

DELMIA Solutions Version 5 Release 17 Product Enhancement Overview

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3D Functional Tolerancing & Annotation

New Functionalities

Positioning Dimension Anchor Points on Geometries of Revolution

This new functionality allows you to position the dimension anchor point (center/axis or edge) of a geometry of revolution (circle, cone, cylinder) during the dimension creation between two geometrical elements.

Working with the Assembly Requirements Model

This capability allows you to store the Functional Tolerancing & Annotation features into a part and manage this part in ENOVIA V5.

Enhanced Functionalities

Tolerancing & Annotations Properties

The Annotation Set views ratio property allows you to apply a scale factor to all the annotations contained in new annotation view of the annotation set. This property is not applicable to an offset or aligned section view, but still applicable to its annotation view components.

View Properties

The Ratio property allows you to apply a scale factor to all the annotations contained in a view.

Font Properties

The Kerning property allows you to kern character when using an Open Type Font (OTF).

Value Properties

The Fake Dimension property allows you to specify an user dimension value independent of the dimension geometrical support using the Alphanumerical representation.

Managing View/Annotation Plane Associativity

The previous contextual command **Manage View Associativity** has been renamed as **Change View Support**.

The dialog box interface has been redesigned: previous options already exist and a new option **Invert normal** is available.

Querying 3D Annotations

The annotations highlight is disabled when more than 20 geometrical elements are selected, in order to avoid visualization and performance depreciation.

Displaying a Tolerancing Capture

Annotations contained in a capture are now automatically mirrored according to the capture orientation.

Dimensioning and Tolerancing Threads

Dimensions created using the Tolerancing Advisor can be set as information (ISO-based standards)/reference (ASME-based standards). The information/reference dimension is displayed enclosed by parentheses in geometry window.

Dimension Line Properties

A new leader length property is available.

Engineering Symbols

Administrators can add new symbols. They can also modify the font and character of symbols provided by default.

Creating Dimensions

A minimal distance can be created between canonical surfaces (revolution or planar surfaces) or the projected edge, in the current annotation plane, of a non-canonical surface.

Customizing Settings

Manipulators

The new option **Move dimension leader** allows you to access dimension manipulators to move dimension leader during creation or modification.

Assembly Design

New Functionalities

Reordering Applicative Data

This new functionality allows you to manually reorder applicative data entities like scenes, 3D annotations or cameras under their respective application node in the specification tree.

Enhanced Functionalities

Inconsistent or Over-constrained Assemblies

A new mechanism detects constraints redundancy during the constraint creation process and displays the constraints in relation with the redundancy.

Assembly Symmetry

New part features can be involved in the Assembly Symmetry feature in addition to the Part Body (or Main Body):

- The External View,

- All Axis Systems,

- All Bodies other than the Part Body,

- All Geometrical Sets, ordered or not,

- or Any combinations of the previous elements including Part Bodies.

Assembly Symmetry

The **Remove All Geometry Links** contextual command for a Assembly Symmetry feature in the specification tree is available.

The result is the same as if you unselect the **Keep link with geometry** option in the **Assembly Symmetry Wizard** dialog box.

DPM Assembly Process Planner

The Assembly Process Planner workbench objectives helps planners in the assembly process planning. This workbench allows you to work on the process document and provides commands to create and manipulate the data within the process. The Assembly Flow Editor simplifies this planners' tasks, and enables planners to choose between using either the Assembly Spec graph or the Assembly Spec tree.

DPM Assembly Process Simulation

New Functionality

Generate Track command has been added

Users can select edges on the geometry, and generate tracks from the edges. Once the initial track has been generated from the edges, the track can be modified.

Enhanced Functionalities

The Filter dialog box for Analysis Information has expanded

Users can now select from among multiple move activities and analysis objects for filtering, as well as filtering for message levels.

Dragging the slider on the Player pop-up toolbar enables users to see the track simulation

In previous releases, users could not see the effects of attaching a section to a track until after a simulation was run; now users can see it as they move the slider.

When you select define the shuttle as part of a Move Activity, the Preview window now has a Tree tab

This tab enables users to see the names of all parts selected as part of the shuttle. Users can still preview the graphical representations of the parts via the 3D tab.

Shuttles may contain multiple groups and manufacturing assemblies

In previous releases, shuttles could only contain one group and a parent shuttle could reference another shuttle. In this release, each group is treated as an object, and users can select as many objects as they like. Similarly, users can include manufacturing assemblies within shuttles.

The Annotation Activity command now works for 3D annotations as well as FD&T annotations

In previous releases, only F&DT annotations could be selected for the Annotation Activity command.

When you click the Activate Analysis button from the Track dialog, you can edit the analysis object

Users have the option to edit one analysis object at a time while creating a move activity; they do not have to stop creating a move activity to use the analysis commands.

The scope of analysis can be set to global or local

The **Activate Analysis** command enables you to bind analysis objects to a move activity. You can now determine whether analysis objects that are bound to move activities can be observed globally (throughout an entire simulation) or locally (only during the move activity to which the object is bound).

The Player toolbar has a distance parameter

Users can interpolate along the track with a set distance. Also, the **Sampling Step** option in the **Player Parameters** dialog box can be set for distance as well as time.

Customizing Settings

Snap Sensitivity in the DMU Manipulation tab has been altered

The default value for the **Orientation** option has been changed to 20 deg.

DPM Fastening Process Planner

New Functionalities

Creating BIW activities/task specifications for a resource

You can create activities under the resources. This feature supports the new concept of resource-centric BIW workflow.

Customizing the 3D appearance of fasteners

In previous releases, you could show a different appearance for each fastener. The appearance was controlled with CGRs. In this release, the appearance of the fastener varies according to the fastener attributes, so that you do not have to modify the appearance of each fastener. You can customize the appearance according to fasteners' attributes.

BIW Feature Selection toolbar - selecting various filters using the mouse

There is no segregation on the basis of types for objects such as fasteners and other features. This provides the capability to select only BIW Features like fasteners, locating points, and clamping points inside a mouse trap. This can be exploited to see the properties of BIW Features and other commands that use BIW Feature information. This enables you to select the BIW Features in 3D by the trap or by a individual select. You can also select the BIW Features in the PPR tree with individual selections; these features are then highlighted in the 3D window.

Enhanced Functionalities

The Load Fasteners command is enhanced

The existing Load Fasteners command has been enhanced to provide greater flexibility in loading fasteners. In previous releases, you could load joints/fasteners from the HUB for products, joined parts, and selected joint parts. The purpose of this enhancement is to allow you the flexibility of loading the fastener/joints for manufacturing assembly. This enhancement also provides the additional functionality of loading the type of fasteners (e.g., spot weld or glue) by choice. The enhanced Load Fasteners command now provides a load status when it is complete; i.e., list of valid fasteners loaded and a list of valid fasteners that not loaded from the Manufacturing Hub.

