DELMIA Solutions Version 5 Release 19
Product Enhancement Overview

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- CLM SFC Editor

- CLM FBD Editor

- CLM Ladder

- CSM Device Control Connection

DELMIA Infrastructure Solutions (V5)

- 3D Manufacturing for Simulation

- Data Exchange Interface

- Infrastructure

- Installation and Deployment

- Product Structure

DELMIA Process Engineer (DPE)

DPE functionalities are listed by the manuals in which they are addressed. In most, but not all cases, manual names correspond to product names.

- Administrative Tasks

- Automatic Line Balancing

- DPE Pooling Server and Server Tools

- ENOVIA VPM V5 - DELMIA Process Engineer Integration

- Finder

- Graphic Tools

- Manufacturing Change Management

- PPR Navigator

- Printing

- Process Planning for Body-in-White

- Settings

- Work Instructions Composer **NEW**

3D Functional Tolerancing and Annotation

New Functionality

Migration of V4 data to CATIA V5
CATIA V4 dimensioning, tolerancing and annotation data can be converted to CATIA V5 FTA data part level. The converted data is associative to the converted CATIA V5 geometry.

Enhanced Functionalities

Save 3D Annotations Defined at Product Level as 3D XML
This capability takes into account the 3D annotations defined at product level while saving a product as 3D XML.
Upgrade of Annotation Set
You can upgrade pre-R18 annotation sets using **Upgrade** contextual menu command, so that the FTA features have the same behavior as those annotation sets created in R18 or later.
Managing 3D Annotations in Result Annotation Set
The FTA result features are light features that are dedicated for review and are not editable. From R18 they are generated by Multi-cad applications or by exporting V6 products and 3D shape representations to CATIA CATProduct and CATPart documents using the downward compatibility tool. The Result Annotation Sets can be saved as .cgr and as .3dxml. They can also be kept in the filtered document when using the product data filtering capabilities.

Assembly Design

New Functionalities

Associativity
> This capability allows you to modify CATPart geometry in assembly context without modifying the reference CATPart. The **Associativity** command results in the creation of a new CATPart instantiated in the assembly, containing a copy obtained by **Copy/Paste As Result With Link** operation of a chosen geometry from all/ customized components of the active assembly.

Define Variant Generic Product
> The **Define Variant Generic Product** command allows to create a new variant and select the components as per the required configuration.

Instantiate Variant
> The **Instantiate Variant** command allows to instantiate variant generic product from file.

Replace Variant
> The **Replace Variant** command replaces the existing solved by a new variant of another generic product.

Enhanced Functionalities

Add To Associated Part
> When the assembly is saved in EV5 after the creation of assembly feature and associated part, the assembly feature is not saved in EV5. In this case, the **Add to Associated Part** command aids to add bodies from existing/new source parts in the product into the associated Part and maintains their Associatively.

Publication in Associated Part
> The Allow publication in Associative Part allows for publication of the pasted bodies in the associated part in case they are published in the source part. When Only Published Features option is selected, only published geometries from the set of selected geometry options or custom list of geometries are imported in the associated part.

Associativity With PRC Context
> The context of import of bodies and geometries is PRC. In case of structure exposed mode (mode of the active product), the feature is not created.

Customizing Settings

Redundancy Constraint Check
> The option **Disable redundancy check** allows you to enable/disable the redundancy check performed while constraint creation.

DPM Assembly Process Planner

Enhanced Functionalities

Progress bar for AST Editor
       Because the AST Editor can take awhile to open, a progress bar opens immediately after you click AST Editor. The progress
       bar continuously updates the percentage of the opening that is complete, as well as providing the time remaining.
Curve fastener lengths shown in the AST Editor
       The fastener lengths appear in the fastener folder names and in the PODs for fasteners in the ASG. For multiple curves,
       the total length of all curves is given as the length.

DPM Fastening Process Planner

New Functionality

Display Fastener ID and Hide Fastener ID commands added
> In previous releases, the command Show Fastener ID enabled you to see the fastener IDs in the 3D viewer. These two commands have replaced that command, and enable you to show the fastener IDs associated with a product, resource, fastener group, AST manufacturing assembly, or activity.

