DELMIA V5.18 expands IBM Product Lifecycle Management digital manufacturing

At a glance

DELMIA V5.18 expands the IBM Digital Manufacturing Portfolio with the addition of DELMIA Process Planning Solutions and new and enhanced Release 18 functions.

- The DELMIA Process Planning suite delivers powerful tools for process and resource planning.
- Enhancements to previously announced products deliver a seamless end-to-end final assembly process planning solution.
- Further developments extend the production-ready solutions for the automotive body-in-white and shipbuilding domains.
- Improved usability exploits V5 fundamentals to create a powerful 3D model-based definition (MBD) manufacturing process planning solution that includes engineering requirements.
- 3D simulation for assembly processes and human factors capabilities benefit from significant usability enhancements and breakthroughs.

Overview

DELMIA V5.18 adds the DELMIA Process Planning suite of five configurations and 17 products. Through methodically structured planning, this suite supports the early recognition of process risks, re-use of proven processes, traceable changes and decisions, and access to process knowledge that is distributed across the enterprise. Process Planning applications can be used from the conceptual product design phase, through the preplanning and detail planning stages, and on to the production phase as alternative designs and manufacturing scenarios mature.

Digital manufacturing solutions designed and built for your industry

- V5.18 enhancements that extend capabilities for work instruction authoring will significantly benefit the aerospace domain by employing unique process functional tolerancing annotations that are not dependant on design datasets.
- In the automotive domain, V5.18 supplies enhancements for automatic line balancing that can benefit the final assembly domain plus a series of enhancements for the body-in-white domain that extends its capabilities in production implementation.

Collaborative product lifecycle management (PLM) to leverage knowledge and expertise across your enterprise

- Significant enhancements improve the interoperability between the Manufacturing Hub and the DELMIA Process Detailing and Validation solutions.
Usability is improved by exploiting V5 fundamentals for powerful 3D model-based definition (MBD) manufacturing process planning, including engineering requirements.

New support for manufacturing assembly and manufacturing kit definition based on “black-box” work packages is added.

Enhanced capabilities in manufacturing change management extend support to a wider range of business process scenarios, such as reducing constraints for end-users.

Breakthrough technologies to help you gain productivity — Significant usability enhancements and breakthroughs improve 3D simulation for assembly and human factors.

Key prerequisites

DELMIA V5.18 runs on selected versions of:

- Microsoft® Windows®
- AIX®
- Hewlett Packard HP-UX
- Sun Solaris

Planned availability date

March 14, 2008

Description

DELMIA allows manufacturers in any industry to virtually define, plan, create, monitor, and control all production processes. It offers an array of dedicated applications for industries, combined with an environment for knowledge-sharing, process and resource management, and the ability to capture and implement best practices for manufacturing.

DELMIA PLM technology allows manufacturers to interact with factory processes early in the design stage and months before actual production commitment. Engineers, management, and stakeholders across the extended enterprise can have a 3D visualization of the real world with the ability to evaluate “what-if scenarios,” make changes, optimize shop floor operations, and identify and eliminate costly errors and design mistakes. These capabilities allow any enterprise to facilitate higher quality and foster greater innovation. DELMIA also extends its PLM technology to smaller businesses within the supply chain to allow smaller companies to better connect and collaborate with larger manufacturers.

DELMIA Process Planning

This release adds the suite of process planning configurations and products to the DELMIA portfolio. DELMIA Process Planning delivers a comprehensive process and resource planning support environment. The resulting process diagrams help to create a clear overview of the sequences and links between processes and resources early in product design conception. Process Planning can be used to perform planning tasks such as:

- Layout planning
- Time measurement
- Process and resource planning
- Product evaluation
- Cost analysis
- Line balancing

Its applications deliver a high-quality solution for early recognition of process risks, re-use of proven processes, traceable changes and decisions, and access to distributed process knowledge. This comprehensive treatment of the relationships among product, process, and manufacturing resource data, including plant layout, helps to avoid planning mistakes and to obtain a precise overview, early in the design process, of the required investment costs,
production space, and manpower required.