Displaying the number of fasteners in the Manufacturing Systems Gantt chart

In previous releases, you could not see, in the Manufacturing Systems Gantt chart, the number of fasteners assigned to the resources nor could you see the total length of the curve fastener being consumed by the resource. This enhancement provides a way of viewing the data on fasteners consumed by a resource in the Manufacturing Systems Gantt.

Displaying the number of fasteners in the Resource Utilization Gantt chart

In previous releases, you could not see, in the Resource Utilization Gantt chart, the number of fasteners assigned to the resources nor could you see the total length of the curve fastener being consumed by the resource. This enhancement provides a way of viewing the data on fasteners consumed by a resource in the Resource Utilization Gantt chart.

Changing the color of a fastener group

You can select fasteners groups and change their color using the Properties dialog box.

Color for the assigned fastener

The Process-Orientated Data icons representing the list of fasteners assigned to a process changes to yellow when there are one or more fasteners assigned to that process. For a process to which no fasteners are assigned, the color of the icons is gray or black.

Displaying Show/No Show status for parts

The Product Flow Editor enables you to observe the visibility status of any part or subassembly in the 3D viewer.

The Product Flow Viewer and Product-Orientated Data contextual menu

In the contextual menu for Product-Orientated Data for parts/subassembly, manufacturing assembly, fasteners, locators, and resources, the commands Center Graph and Reframe On have been added.

Sort fasteners in the product flow editor

Being able to sort fasteners within the Product Flow editors lets you quickly identify whether a fastener is assigned or not. You can look for the Fastener ID in the list of the fasteners assigned to a process.

DPM Machining Process Planner

Profile Contouring Operation

You can now create and edit this type of machining operation in the DPM Machining Process Planner workbench. For a Profile Contouring operation created in Between Two Planes mode, you can generate an IPM using the From Tools setting.

Support of Inseparable Assemblies

You can create an Assembly Station-type activity and insert it in the Process. You can select the parts to assemble and assign them to the Assembly Station. The IPM generate, update and navigation mechanism takes these inseparable assemblies into account. Drawing extraction is possible from an Assembly Station for shop floor documentation. IPM instantiation is possible from an Assembly Station.

Multi-color in IPM Navigation

You can use this capability to identify in one shot how many machining operations are included under a Part Operation and quickly locate the machined zones.

New Annotations Toolbar

Basic annotation creation commands (Annotation plane and Text) are now directly available in the DPM Machining Process Planner workbench.

DPM Process Definition

DELMIA Digital Process for Manufacturing (DPM) Process Definition provides a generic process authoring foundation for manufacturing industries that are Bill-of-Material-(BOM)-centric. This product enables a process-centric approach for work preparation for the user base and provides a path to grow into digital process planning and simulation validation.

DPM Process and Resource Definition

New Functionalities

Process and Resource Definition

Displaying the Utilization of Resources in the Resource Gantt Chart

The individual utilization of resources can be displayed in the Resource Gantt Chart if these resources are linked with processes. The utilization is determined on the basis of specified cycle times and calculated cycle times.

Using the Zoom Functions in the Chart Viewers

You can use the zoom functions for every chart viewer, such as the PERT Chart or Gantt Chart.

Selecting Colors for Processes in the Resource Gantt Chart

The colors of processes that are linked with the resources can be individually selected and changed in the Resource Gantt Chart. You can use this setting exclusively in the Resource Gantt Chart and for DPE-Projects.

Listing Activities, Products, Resources and Hyperlinks

Highlight Unassigned Parts: The preselected product is displayed in the header. The List the Unassigned Products command has been extended for this release. The new functions enable you to highlight unassigned parts in the 3 D graphic with a selection color.

Hide/Show command for Manufacturing Assemblies

The Hide/Show function enables you show or hide the 3 D graphics of products that are assigned to a Manufacturing Assembly. Starting with this release, Manufacturing Assemblies are represented by a specific icon in the tree, which in turn also shows the particular status of each Manufacturing Assembly.

Opening the PERT Chart

Positioning Processes in the PERT chart:

Up until this release only individual processes could be selected and moved in the PERT chart. Starting with this release, you can move and reposition several processes in the PERT chart simultaneously. You can select multiple processes in the PERT chart by pressing the Control key and the left mouse button. This shortcut enables you to move and reposition the selected processes in the PERT chart.

Marking Activities in the PERT Chart:

In order to distinguish among activities in the PERT Chart, activities that have an altered description in the activity properties are marked in the PERT Chart.

End condition for defining processes

Starting in Release 17, the Define conditions command can also be used for processes that have a resource as a parent.

Adding an Activity as a Child to a Resource

Starting in Release 17, the command Insert Activity enables you to create processes in the behavior of resources. In order to assign these resources in V5, the resources must have a behavior, e.g., by default the DPE plantypes "line" and "station."

Compare a Modified Process

This command is enhanced for fasteners. The result of the comparison is displayed beneath the tab page Graphical Tree.

Using the Precedence Viewer

The positions of activities in the Precedence Viewer can be saved in the Manufacturing Hub. Activities in the Precedence Viewer and PERT chart always have the same position. Position changes in one of the viewers immediately affect the positions in the second viewer.

Synchronizing the End and Start times for Processes

Processes can be linked in the Activity Synchronisation dialog using the synchronisation link relation. You can set either the same start or end times of processes that are linked via these resources. This relationship can only be created between processes that are not already in a relationship, such as Control Flow or Precedence Constraint.

Precedence Constraints Management

In Release 17, the Create Precedence Constraint command enables you to create precedence constraints relationships between processes.

Viewing Modified Parts

The Modification Table dialog has been extended for Release 17. These extensions enable a comparison between different Product Structures (or different versions of the same Product Structure).

Verification

With release of R17 both options Resource Display and Display Parent Activity's Resource are deleted from tab Verification.

Manufacturing Hub

Enhanced effectivity options during save

Different effectivity values can now be specified for different types of newly created objects (Processes, Resources, Process Relations, Manufacturing Assemblies and Manufacturing Kits) when saving to the Manufacturing Hub.

Enhanced Insert from Template command

Assembly Spec Tree Manufacturing Assembly components can now be browsed and inserted with the Insert from Template command.

Load logical line resources

A new option is provided in the **Tools > Options > Digital Process for Manufacturing > Manufacturing Hub** tab to load resources without loading their respective geometry.

Resource-centric project loading

Projects can be loaded by selecting a resource instead of a process, and all data associated to the selected resource will be loaded.