Enhanced Functionality

Curve fasteners may now be exported to a CATDrawing
> In previous releases, all fasteners except curve fasteners could be exported to a CATDrawing; now all fastener types may be exported.

DPM Machining Process Planner

Enhanced Functionalities

Extended tool support for IPM Generation in Profile Contouring
> This enhancement consists in generating the correct IPM primitive volume for a Profile Contouring operation with a conical tool or user-representation tool.

Multi-body selection/creation for Generic Operation
> This enhancement consists in offering the capability to associate several IPM primitive volumes to a Generic machining operation.

Create IPM Part from user-defined template CATPart
> This enhancement provides the capacity to initialize the IPM CATPart document from a user-defined template CATPart document.

DPM Process and Resource Definition

New Functionalities

PRD

DPM Process and Resource Definition

You can import an AST from the Manufacturing Hub
> This command, available from the context menu, enables you to select on or more MAs from the Applications node, and to import ASGs associated with the manufacturing assemblies from the Manufacturing Hub. This command does not import child ASTs.

You can import an AST completely from the Manufacturing Hub
> This command, available from the context menu, enables you to select on or more MAs from the Applications node, and to import ASGs associated with the manufacturing assemblies and all child ASTs from the Manufacturing Hub.

Process Verification Across Resources
> A new command has been added that enables you to verify resource behaviors. If the resources are linked with product control links, you can see the behavior.

Manufacturing Hub

Multiple selection on import
> Multiple items may now be selected when using Open products, resources, manufacturing assemblies and manufacturing kit from Manufacturing Hub command.

Incremental product loading based on volume
> Product, resource, manufacturing assembly and manufacturing kit data to be loaded can be selected incrementally by specifying a volume of interest to load.

Loading the Planning Context
> The Load Planning Context command allows you to quickly load products within a specified volume in DPM.

Backdrop for volume filter
> A semi-transparent image of the complete end product can be displayed in the 3D window to assist in product selection when defining a volumetric filter.

Optional display of siblings after search
> When performing a search for PPR objects, a checkbox determines whether siblings are displayed in the browser window.

Change modification statements
> Modification statements can be switched after loading MCM project data from the Manufacturing Hub.

Process Engineer icons in PPR tree
> Process Engineer icons are now shown in the PPR tree when selecting Processes, Products, Resources, Manufacturing Assemblies, Manufacturing Kits and Plantypes from the Manufacturing Hub.

Enhanced Functionalities

DPM Process and Resource Definition

Reordering is possible in a Resource Gantt
> When you open a resource Gantt chart, the resources appear by default in order in which they are added to the PPR tree. You can re-order the child resources of a common parent resource. The changed order remains in effect when you save the process, either as a flat file or back to the Manufacturing Hub.

Changes you make to the column width or row height in the Gantt chart persist
> When you customize the appearance of the Gantt chart, your changes remain in effect from V5 session to V5 session or until you change them.

You can multi-select ASTs when inserting them
> You can select multiple ASTs from the Insert AST dialog box.

The Compare Tool has been improved
> The dialog box displays the names of the two processes being compared. A Summary tab has been added; you can alter the order in which data in the Summary tab is displayed. Two attributes used for wire harnesses can be listed: wire gage and harness.

Exporting Manufacturing Assemblies

When exporting a Manufacturing Assembly structure, an option is also provided to export into a hierarchy of external products.

Copying Processes and Resources allows the copying of resource behavior

You can now copy resource behaviors as well as processes.

Show Assigned Activities command allows selection of TSAs and resource behaviors

You can select TSAs and resource behaviors when using this command. You can also now multi-select items.

List Products, Resources, and Unassigned Product commands better enable you to focus on the items in the list

Each command now enables you to right-click on a list item and select from a context menu that enables you recenter the graph on the item, to reframe on the item, or to hide or show the item. All items you select in the list are highlighted in the 3D view and in the PPR tree. In addition, you can use the Part Selection command in conjunction with the these list commands to view an item or items in the the Part Selection window.

Export as CATProduct is available as a command

The Export as CATProduct command was previously only available as a context menu command; it is now available in the DPM Planner toolbar (in DPM Process and Resource Definition) and in the PPR Tools toolbar (in DPM Process Definition). You can now select manufacturing assemblies with this command.