**Excellence for manufacturing production performance**

The addition of the process planning suite to the portfolio, combined with enhancements to the previously announced Process Detailing and Validation Solutions, deliver a new level of excellence for manufacturing production performance.

**DELMIA PLM for your industry: Aerospace**

DELMIA V5.18 provides a new option for rendering work instruction text using process functional tolerancing and annotation (PTA) as opposed to the preexisting capability utilizing 2D standard text windows. Such PTAs, combined with user-definable visualization of engineering requirements employing standard functional tolerancing and annotation (FTA), offers a flexible mechanism for manufacturing to define explicit immersive visualization to support work instructions independent of design engineering content and/or data management.

As a result, manufacturing planners can define 3D work instructions with unique visualization characteristics without requiring any changes to design engineering datasets, thus reducing the cost for supporting authoring and related change activity. Moreover, the independent control of the 3D definition to support uniquely manufacturing-oriented authoring scenarios increases the value proposition in general because otherwise the required design/manufacturing coordination might be viewed as an undue burden.

**Automotive**

For final assembly, DELMIA V5.18 provides a seamless, end-to-end final assembly solution from process planning to 3D validation. Benefiting from the V5 resource-centric approach, automatic line balancing results can be automatically viewed and edited in 3D. As a result, manufacturing planners can easily see and check the tasks performed by workers at each station or each workplace of the assembly line. It also allows them to validate the assembly line layout and do fine tuning of operations between stations using 3D. Additionally, automatic line balancing now supports both "Green Field" (new factories) and "Brown Field" (existing factories with established lines and processes) scenarios.

For body-in-white processes, V5.18 delivers a new assembly specification tree to replace the product flow viewer. This capability allows the user to define assemblies and sub-assembly bills of material (BOMs) derived from the manufacturing process plan.

Additionally, this release delivers new capabilities for defining manufacturing line concepts in 2D, independent of the resource layout. This includes the capability to define input parts, assemblies, and sub-assemblies as well as output assemblies for each line. Furthermore, new simulation roll-up capabilities provide the mechanism to combine simulation data from multiple stations for multi-station/line level simulation.

These resource-centric capabilities and views of product, process, and resource data provide the automotive planner with essential capabilities for production implementation of the DELMIA body-in-white and final assembly solutions.

**Shipbuilding**

With the release of V5.18, DELMIA — DPM Structure Lofting 2, a process planning solution for the shipbuilding domain, moves from controlled to general availability. This configuration provides the shipbuilding planner with a wide variety of structure lofting (large sheet-metal layouts) tools and process planning and validation, in-process model generation, and shop floor documentation capabilities. It delivers the power of V5 collaborative 3D technology to a domain that is presently moving from 2D technology to advanced 3D design and planning.

**Collaborative PLM**

DELMIA V5.18 delivers new capabilities to perform volume filtering when loading arbitrary product data from the DELMIA Manufacturing Hub into a DELMIA session. Such volume filtering can significantly reduce the complexity of datasets and also improve overall system performance for general usage. The net result and value to the end-user is that they can complete their authoring tasks in much less time because the system will provide faster performance. Moreover, they will be able to make better decisions within their planning activities owing to the decreased complexity and thus the overall quality of the plan will be higher, resulting in decreased problems and changes driven from the shop-floor, all leading to decreased production cost and reduced time to market at the required quality/cost targets.

With this release, DELMIA now supports all possible types of FTA and linked geometries for use as engineering requirements within design and for use during manufacturing process planning. This enhanced support is mandatory to enable a "3D-only" business process.
This release also expands the support of V5 "black-box" work packages for use when defining manufacturing kits and assemblies. This capability further enables a "3D-only" business process across the design-manufacturing disciplines.

DELMIA V5.18 provides additional features within the manufacturing change management module to allow flexibility of the applied constraints. For example, the user can now specify if specific attributes within a process object should be excluded from change control, even while the rest of the metadata in the same object is subject to change control. The key benefit is that it reduces the complexity for end-users, thus increasing their efficiency in completing their tasks. Ultimately this leads to reduced time and cost for completing the required manufacturing planning activities.