Behavior when Importing Manufacturing Assemblies

The Import Product, Resource, Manufacturing Assembly and Manufacturing Kit command does not display Manufacturing Assemblies (which are defined in the Assembly Process Planner product) in the browser.

Create alternate resources

The Create Alternative contextual command allows users to create alternatives of resources (line, station, etc.) to suit various types of resource needs.

Marking alternate resources

The Mark Alternative contextual command allows users to mark alternatives of resources (line, station, etc.) to suit various types of resource needs.

Optionally load children of products and resources

When opening a Manufacturing Hub project in DPM, you can control whether or not the children of the products/resources assigned to the processes that are loaded.

Support for IPM Products

IPM Product structures created in DPM Structure Lofting may be saved in the Manufacturing Hub.

Loading resource behavior

A new option in the PPR Hub – Select Resource dialog allows you to optionally load the behavior for the selected resource when using the Import product, Resource, Manufacturing Assembly and Manufacturing Kit command.

Enhanced Extended Effectivity support

When opening a project the user can specify extended effectivity separately for processes, products and resources.

Support for V4 VPM data

When a connection to a VPM V4 server is established from DPM (before loading a project from the Manufacturing Hub), the geometry of Work System Components pointing to VPM V4 documents will be loaded in DPM. Note that the Load ENOVIA Geometry from ENOVIA Database option must be enabled from the PPR Hub tab page in Tools > Options.

Implicit filtering

Implicit Filtering makes the activation of components defined as Link Activated or Sibling Activated dependent on the activation of related components, child components and sibling components.

Manufacturing Context Precedence

When computing the Manufacturing Context, the process traversal can now be based on either control flow or precedence.

Process filtering for Manufacturing Context

The computed Manufacturing Context can now be filtered based on process attributes.

Editing multiple relations between related entities

When multiple relations exist between two entities selected from the Open Extended Property Panel command, specific relations of interest may be selected from a list and edited individually.

DPM Structure Lofting

DELMIA Digital Process for Manufacturing (DPM) - Structure Lofting addresses manufacturing requirements for the shipbuilding industry. It provides a set of tools to allow lofters to prepare parts for manufacturing.

An overall ship design project goes through a number of different phases from conceptual design to functional and detail design, and from planning to generating manufacturing deliverables. DPM - Structure Lofting is a process driven application and as such provides solutions at each phase of the project.

This product lets you detail:

- Joining operations (weld information, marking lines, reference lines, margins, fit-up, edge preparation, pin jigs, girth tables)
- Initial marking & cutting operations (burnside up, openings)
- Plate forming operations (roll lines, surface distortion, templates)
- Profile bending operations (overlength, inverse bending curves, templates).

It also lets you:

- Automatically generate, and navigate through in-process model showing interim products at every stage in your process
- Automatically extract relevant workshop documents.

DPM - Structure Lofting is an add-on product for DELMIA configurations such as AP2 or AG2.

As a scalable product, it can be used with other Version 5 products such as Generative Drafting. DELMIA Object Manager is a pre-requisite product.

DPM - Structure Lofting is available on both UNIX and Windows environments.

Electrical Harness Simulation

New Functionality

Control Points

The actions to assign, change, add and delete control points on a bundle segment have been modified. The control points are named based on their position in the bundle segment definition curve. Two types of control points are used: user-created and engineered.

Manufacturing System Definition

DELMIA Manufacturing System Definition (MSD) serves as a foundation for DELMIA's DPM family of vertical resource planning and simulation applications. It provides core functions to create, visualize, and verify manufacturing resources, and allows users to create child process for resources with behaviors that are based on best practices. With Manufacturing System Definition, users can completely define a resource by creating hierarchies of logical resources and sequencing their operations. Users can add additional detail to their operations by assigning both products transformed by the operation and resources that act on the products.

Manufacturing System Definition supports basic tools for concurrent engineering of products, processes, and resources (PPR). It provides many different viewers from which to edit resource information: the PPR tree view, the Manufacturing System Gantt view, the Resource Utilization Gantt view, the System Editor, and the 3D inventory view. Altering the data in any view automatically alters it in all others. Users can verify the accuracy and performance of the designed resource by employing a set of internal and external simulation analysis tools. Finally, Manufacturing System Definition allows users to document their processes using convenient standardized formats such as HTML.

Manufacturing System Definition enhances the functionality of many of the commands available in DPM Process and Resource Definition. With the original DPM Process and Resource Definition product, resource planning was inextricably linked with process planning. With Manufacturing System Definition, you can perform resource planning independently of process planning.

To get the full benefit of the Manufacturing System Definition, you must have a MSD license. As noted above, Manufacturing System Definition shares some commands with DPM Process and Resource Definition; however, only when you have a MSD license can you access the full functionality of this workbench.

Manufacturing System Definition is an essential tool for process engineers and simulation engineers who work in areas such as aero assembly, auto assembly, body-in-white, powertrain and inspection.

Manufacturing System Definition is available for Windows and UNIX platforms. Note that some add-on products, such as the Manufacturing Hub and Engineering Requirement Planner, do not have UNIX versions.

Part Design

New Functionalities

Pulling Direction Analysis

The Pulling Direction Analysis command enables you to analyze the pulling direction and related draft angles in order to define the best pulling direction.

Manual Update

You can now quickly change the Update Mode by clicking Manual Update.

Enhanced Functionalities

Reorder

You can now reorder features in three ways:

- After a feature you select (default option)
- Before a feature you select
- Inside a body, a solid body or a geometrical set.

Technological Results

Technological Results now takes knowledge parameters as well as User Defined Features (UDF) into account.

Rib

The Move profile to path option allows you to easily associate profiles with center curves but also sweep a single sketch along multiple center curves.

Slot

The Move profile to path option allows you to easily associate profiles with center curves but also sweep a single sketch along multiple center curves.

Variable Radius Fillet

The No internal sharp edges option removes all possible sharp edges generated by the Variable Radius Fillet command.

Thread

Three additional parameters dedicated to thread features can now be set when using Formula.

Split

If the splitting element is a surface or a non-planar face, it must intersect the element to be cut before being selected. Otherwise the split feature will be generated but no material will be cut.

PPR Navigator

The PPR Navigator product enables you to access the Manufacturing Hub from DPM applications.

Once logged into the Manufacturing Hub, you will be able to:

- Open a project
- Fully navigate the PPR structure of the project
- View the properties of the PPR data in the browser
- Edit properties in the Properties panel

Real Time Rendering

Enhanced Functionalities

Materials

Importing and Exporting Materials in 3D XML

Materials applied to CATProducts can now be saved and retrieved in 3D XML format.

New Functionalities

Materials

Replacing a a material library by another one

It is now possible to replace a material library through the Edit > Links capability.