Customizing Settings

DPM Process and Resource Definition

Navigation option added for the Verification tab

In the past, when you were in process verification and navigated to the child level, you went to the last activity in the level. You can elect to go to the first activity.

Output Process added to the Verification tab

Process verification now supports the relation Product Creates Product.

Consider Process Flow option added for Gantt Chart tab

You can choose to take into account the timing of resource usage in analyzing processes.

Manufacturing Hub

Optional save to the Manufacturing Hub for control flows

When you select **Partial Read Only** mode for a project, you have previously been required to save control flows and detailing back to the Manufacturing Hub. This option allows you to determine whether projects opened in **Partial Read Only** mode will have their control flows saved back to the Manufacturing Hub.

Specify default open mode

The default open mode (**Read-Write**, **Partial Read Only**, **Read Only**) can now be specified in **Tools > Options**.

DPM Structure Lofting

New Functionalities

You can create multiple text templates for drawing documents
> You can associate different text templates with different layers.

You can generate a job order report
> This new command enables you to create a job order report on an entire AssembleMacro activity.

Enhanced Functionalities

The girth table generation has been expanded
> You can select profiles that do not intersect with the datum edges; you can select multiple edges; you can use non-planar profiles, such as twisted and rolled profile, and you can select the seam edges as reference elements.

You can save the drawings, DXFs, and XMLs in folders
> You can create a new folder or use an existing one.

You can create multiple text templates for drawing documents
> You can associate different text templates with different layers.

New options provided for tabbed openings
> You can specify the tab width, lead in/lead out lengths, and the lead side when creating tabbed openings.

You can flatten multi-surfaced curved plates and create manufacturing features of the roll line items
> This completes the creation flattened plate with required forming information. Once the IPM update is done, user can extract the 2D drawings of the 3D flattened plated using Workshop Document Extraction command.

You can create an alignment mark to mark a manufacturing feature
> These alignment marks are part of the joining operation.

You can create positive or negative margin items on surfaces previously containing margin items
> This feature enables you to add a bevel or added material.

Customizing

The Features tab
> You can select a nesting package for bevel extraction.

Electric Harness Simulation

New Functionalities

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.

Moving Multiple Cables

The Move Multiple Cables will allow you to manipulate the position of connectors, clamps, and routed products. As these components are manipulated through space, the harnesses connected to these components will also move to follow the components through space within limits of solvability.

The new functionality is available through the new Move Multiple Cables Toolbar.

Generative Shape Design

New Functionality

Operation Constructors
      Additional constructors are added to the formula editor.

Enhanced Functionalities

Creating Blended Surfaces
      Allows you to avoid twists in geometry by automatically computing the coupling points.
Creating Swept Surfaces/Volumes
      Allows you to compute canonical portions for surfaces and volumes
Reshaping Corners
      Improves the blend corner(s) capability for the Edge Fillet and the Variable Fillet commands.
Autofilleting
      Allows you to fillet and round the edges of a part in one go.
Creating Multiple Points and Planes
      Allows you to select any point as a reference point while creating multiple points and allows you to preview the multiple
      point instances.
Creating Planes Between Other Planes
      Allows you to preview the multiple planes.
Wireframe Constructors
      Additional constructors are added to the formula editor.
Surface Constructors
      Additional constructors are added to the formula editor.
Reordering elements using Drag and Drop
      Allows you to drag an element from one location and drop it at another location without changing its name.

Manufacturing System Definition

Enhanced Functionality

Show/Refresh Hide Show Status in the System Editor

The system editor provides symbols that show whether specific resources' graphic representations are in hide or show mode.

The **Show/Refresh Hide-Show Status** command displays and updates icons on in the system editor that documents the hide/show status for parts and manufacturing Assemblies in the PPR tree/3D viewer window

New Functionalities

Replacing a Resource

Now you can replace resources with different plan types. For MSD workbench the command **Replace Resource** has been added. You can replace resources with different plan types. After starting the command all authorized plan types (associated with the father plan type) of the resource are displayed and can be replaced by each other e.g. the authorized child plan types associated with the father plan type are a, b, and c so the resource can be replaced by resources with the plan type a, b, or c.