**Breakthrough technologies:** Four new human factors catalogs deliver significant usability enhancements to the DELMIA human factors suite. These catalogs include hundreds of predefined postures, preferred angles, various sized manikins, and tasks. Through the use of these richly populated catalogs, the ergonomist can reduce simulation model build time by as much as 70%.

DELMIA V5.18 provides an additional capability for process verification using 3D state management. A simplified definition of 3D states and positions combined with new commands (such as *Synchronize position* or *Redefine reference object*) allows simulation engineers to significantly reduce the set-up time of their 3D environment.

**Accessibility by people with disabilities**

Owing to the graphics-intensive nature of its engineering design applications, this product has been granted a deviation.

**Product positioning**

DELMIA brings together a set of digital manufacturing solutions targeted for industrial sectors in which continuing optimization is a determinant factor. These solutions allow manufacturers to bring their products to market more quickly, while reducing production costs and encouraging innovation.

DELMIA digital manufacturing solutions assist industries where continuous transformation and optimization of manufacturing processes are critical. These include automotive, aerospace and defense, fabrication and assembly, electrical and electronic, consumer goods, and shipbuilding. The DELMIA PLM suite of computer-aided process planning and engineering solutions enables companies to achieve lean, build-to-order manufacturing by fostering a concurrent engineering environment. Coverage extends from the conceptual phase of product and process design, through simulation and monitoring of manufacturing processes, to shop floor operations, such as capacity planning, implementation and monitoring.

DELMIA digital manufacturing solutions deliver many benefits, including:

- Comprehensive process planning in the early design phase
- Maximization of production efficiency and factory utilization
- Optimization of investment
- Ability to capture and re-use best practices and enterprise knowledge
- Ability to anticipate and correct potential problems in the design and manufacturing pipeline
- Derivation and carry-over of process engineering and production resources
- Reduction of time-to-market and manufacturing costs
- Reduction in the time required to start production and related costs
- Ability to improve time-to-volume
- Ability to foster innovation of products and processes
- Ability to gain maximum profitability

IBM has worked with thousands of manufacturers of all sizes around the world to implement solutions designed to enhance product development and streamline manufacturing processes.

- PLM solutions from IBM are the industry standard for OEMs, supply chain partners, and
suppliers.

• IBM has over 31,000 PLM customers worldwide in a wide range of industries that include automotive, aerospace, industrial products, electronics, chemicals, and petroleum.

• IBM does not just install technology. We serve as a trusted advisor to provide the best-of-breed PLM applications, IT environment, integration capabilities, and business strategy to help you achieve your business objectives.

• IBM and Dassault Systemes have partnered for over 20 years to develop and deliver leading PLM solutions.

• IBM and Dassault Systemes have one of the largest PLM practices in the world with over 2,000 application engineers and consultants worldwide.

• Dassault Systemes, IBM, and our clients have collaborated to implement Dassault Systemes and IBM technology to power digital manufacturing, resulting in significant return on investment (ROI) and improvements in manufacturing and engineering effectiveness.

• IBM Global Business Solutions also has a complete suite of services offerings around the DELMIA, CATIA, ENOVIA VPLM, and ENOVIA SmarTeam products, including consulting, planning, implementation, integration, training, support, and managed services.

Hardware and software support services

SmoothStart™/installation services: SmoothStart/Installation Services are not available for DELMIA products.

DELMIA V5 services plan

PLM Services, part of IBM Global Business Services, offers a robust portfolio of services to assist with the implementation of DELMIA V5. Careful planning and implementation are essential to getting the most from DELMIA V5.

IBM can help with assessment, solution design, planning, installation, data migration, custom application development, best-practices consulting, user and administrative training, support, and project management.

For additional information on service offerings and how IBM professionals can assist with the implementation of DELMIA V5 in your environment, contact an IBM representative or IBM Services organization or visit


Select PLM Services from the list of related links.

Reference information

For information about CATIA V5.18, refer to Software Announcement ZP07-0360, dated September 25, 2007.

For information about ENOVIA VPLM V5.18, refer to Software Announcement ZP07-0361, dated September 25, 2007.

For information about ENOVIA SmarTeam V5.18, refer to Software Announcement ZP07-0348, dated September 25, 2007.

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