Sketcher

Enhanced Functionalities

Profile Features

- Dialog box display: As soon as Profile Feature is selected, the Profile Definition dialog box is displayed even if no geometry is selected.
- Default options: The parameters and options defined for a profile are kept as default values for the next profile you will create later on.
- Delete contextual command: it is now possible to remove geometrical elements from the input geometry selection.

Fix Together

- Dialog box display: As soon as Fix Together is selected, the Fix Together Definition dialog box is displayed even if no geometry is selected.
- Delete contextual command: it is now possible to remove geometrical elements from the input geometry selection.

DPM Structure Manufacturing Preparation

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It also lets you:

- Automatically generate, and navigate through in-process model showing interim products at every stage in your process
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Structure Manufacturing Preparation is an add-on product for DELMIA configurations such as AP2 or AG2.

As a scalable product, it can be used with other Version 5 products such as Generative Drafting. DELMIA Object Manager is a pre-requisite product.

Structure Manufacturing Preparation is available on both UNIX and Windows environments.

Tool Selection Assistant

Enhanced Functionalities

Collision tolerance and hub compliance features have been added to the Weld gun collision check command

You can now specify the collision tolerance between colliding objects in the Weld gun collision check command. Also, the Weld gun collision check command is now hub-compliant.

Collision tolerance and hub-compliance features have been added to the Weld gun search command

You can now specify the collision tolerance between colliding objects in the Weld gun search command. Also, the Weld gun search command is now hub-compliant.

Rotate (X) function for reachable but unfeasible weld

This function extends the Rotate (X) functionality for reachable but unfeasible welds (also known as not feasible or NF welds).

Using the Analyze Welds for Robot option to highlight welds

In the Target Report of the Analyze Target command, the welds can be listed either "By Welds" or "By Robots" using the respective radio buttons. When welds are selected in the target report, they are highlighted in the PPR tree and the 3D window for the easy identification. This helps you to see the welds physically and to visualize the results of the target report.

You can choose to show or not show graphics update

In the Analysis tab of the Weld Study dialog box, you can choose to turn off the graphics update to reduce the computation time and increase the performance of the weld study.

Adding or removing the robot parts in the collision list

While doing the weld study, you are provided with a Browse button to add/extract the robot parts in the collision list for a specific robot.

Weld reassignment in the Analyze Target Command

This highlight provides support for Weld Reassignment in the Analyze Target command without closing the Analyze Targets dialog box.

Using the assembly spec tree for a gun search

You are able to provide a Manufacturing Assembly as an input to the Weld gun search command.

Cut section improvement in 2D Section Stack command

Using the 2D Section Stack command, you can hide all the sections other than the selected weld.

Wireframe_and_Surface

New Functionality

Transferring Elements

Enhanced Functionalities

Creating Points

You can now select an optional support when creating a point "Between".

Creating Projections

When the Nearest Solution option is checked and several solutions are possible, you can now choose the solution.

Creating Blended Surfaces

New smooth parameters section.

Keeping the Initial Element

When selecting input elements that are in no show using both datum and no keep modes, the result will be in no show too.

Replacing Elements

You can now check that a replacing feature has been inversed at edition ("Inverse" feature is no longer created).

Keeping the Initial Element

When selecting input elements that are in no show using both datum and no keep modes, the result will be in no show too.

Unfolding a Surface

New options are available to reverse and swap the directions.

You can now select the surface type, either a ruled surface or any type or surface.

You can now display length distortions.

Arc Welding

New Functionality

Computing Rail/Gantry Values

This allows you automatically to assign aux axes values for translational external axes.

Enhanced Functionality

Selecting the Tag Group or a Tag

The Orient Tag/Tag Group icon from the Tag toolbar enables users to select a Tag or a Tag group (all tags) from a window in the dialog box.

Device Building

New Functionalities

Variable Travel Limits

Many times the movement of joints depend on the movement of other joints as well. This movement can better be assigned using mathematical expressions rather than specific values.

Set Tool has been added to Device Building workbench.

To mount a Device on a Robot, a command called Set Tool is available through the Device Task Definition workbench. However, in the Device Task Definition workbench, the mounted device was not persistent with all instances of the robot. The Set Tool command within Device Building workbench, allows you to use the same robot, mounted with the auxiliary device, in a different CATProcess.

Robot Motion Controller Properties

A tab titled Motion Controller Properties provides you with a variety of options to further define robot controller. Response Delay, Settle Time, Acceleration Scaling, Time-based motion, Joint Interpolation Mode and others are available on this properties page.

Creating a Multiple TCP Type Robot Model

Inverse kinematics can be assigned to robots with multiple TCPs.

Device Task Definition

New Functionalities

- TCP Trace Action command has been added
 - The TCP Trace Action command enables you to hide or show a TCP trace as part of a device task. The TCP Trace Action command is part of a new toolbar: Action Library: Generic Actions.
- Hide Show Action command has been added
 - The Hide Show Action command enables you to hide or show a part or parts in the 3D viewer during simulation (e.g., Teach) of a device task. The Hide Show Action command is part of a new toolbar: Action Library: Generic Actions.
- Map with Applicative Profile command has been added
 - Users can now map simulation attributes with applicative profile parameters.

Enhanced Functionalities

- Set Tool command can be used in a CATProduct
 - When a device is mounted on a robot within a CATProduct document, an instance can be loaded into the CATProcess document.
- The Set Tool command allows greater flexibility in setting the mount point
 - Users can choose a mount point from the geometry or PPR tree. Users can create an offset from the mounting plate and set that as the mount point. In addition, users can remount a device even if they have not unmounted it.
- TCP Trace allows users to attach the trace to a part
 - In addition, the trace is related to the robot itself and not the world. By default, the trace is attached to the robot. You can also detach traces.
- For actions, you can set the device move using DOF joint moves
 - In previous releases, users were only allowed to use predefined positions (e.g., home).
- Users can select Dynamic as a pose interpolation mode instead of using Config and set turn numbers
 - This function is available when defining Robot Motion and can also be accessed via the Teach dialog box.
- Users can set the robot's heartbeat using the robot controller's property sheet
 - This heartbeat is now used for simulation purposes in release 17.
- The Teach command has been enhanced
 - Users can create a new task from the Teach dialog box; you can jog mounted devices when you select Jog on the Teach dialog box; you can copy actions from one operation into another; you can create re-usable poses within the Teach dialog box; you can simulate a single activity using Teach, you can select an applicative profile for an operation from the table view, and you can select ABF Spot Weld fasteners.
- The Pick Action supports picking multiple items
 - Similarly, the Drop Action supports dropping multiple items.
- The Cartesian tab in the Jog dialog box allows you to select a reference frame
 - You can define your own reference frame, if desired.
- You can observe the change in joint values from the Jog dialog during Teach
 - When you select the Jog check box on the Teach dialog box, you have the option of selecting Continuous Update from the Jog dialog box. You can see the change in joint values on the Jog dialog itself, instead of relying on Data Readout.
- The Create and Configure an Operation command has two new features
 - When creating Pick or Drop actions for robots with multiple devices mounted, users no longer have to select among all devices in the PPR; they only have to select devices mounted to the robot. Users can also create comments that are associated with specific activities.
- You can measure the distance between any two tags
 - The Measure Between command has been modified to recognize tags as geometrical entities.
- SLEW motion is now a supported motion type

Equipment Arrangement

New Functionalities

Creating an assembly. You can group several parts in an assembly and store the assembly in the catalog. You can add parts from any 3D application in the assembly.