Find a Fitting Resource

It is possible to search for a fitting logical resource (e.g. station, workplace). This is used to search for a fitting logical resource (for e.g. station and workplace). It displays all resources below the selected resource on which the selected process can be executed. The resource list can be sorted according to the remaining time. The remaining time is the difference between the resource cycle time and the resource busy time. The resource busy time is the sum of all durations of processes assigned to a resource.

Edit Resource Attributes

You can now edit attribute properties for the selected resource.

Part Design

New Functionalities

Upgrading Features
> The **Upgrade** contextual command available on the part feature allows the activation of the last evolutions of the code available on the current level.

Controlling Top Diameter of Tapered Hole
> This capability allows you to control a top diameter of a tapered hole by selecting in the **Type** tab, and then entering the desired value in the **Extension** tab of a **Hole Definition** dialog box. Further geometry is computed by the end conditions.

Contextual Menu of Blend Corner(s)
> For editing an edge fillet containing at least one blend corner, the **Reframe On**, **Create by edges**, **Create by vertex**, **Edit** and **Remove** options are available in the **Blend corner(s)** contextual menu. When no corner is created, only the **Create by edges** and **Create by vertex** commands are displayed in the contextual menu.

Intersection Fillets
> The new **Intersection** selection mode allows the definition of edge fillets at the intersection of the selected features with current solid.

Enhanced Functionality

Displaying and Editing Parameters in Specification Tree
> This capability allows you to edit the parameters of a feature from the specification tree by double-clicking it and changing its value in the **Edit Parameter** dialog box. Dress-Up features and Advanced Dress-Up features have their parameters displayed under their respective nodes in the specification tree.

Part Design Features Recognition

Enhanced Functionality

Colorization of Corners
>   If limiting faces of a corner have same radius, the color relative to this radius is also applied to the corner and default color for corners is not taken into account in this case.

PPR Navigator

New Functionalities

Open and edit templates
> Template projects saved in the Manufacturing Hub can now be loaded with PPR Navigator.

Process preview
> The Set Process Preview options command allows you to specify options that determine which products and resources are shown in the Preview tab when a process is selected in the PPR tree.

Applying Modification Statements when opening CMC projects
> Modification Statements, Actions and Manufacturing Change Orders can be applied when opening a Change Management Controlled (CMC) project in PPR Navigator.

Enhanced Functionalities

Volume filtering during load
> When loading a process or resource, the products loaded can now be limited by specifying a volume of interest.

Filtering products by Change Order in MCM Projects
> Products in MCM projects can be filtered based on calculation models, change orders and their relations.

Creating and editing planning contexts
> The Create/Edit Context command opens an empty CATProcess document in Partial Read Only mode, where the Load Planning Context command can then be used to define and save a planning context.

Real Time Rendering

New Functionality

Variant Management
        Allows you to apply material variants to an object and also to browse for a variant.

Enhanced Functionalities

Car Paint and External Shader
        Allows you to define Car Paint and External shaders.
Creating a Standard Environment
        Allows you to select and apply wall textures to an environment.
Applying a Material
        Allows you to apply complex materials to objects.
Applying and Rendering Shadow Stickers
        With this enhancement you can apply shadow stickers to the models
Creating Object-to-Object Shadows
        Allows you to project several shadows at the same time.
Applying Material Properties
        Allows you to apply different types of materials to an object.
Creating Object-to-Object Shadows
        Object shadows are now compatible CgFx shaders on Windows platform.

Sketcher

New Functionalities

Upgrading Features

The **Upgrade** contextual command available on the sketch feature allows the activation of the last evolutions of the code available on the current level.

Exploding Sketch

The **Explode...** contextual command allows you to modify a sketch obtained by **Copy/Paste As Result With Link**. It converts all its as result with link geometry into regular sketched curves and points.

Enhanced Functionality

Positioning Sketch Created Using Copy/Paste As Result With Link Operation

You can now specify your own position of a sketch feature obtained by **Copy/Paste As Result With Link** OR retrieve its associativity in position with its sketch reference by using the new **Positioned as reference** option.

