document variations from the planned product. The captured as-built configuration establishes a product record that can support your industry compliance and warranty claim validation initiatives. The product record also can identify delivered and allowable configurations and usage for in-house and supplier parts.

You also can use the as-built record to deliver configuration-specific product documentation and support safety, environmental impact and reliability analyses. Variations in the build record are subject to control processes for the capture and approvals of deviations to assembled products.

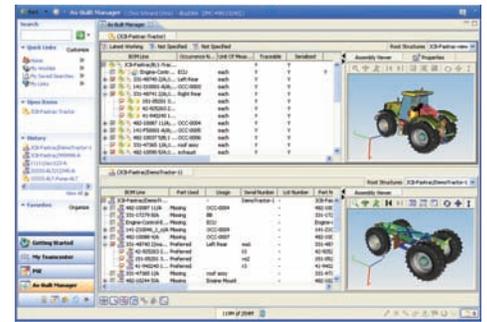
Basic as-built functionality

The Teamcenter as-built functionality enables you to generate, capture and manage:

- *Complete build record* of individual products, traceable components, assemblies and systems, including software, prior to and at delivery
- *Part data* that you can use to track in-house and supplier component installation and support warranty claims and conditions
- *"Should build"* reference product structures that you can use to verify the assembled product
- *Reference links to engineering design information*, including alternate and substitute part definition with automatic validation that indicates when they are used
- *Serial and lot number part definitions*
- *Compliance standards and regulatory requirements* that each physical product must satisfy
- *Product context at first failure* that you can leverage to track part usage, improve product quality and support accurate recalls

Business advantages

Manufacturers can leverage the Teamcenter as-built functionality to fully document their delivered products with the actual configuration using traceable parts identified by serial number, lot number or a combination of both. In-house and supplier parts can be tracked to the end



product, helping manufacturers deal with warranty claims and pass through supplier claims that ultimately reduce inventory costs. Manufacturers can leverage build information in strong “where-used” searches that facilitate intelligent product recalls. This efficiency greatly reduces the manufacturer’s bottom-line part and labor costs and protects the reputation of its brand.

Teamcenter provides advanced as-built functionality that enables engineering and manufacturing teams to visualize the as-built structure through the use of 3D JT™ data. Product teams leverage these visualizations to verify the configuration and ensure build integrity for test, prototype and final build. Teams are able to compare any physical product with the “should build” product definition or compare different physical products and identify problems or variations in the assembly process. These capabilities facilitate systematic and repeatable feedback to engineering for ongoing product improvement and planning.

As a component in the Teamcenter bill of materials management solution, the as-built functionality takes advantage of all Teamcenter capabilities to provide a scalable and secure PLM environment that supports today’s global enterprise initiatives. The Teamcenter as-built functionality is tightly integrated with and extensible by other Teamcenter solutions to provide a unified end-to-end PLM environment that reduces product development cycles and costs while minimizing total cost of ownership.

Features *continued*

- Structure comparisons of as-built BOM to another as-built BOM and as-built BOM to neutral BOM definition (to clearly show deviations, configuration differences and any missing parts)
- 3D visualization of as-built product with preferred part, alternate, substitute and missing part identification during and after the build process
- Deviation workflow configuration and processing

Use cases

Documenting the physical product

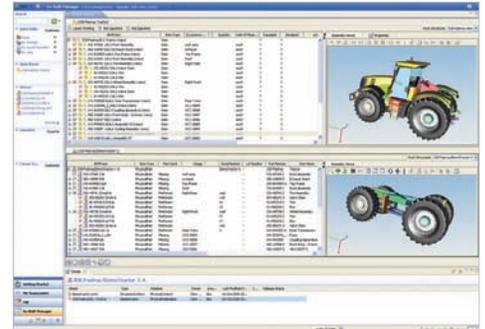
Key industries, such as health care and aerospace and defense, have compliance requirements that must be satisfied by documenting the record of the exact physical product configuration. The Teamcenter as-built functionality allows manufacturers to document the physically assembled product by lot numbers and/or serial numbers for traceable components such as mechanical life-limited parts, electronic components or circuit boards and software versions. These as-built records are linked to approved engineering configurations so that variations can be discovered and documented as approved or corrected deviations.

Improving product quality With the Teamcenter as-built functionality, early failures or questionable components can be analyzed, documented and traced to product installations to facilitate rapid correction of engineering, manufacturing or service work. Knowledge about the exact configuration of a product's assembled parts enables manufacturers to reduce product costs by:

- Minimizing the number of unit recalls
- Processing customer warranty claims more efficiently
- Rapidly passing warranty claims through to their suppliers

Visual verification of the final product

The Teamcenter as-built functionality supports 3D visual comparison and validation of the as-built record of the product against the "should build" product baseline. These capabilities enable product



teams to easily identify the usage of alternate, substitute or preferred parts, locate missing parts and confirm variances in the build that must be supported by approved deviations.

Global support The Teamcenter ability to provide engineering and manufacturing teams with secure web access to the latest, most accurate product information improves operational productivity and product quality. Product configurations can be validated between engineering and manufacturing regardless of location. The Teamcenter single source of knowledge facilitates compliance with export controls (such as the International Traffic in Arms Regulations and Access Control Lists) and delivers the performance required to meet today's time-critical information demands.

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