The methodology you should follow to create multi-discipline equipment and nozzles is explained.

You can generate reports from one or more parts catalogs using this process.

You can use the Activate Grids command to activate a plane system grid.

New sections explain how to build a loose part and an insulation part.

Copying Attributes explains how to copy selected attributes from one object to another.

Enhanced Functionalities

An option you can set allows ignoring of compatibility checks when placing parts.

The procedure for managing logical publications has been modified.

A new option allows you to use a dialog box to select the connector on which to place a part, and is useful in busy documents.

The procedure for creating and modifying catalogs has been changed.

Analyzing Object Information - You can select objects in your 3-D document (runs, connectors) and display attributes such as part number and part type in a dialog box.

You now use the Connect Parts dialog box to connect two objects, and the Disconnect Parts dialog box to disconnect.

You now can create up to 20 graphic representations for each application. Among other changes, you now can choose to display a view-specific 3-D symbol at the connectors of the generated part.

Plant Layout

New Functionalities

Making an Area Pickable explains how you can place a compass or reference plane on an area.
The redesigned insert nodes function allows you to insert a node in a run with more flexibility.

Enhanced Functionalities

The breaking a run function has changed and now provides several added features.
Analyzing Object Information - You can select objects in your 3-D document (runs, connectors) and display attributes such as part number and part type in a dialog box.

Production System Analysis

The Production System Analysis product enables you to receive reports from the simulation or model after the user has performed some work. This component enhances the current products by providing valuable statistics about the model and simulation. This product enables the user to make decisions and to have a better understanding of the scenario. Reporting is based on XML, and as a consequence, customization of reports is possible. Default reports are provided in HTML and in Graphical (SVG) format. Users can customize by writing transformations to the XML output provided.

Realistic Robot Simulation

New Functionality

The ability to assign controller-specific attributes as a group using Applicative Profiles is available.

Realistic Robot Simulation II

New Functionality

Real-time managed VRC-connected robots can be moved under VRC module UI control using **RRS-II Free-Play**.
For details see Controlling RRS-II Robot Using Real-Time Managed VRC User Interface.

Resource Layout

The Resource Layout product enables you to easily create a layout design for a manufacturing plant or other type of plant. The main focus of the product is to allow preliminary or conceptual design of a plant to be accomplished quickly. It provides an efficient, cost-effective way to lay out an initial plant design for review and validation. The initial plant design may then be expanded, evolved, and modified to continue the plant design process. The entire process is accomplished through a simple, highly intuitive interface, combining traditional 2D layout paradigms with full 3D capabilities to allow you to build a 3D digital representation of the plant.

Robotics Off-Line Programming

Enhanced Functionalities

Creating Tags

To allow unambiguous tag creation, two XML attributes are available for "Tag" XML element: "PathToPart" and "AttachmentType".

Identifying Frames of Reference for Tag Targets.

A frame of reference for a tag target, relevant for both upload and download, depends on the values of both object and tool frame profiles associated with the robot motion activity that contains that tag. There are four different cases explained in the task.

Workcell Sequencing

Enhanced Functionality

The robot task selected in the most recent session of IO Map and Monitoring comes up by default

Because users frequently select the same robot task for IO Map and Monitoring, the dialog box now saves the last robot task selected and defaults to that task, so that users no longer have to select it.

DMU Dimensioning & Tolerancing Review

New Functionality

Overview

You can now make a review of 2D layout contained in a part and created with the 2D Layout for 3D Design product, from the part or assembly context. This review requires no license of 2D Layout for 3D Design and allows you to:

- Display the 2D layout window.
- Make a non-persistent measure between 2D geometries.
- Print 2D layout data.

DMU Navigator

Enhanced Functionalities

Customizing DMU Marker

- 3D Annotations text properties now have dedicated settings.

- Marker default properties, 3D Annotation text properties and 2D Annotation text properties are now found in a new DMU Marker tab.

Snapping Components using Multiple Constraints

- Invert rotation around the U-axis and the V-axis.

Running the CATDMUUtility Batch Process

- VPS format now supported.

Running the CATDMUBuilder Batch Process

- 3D XML output format now supported.

Managing Annotated Views

- Multiple annotated views can now be displayed simultaneously.

DMU Optimizer

This section identifies what new or improved capabilities have been documented in the Version 5 Release 17 of DMU Optimizer Interference Management User's Guide.

Enhanced Functionalities

Using Simplification

Now takes advantage of a new decimation algorithm which produces a better result.

DMU Space Analysis

This section identifies what new or improved capabilities have been documented in the Version 5 Release 17 of DMU Space Analysis User's Guide.

Enhanced Functionalities

Sectioning

Section Export

The resulting section curve is now exported as polyline thus ensuring a correct result close to section geometry

Section Result window

You can now customize the size and positioning for the sectioning result window and open multi sections simultaneously using a contextual menu command.

Measure Tools

Exact measure versioning

Exact measures are now versioned, thus ensuring measures created on a specific level are always valid and stable on this level.

Interference Checking

Intersection Volumes

Intersection volumes are now taken into account during interferences calculation providing an improved result displaying the inertial box.

Exporting Clash Command Results

You can now export intersection volumes in cgr format

Interference selection

It is now possible to display and edit clash selection using the Part Selection functionality in a Process document (with a DPM Assembly Process Simulation license)

Customizing Settings

Sectioning

DMU Sectioning

You can now customize the sectioning result window (arranging the section viewer size and positioning). New options are available in Tools > Options > Digital Mockup > DMU Space Analysis > Sectioning tab > Result Windows .

Interferences

DMU Clash - Detailed Computation

Boolean button not only enables the intersection volumes calculation but also the inertial box display (Tools > Options > Digital Mockup > DMU Space Analysis > DMU Clash - Detailed Computation > Intersection Volume)

DMU Clash

New option to specify the clash value font size Tools > Options > DMU Clash .

Human Builder

New Functionalities

Using the Auto Place (Z Only)

This describes how to use the Place Mode (Z only) command. This provides you with an easy-to-use tool for placing the manikin in the 3D environment, in accordance with the manikin's referential.