Structure Manufacturing Preparation

New Functionalities

You can create multiple text templates for drawing documents
> You can associate different text templates with different layers.

You can generate a job order report
> This new command enables you to create a job order report on an entire AssembleMacro activity.

Enhanced Functionalities

The girth table generation has been expanded
> You can select profiles that do not intersect with the datum edges; you can select multiple edges; you can use non-planar profiles, such as twisted and rolled profile, and you can select the seam edges as reference elements.

You can save the drawings, DXFs, and XMLs in folders
> You can create a new folder or use an existing one.

New options provided for tabbed openings
> You can specify the tab width, lead in/lead out lengths, and the lead side when creating tabbed openings.

You can flatten multi-surfaced curved plates and create manufacturing features of the roll line items
> This completes the creation flattened plate with required forming information. Once the IPM update is done, user can extract the 2D drawings of the 3D flattened plated using Workshop Document Extraction command.

You can create an alignment mark to mark a manufacturing feature
> These alignment marks are part of the joining operation.

You can create positive or negative margin items on surfaces previously containing margin items
> This feature enables you to add a bevel or added material.

Customizing

The Features tab
> You can select a nesting package for bevel extraction.

Tool Selection Assistant

New Functionalities

Support all axis for weld gun approach direction
> This option will apply to all the commands of Tool Selection assistant. Biggest impact will be seen in the way Pie reports and section planes are positioned. The pie report and section planes will be positioned as per the approach direction defined in the application setting.
> In case of Pie report: if a particular orientation of the weld gun is accessible then, the Axis of approach will lie in the green zone of the pie report.
> In case of Section plane: By positioning the section plane as per the approach direction, you will always see the right view in the section result window.

Capability to update Robot Posture after changing the Robot Configuration in Generate stack of 2D Sections/3D Slices at the selected welds command
> In Generate stack of 2D sections/ 3D slices at the selected weld, in current scenario once the user changes the Robot configuration using the Robot Configurations Combo box in the dialog, the corresponding change is not reflected. This highlight provides the functionality of changing the Robot configuration using the Robot Configuration Combo box in the Dialog.

Change Pie report colors for Analyze Welds for Robot command
> Currently, it is difficult to properly analyze the pie charts if the pie chart color resembles that of the surrounding resources color. This enhancement would help to properly analyze the results of the welds, by changing the color.

Enhanced Functionalities

User Interface Capabilities for Generate stack of 2D sections/ 3D slices at the selected weld
> In Generate stack of 2D sections/ 3D slices at the selected weld command, currently you can't change the manufacturing location. This highlight allows user to move the manufacturing location with a compass manipulation.

User Interface Capabilities for Analyze Welds for Robot
> In the Analyze Welds for Robot command, you are able to select multiple welds by multi acquisition.

Performance improvement for Auto Gun Search Command
> Auto gun search is the entry point command in process planning. It enables user to minimize amount of new tooling design for a new product. This command performs search over very large no. of weld guns and welds to enable validation. The improvement of performance of this command gives a significant value as; it directly reduces the time required to validate a new product.

Support gun position changes and moving manufacturing location, during manual weldgun search
> With this option, you can lock the manufacturing location by using Lock Location check box. After manipulating the manufacturing location using compass manipulation and on checking Lock Location check box, the compass disappears and you can't modify the manufacturing location with out un-checking the Lock location check box.

Wireframe and Surface

New Functionality

Operation Constructors
> Additional constructors are added to the formula editor.

Enhanced Functionalities

Creating Multiple Points and Planes
> Allows you to select any point as a reference point while creating multiple points and allows you to preview the multiple point instances.

Creating Planes Between Other Planes
> Allows you to preview the multiple planes.

Wireframe Constructors
> Additional constructors are added to the formula editor.

Surface Constructors
> Additional constructors are added to the formula editor.

Reordering elements using Drag and Drop
> Allows you to drag an element from one location and drop it at another location without changing its name.

Arc Welding

Enhanced Functionality

AMP Enhancements

This will provide a complete AMP solution that will allow the you to create robot-ready arc trajectories with minimal effort. Hence, significantly improving your productivity.