The Auto Grasp Toolbar

These functions automatically generate a grasp posture of the hand by checking the collision between the hand and one or several objects to be grasped, thereby decreasing the time it takes to create accurate postures.

Positioning objects on an area's surfaces

The Plant Layout workbench allows you to layout a manufacturing facility. One of the objects that Plant Layout can create is an "area," which is a solid representation of a floor. Many positioning tools require getting some sort of geometric representation for orientation, for example, snapping two objects together, aligning two objects, placing the compass on an object, or placing a temporary plane object on the surface. Using these features makes the area pickable, so it behaves similarly to a mechanical PAD in that you can place the compass on the area and snap to the orientation the compass defines.

Enhanced Functionalities

Optimize Posture findings for Human Posture Analysis, and Human Activity Analysis

In the Inverse Kinematics (IK) behavior panel, you can choose to optimize the posture according to either Postural Score or RULA Analysis. This option is in effect when IK mode or Reach mode is used, as well as when the IK solver is called to resolve a constraints update.

Enhanced snap for the Reach Mode command

The Enhanced Snap for Reach Mode Command functionality enables you to get a more predictable and acceptable posture of a manikin's segment after a reach using the Reach (Position & Orientation) command. This shortens the time of fine-tuning the posture after a reach operation.

Plan Orientated Coincidence Constraint for Manikin Segments

You can create a 2D Plan Coincidence constraint between any segments and any plans. The creation process works exactly as it does for the other constraints. After updating the constraint, the segment is perpendicular to the surface selected for the constraint. This highlight adds another type of coincidence constraint, described as a 2 Directions Plane coincidence constraint. The coincidence constraints created in previous versions are Point to Plane coincidence constraints, and are defined as such from R17 and onwards.

Gender and Percentile to be maintained on Manikin Instance

This feature allows you to reduce the number of manikin reference files. In particular, this feature can be applied to complex and complete simulation scenarios in which a large number of workers need to be involved, and sometimes changed in order to try different modeling alternatives. You can access this feature through Tools > Options.

Visual Cone Enhancement

The vision cone is an arbitrary limit that can be specified by the user in order to analyze what can be seen by the manikin inside a certain degree around the line of sight. This limit can represent an optical characteristic of the eye, like the limit for maximum acuity (approximately 1 degree) or the limit for colors discrimination (around 35 degrees).

Reporting Enhancements

This broadens the spectrum of possibilities of the existing report objects. First, you can now customize the input parameters of reports objects; second, you can see a status report for the manikin; third, you can see a new column in the report files that is used to store the input parameters of the reported elements.

Generating a Status Report

In the Status Report, you can select the items that you want to save in the report. By default, all the items are checked.

Head/Neck kinematics model enhancement

In previous releases, the head motion was not natural while the manikin is looking at something located on the side. In this context, moving the compass up and down in IK mode produces lateral movement of the head.

Human Task Simulation

New Functionality

Positioning objects on an area's surfaces

The Plant Layout workbench allows you to layout a manufacturing facility. One of the objects that Plant Layout can create is an "area," which is a solid representation of a floor. Many positioning tools require getting some sort of geometric representation for orientation, for example, snapping two objects together, aligning two objects, placing the compass on an object, or placing a temporary plane object on the surface. Using these features makes the area pickable, so it behaves similarly to a mechanical PAD in that you can place the compass on the area and snap to the orientation the compass defines.

Enhanced Functionalities

Setting a Default Walking Speed

You can now specify the default walk speed used by all walk creation methods. You can use the application settings to set this speed.

Moving a picked object on a linear path

It is difficult to move picked parts on straight line or other predefined paths. Moreover, the picked object should accurately follow the path while hand movements should follow the movement of the object. This feature provides the ability to move a picked object on a linear path.

The ability to operate a manikin to follow a part or device

The Operate activity enables the linking of a manikin's posture to a device's move activity. This relates a manikin's hand to a link in the device chain. Then you can simulate the manikin's drive to the device with its hands following the device movement. This can apply to manikin opening the hood, the car door, manipulating a kinematics tool in a manufacturing environment, etc.

The ability to create a collision-free walk

This procedure reduces the time required to define a walk through a clutter of resources. It helps you with walk creation by finding shortest collision-free path between the start and the end point of a walk.

Reporting Enhancements RULA XML after Simulation

This provides an easy way to generate graphics from the results while retaining the ability to save the data in text files.

The Line of Sight managed on a MoveToPosture (MTP)

This feature provides the capability to store the postures of lines of sight in a MTP. This allows you to simulate the change in the gaze of a manikin, which involves no head movement, and the field of vision between the gazes that you can see using the vision window.

NC Machine Tool Simulation

New Functionalities

- Users can simultaneously perform material removal and machine simulation
 - This is possible using NC code only. Users can also save the machine result in a separate .CATProduct file or associated the machined stock with a manufacturing program.
- The Stock Analysis functions from NC Manufacturing Verification are available within the NC Tool Simulation workbench
 - If users have an NC Manufacturing Verification license, they can access the Video Measure, Analyze, and Remove Chunk commands available via the Stock Analysis command.
- Users can use NC code generated outside of V5
 - This code can be used for machine simulation and integrated material removal simulation.

Enhanced Functionality

- The Process Simulation toolbar has been streamlined
 - The toolbar includes the commands needed for machine simulation and for material removal simulation, but does not contain extraneous commands. When you select Machine Simulation, you see the toolbar, although if you have not chosen to have material removal simulated, not all of the options on the toolbar are available.

Customizing Settings

- NC Code Simulation
 - Users can choose to have material removal simulated. In addition to controlling material removal simulation, this option enables users to save the stock from a machine program or operation, and to control material removal updates.

NC Manufacturing Infrastructure

Enhanced Functionalities

Support of additional compensation points

It is now possible to define additional compensation points on the following tool types: End mills, T-slotters, Taps, Reamers, and Thread mills.

Support of spindle speed on tools

In addition to a linear cutting speed, the rotation speed of milling and drilling tools can now also be seen as a spindle speed (angular value).

Partial tool path display

It is now possible to perform a partial tool path replay for the selected activity with most display and visualization options of a complete tool path replay.

Tool holder display management

It is now possible to show/hide the holder during tool path replay.

Default tool assemblies and CATProduct user representations of tools are supported.

Prismatic Machining

New Functionalities

New Plunge Milling operation

Operation in which the tool path is determined by a grid specifying the plunge positions and the order of machining.

Enhanced Functionalities

Additional Thread Milling capabilities

Existing thread milling operation is enhanced to offer new machining strategies. Multiple helical passes as well as conventional and climb cutting are now supported. The thread can be machined from top to bottom of a hole or from bottom to top of a hole. Boring bars can now be used in this operation.

Fully Engaged Tool Management in Prismatic Roughing

This parameter is used to manage full material cut when roughing hard material, where the stepover is not always respected and where the tool can be damaged.

DPM Shop Floor Viewer

New Functionalities

Support for Plug Map View during Step Through

When the current activity is an insertion activity during Step Through, the Plug Map View dialog displays the logical data and graphical view of the connector, as well as the Termination List for the wires related to the current activity.

PPR Tree viewable in the 3D Viewer window

A new option provided in Tools > Options allows for the PPR tree to be selectively viewed in the 3D viewer window.

Enhanced Analyze command

Multiple parts can now be viewed with the Analyze command, allowing you to view their FTA data and perform measurements between different parts in the Measure Tab of the Analyze window.

New List Annotation Sets On/Off command

Easily switch the annotation defined on parts on or off.

Cross Highlighting during Step Through

The Step Through command now provides cross highlighting options. This allows for highlighting products and resources in both PPR Tree and 3D viewer that are assigned with any of the selected relations while Process Verification is executed.

Simulation support for new Work Instruction activity types

The rich formatting simulation behavior of the new Work Instruction activities (Work Instruction Text, Data Collection, Buy Off, and Change Notification) is supported through the Step Through command inside the DPM Shop workbench.

DPM Work Instructions

New Functionalities

- Support for Generative Text, BuyOff, Data Collection and Change Notification activities
 - Text, BuyOff, Data Collection and Change Notification activities can now be predefined and stored in the Manufacturing Hub for later use in DPM Work Instructions sessions.
- Support for Viewpoint activities
 - Viewpoint activities can be created as part of the set of Work Instructions and saved in the Manufacturing Hub.
- Support for Work Instruction Visibility and Annotation activities
 - Viewpoint activities can be created as part of the set of Work Instructions and saved in the Manufacturing Hub.
- Load Library Information command
 - This command can be used to load the Library Item information for any number of Shell Work Instruction activities to convert them to Unresolved Work Instruction activities.
- Resolve Work Instruction Text command
 - This command will be used to convert unresolved text associated with a given Text Activity into resolved text.
- Formatted Work Instructions
 - Process Simulation and Process Verification commands have been added to DPM Work Instructions to view work instructions that are automatically formatted with information taken from the process, product or resource.
- View and execute hyperlinks within a Work Instruction Text message
 - Embedded hyperlinks can be viewed and executed when using the Process Simulation or Process Verification commands to view Work Instruction text message.
- New Cross-highlighting command
 - Cross-highlighting highlights products and resources in both PPR Tree and 3D viewer that are assigned with any of the selected relations while Process Verification is executed.
- Unique identification support for Insert Activity command
 - A unique process identifier is generated for activities that are inserted via the Insert Activity command (now included in the Create Work Instructions toolbar). The unique identifier generated is dependent upon the Tools > Options > Libraries > Generate Process Identifier settings in DPM Process Planner.
- Enhanced API for automated order creation
 - The new CreateShopOrder API can independently control the generation of Pack-n-Go, Job XML and Precedence XML. The CreateShopOrder API supersedes the now deprecated CreateOrder API.

Generative Drafting

New Functionalities

Adding 3D clipping

In the Generative Drafting workbench, you can now define the 3D limits of the view you want to process, without entering the DMU workbench.

Clipping view and clipping view profile

From R17, you are proposed two clipping view modes: the new **Clipping View** command uses a boolean operator from the 3D whereas the **Quick Clipping View** command computes the view directly from the 2D projection. Each operation can be performed using a circle or a sketched profile as a callout.

Creating associative graphical dress-up

Thanks to the new **Create Associative Dress-up** icon (in the **Tools** toolbar), you can now create graphical dress-up that are not persistent.

Restoring 3D graphical dress-up

After creating associative dress-up in a view, you can select the 3D properties you want to restore.

Dimension Clipping

You can create, modify or remove a clipping on a dimension.

Enhanced Functionalities

Screw in a threaded hole

In a section view or a breakout view, a screw in a threaded hole is no more considered as a clash, when respecting a few listed conditions.

Customization of a Raster view

It is now possible to display in a raster view the same colors as in the 3D geometry.

3D points name

A new Generative View Style parameter specifies whether generated points name should be inherited from 3D or not.

Circular detail View

The leader associated to the circular callout now remains perpendicular to the circle.

Interactive Drafting

New Functionalities

Dimension Clipping

Create, modify or remove a clipping on a dimension.

Minimum distance dimension

Create a dimension measuring the absolute minimum distance between two curves, or between a point and a curve.

Open Type Fonts

On both Unix and Windows, you can use an OTF and parameterize its kerning (for text only).

Fixing elements together

Define a rigid behavior for a set of 2D geometric elements.

2D Component Instances

Exposed 2D component instance

The new **Exposed** icon allows you to instantiate and expose a 2D component from a catalog. The component instance is not linked to its reference in the catalog, but to an identical 2D component reference in a detail sheet.

Exploded 2D component instance

The new **Explode** icon allows you to instantiate and explode a 2D component. The component instance is not linked to its reference, so behaves as independent geometry and annotations.

Fix together constraint on a 2D component instance

The new **Fix together** icon allows you to instantiate and explode a 2D component, with a fix together constraint applied to its geometrical elements.

Multiple instantiation from a list of points

Multi-instantiate a 2D component using selected points as origin points.

Enhanced Functionalities

Dimension leader first part length

Define a value for the length of a dimension leader first part, and manipulate it.

Support of 2D line type on line, circle and spline

Bidimensional linetypes are taken into account on all monoparametric geometries (line, circle, spline).

Stroke Font

Administrators can manage the print thickness of a stroke font.

Engineering symbols list customization

Administrators can add new symbols. They can also modify the font and character of symbols provided by default.

Area Fill

Creation

Define if the area fill should be isolated or not, via the new **Create Datum** icon and the **Tools Palette** toolbar.

Modification

Modify the shape of an associated or isolated area fill.

Customizing Settings

Area fill customization

A new option allows you to delete or not the geometry support when deleting an area fill.

A second option lets you define the area fill detection mode.

Dimension leader first part manipulators

You can decide to visualize/use or not manipulators to move a dimension leader first part during the creation and/or modification of dimensions.

DPM Shop Order Review

The Shop Order Review product enables you perform Shop Order related functionalities.

The Shop Order Review User's Guide has been designed to show you how to create Shop Order Review designs. Based on design factors and various industries and domains, different design approaches may be undertaken. This book provides an overview of the product and aims at illustrating specific design procedures to aid your plant design efforts.

3D Simulation for Manufacturing

New Functionalities

Interactive Analysis command has been added

The **Interactive Analysis** command enables users to see data changes in distance analysis objects outside of simulation; e. g., when a user uses the manipulation handle to move data.

Analysis Display command has been added

This command enable users to see which analysis objects are running while the simulation is running. Users can filter the list, and choose to see the current analysis level in addition to the analysis types. By default, the **Analysis Display** is activated when the **Analysis Mode** is turned **On**.

Enhanced Functionalities

Visibility activity allows selection of manufacturing assemblies

Rather than select all the discrete parts within an assembly for a visibility activity, users can select an entire assembly.

The scope of analysis can be set to global or local

The **Analysis Configuration** command enables you to determine whether analysis objects that are bound to move activities can be observed globally (throughout an entire simulation) or locally (only during the move activity to which the object is bound).

The Filter dialog box for Analysis Information has expanded

Users can now select from among multiple move activities and analysis objects for filtering, as well as filtering for message levels.

Process Simulation recognizes Start/Start and End/End relations

These relations enable users to simulation activities that end or start at the same time.

Customizing Settings

The Analysis Status dialog box can be set to appear when Analysis Mode On/Off is selected.

Also, individual analysis objects can be set to appear or not appear by default in the **Analysis Status** dialog box.

Data Exchange Interfaces

Enhanced Functionalities

DXF/DWG import

AutoCAD 2004, 2005 and 2006 are supported at import.

Import of AutoCAD layer name has been improved.

DXF/DWG export

Export of splines has been improved.

Customizing Settings

DXF/DWG export

The export modes Semantic and Structured have been merged into Semantic as the only difference related to the export of dimensions. Consequently, Semantic now offers an option to export V5 dimensions as AutoCAD dimensions as in previous releases.

Semantic mode now lets you decide to export V5 layer name as a number or a name.

Infrastructure User Guide

New Functionalities

Virtual Reality Configurations

Working with Clusters

A new computing system called "cluster" is supported. This system lets you use a set of several computers consisting of one master computer and one or many slave computers.

Knowledgeware

About Knowledgeware Relations and Linear Containers

Knowledge features are integrated to the linearity process. To find out more, see also Knowledgeware Features and Linear Containers: Special Cases.

Printing Online Documentation

Enhanced online documentation printing

Documentation is no longer delivered in PDF format. However, to enable you to print online documentation more easily, a new print engine allows you to display main pages (and all child pages to which the main page is linked) in a separate print window.

Enhanced Functionalities

Printing Documents

Customizing Print Settings Before Printing Your Documents

Ability to modify the size of the text displayed in the banner.

Ability to enter a floating-point value when defining the scale of the document to be printed.

A new option lets you use a polyhedral HLR rendering mode.

Printing Documents with Multiple Sheets

Ability to print .CATDrawing documents containing OpenType fonts.

Manipulating Objects

Using the Low Intensity Graphic Property

When applying the Low Intensity graphic property, it is now possible to keep the associated color when displaying objects in Shading with Material mode.

Running Batches

Running Batches Using the Batch Monitor

The Knowledgeware Index Generation batch is now available from the Batch Monitor.

Saving Documents

Saving Documents in Other Formats

OpenType fonts are supported when saving a .CATDrawing document in PDF format.

Directional light sources are kept when saving a document in 3D XML format.

Selecting Objects

Selecting Using the Selection Traps

Ability to choose a selection trap mode and use it to make as many selections as needed.

Using Fonts

Customizing Fonts for Displaying Geometry Area Texts

OpenType fonts are now supported when working with .CATDrawing documents.

Using Knowledgeware Capabilities

Generating the Knowledgeware Index

You can generate the index using the dedicated utility.

Viewing Objects

Activating Viewing Tools

The SpacePilot is now supported in WebViewer-derived products: 3D XML Player, 3DCOM Modular, LCA Navigator, Smarteam Editor and Smarteam Web Editor.

Customizing Settings

Devices

New parameters are available for working with PC clusters.

Document

A new option lets you run case sensitive searches when searching for DLNames.

A new option lets you perform a quick search for root DLNames.

Navigation

A new option lets you change the value of the rotation angle when rotating objects using the keyboard.

Graphic Formats

Ability to save a multisheet document in a single vectorial file and to set the current sheet of the document as the first page of the generated file.

Visualization

A new option lets you use the super sampling technique.

Installation and Deployment

New and Enhanced Functionalities

Software Prerequisites

Modified Software Prerequisites

Refer to the Quick Prerequisite Checklist for a full list of software prerequisites.

Support for IBM Tivoli Directory Server 6.0

Support for IBM Tivoli Directory Server 6.0 significantly enhances the LDAP deployment process. The documentation now describes how to install, configure and populate an LDAP server based on IBM Tivoli Directory Server 6.0, even though any LDAP server product supported by WebSphere Application Server 6.0.2 can also be used.

Installation and Deployment

ENOVIA Web Service Packaging

Enhancements to ENOVIA web service packaging. New ENOVWSPProdStructConfigCpp web service.

New Security tab for securing the WebSphere Application Server

You can now secure your WebSphere Application Server (for LDAP authentication only) from within the **WASSetupUI** application using the new Security tab. This tab provides a productive alternative to starting the WebSphere Administration console and making manual edits. This means that the **WASSetupUI** application is now used to deploy the Enterprise Archive file and secure your WebSphere Application Server at the same time.

Batch options for the WASSetupUI application

You can now run the WASSetupUI application in batch mode.

Creating Credential Sets

The fields **Is SSO Token propagated between applications (yes or no)?** and **Project to be used by the P&O user** have been removed and the existing defaults for these two fields are applied automatically. And the **Role to be used by the P&O user** has been renamed to **Context to be used by the P&O user**.

Full Text on Microsoft Index Server

New full text indexing engine based on Microsoft Index Server which must be installed on the vault server. WebSphere Application Server is no longer required for full text indexing on the vault server.

Webtop Deployment Plug-In Support

The Java Plugin required for certain Webtop functionalities (such as the viewer or the relationship navigator) can be deployed using an administrative setting.

Webtop Deployment for Solaris

The deployment of Webtop applications to WebSphere Application Server on Solaris is now supported.

Support for Live Communication Server 2005 for Instant Collaboration

You can use two different communication servers for collaboration purposes: a Sametime server (as before) or a MS Live Communication Server 2005.

Administration

License Expiry Popup

A popup now informs you when a nodelock license is close to its expiry date.

Group Licensing for ENOVIA Webtop Applications

In Webtop applications (LCA Navigator and 3d com Web Navigator), the License tab is now replaced by the License Group tab which optionally supports organizing users into groups and attributing licenses to groups using a variety of techniques (for example, LDAP groups).