Device Building

New Functionalities

Define Auxiliary Device

The Define Auxiliary Device functionality has been added to this workbench. This shows you how to add auxiliary devices to a device, such as a rail or track. "Define Auxiliary devices" and "Attach" commands are only available if Device Task Definition (WSU) is available."

Attach

The Attach command allows selection of Products, and the Manufacturing Assemblies. You will be able to select a Manufacturing Assembly for attachment in addition to a product or resource.

Device Task Definition

New Functionalities

Modify Tags Orientation
> Currently there is no command for orienting Manufacturing tags based on the orientation of a reference tag. Therefore this address this issue by providing a command though which the target tags can be re-oriented based on the orientation of a reference tag.

MT Jog Device
> This shows how to efficiently analyze the position of a robot itself, that of a target Weld Tag, or that of a product having a Weld Tag under a constraint where one or more robots or IK devices need to reach the Weld Tags, while the users can see the changed state at real time.

Robot Cable Toolbar
> This enhancement allows you to build, synchronize a Simulation module. Using Penetration Avoidance, this will avoid penetrating into, a product during a simulation, by modifying its own shape.

Enhanced Functionalities

Mirroring a Tag Group or Robot Task
> The Mirror Tag command now gives you the capability to define the right "approach" axis by selecting the axes to mirror.

Configuration support in Auto Place
> This aims at providing configuration support in Auto place. Currently Robot configuration is not considered when finding the reachability of the Tag targets. It aims to improve the functionality of finding the reachability of the Tag targets (excluding Robot Task) by taking the configuration into consideration.

VB API's for Move Activities
> This provides flexibility to tune processes primarily driven on Forward Kin devices. You will be able to use VB API's and subsequently modify created device move activities.

Equipment Arrangement

Enhanced Functionalities

The Update feature allows you to update insulation after the base part has been modified.
A setting allows you to find parts during parts placement by using the compatibility table, or by using values in your design.
The analyze cross document connections and manage document links functions now have an Open button that allows users to open linked documents that are in ENOVIA.

Manufacturing Resource Layout

New Functionalities

VB Exposition of Attachments
> This allows you to create attachments between products or manufacturing assemblies or between product and a manufacturing assembly (MA) through VB script in a product/process document. This allows you to export this information so that you can perform an analysis outside V5.

Modifying and Viewing a Resource's Footprint
> This shows how to modify and view a resource's footprint. A footprint is the specification of the area occupied by the resource on the floor.

The "Display Resource Area on Footprint" in the Edit footprint dialog box
> The area will be displayed on the resource footprint in the Edit footprint dialog box.

Attaching / Detaching a Drafting View
> You can visualize the resource locations residing in a 2d CATDrawing file on a footprint which benefits you to position Robots and other objects with precision using the 2D drafting view of plant layout.

Cumulative Snap icon
> The Cumulative Snap icon has been added to the Snap sub-toolbar.

VB Automation Support for V5 Attachments
> This will allow you to extract information about the Parent and Child Product of any attachment within a Process or Product Document.

Enhanced Functionality

Attaching Elements
> The Attach command in Resource Layout Workbench, allows selection of Products, and the Manufacturing Assemblies. You will be able to select a Manufacturing Assembly for attachment in addition to a product or resource.

Production System Analysis

Enhanced Functionalities

Improving the Quality Reports
> This highlight ensures that the SystemStatistics XML will have information for all runs run in the current session and also improves the readability of the report generated by the "Display Statistics" command.

Saving SystemStatistics
> This highlight ensures that the SystemStatistics XML will be placed in a temp folder and this XML will have to be saved before closing the document

Realistic Robot Simulation

Enhanced Functionalities

RRS Operations: Define, Cancel, Display
> Three new V5 shared commands (operating on a user selected RRS-I connected robot) will be added to the RRS Connect toolbar.

General Spot Activity Model
> The Fanuc RRS-I interface is updated so that it internally implements the complete Fanuc Spot model when the robot is RRS connected to a Fanuc RCS version that does not implement the Fanuc Spot model (i.e. pre-v6.31 RCS versions).

Robotics Offline Programming

New Functionalities

Saving XML Directory and File Names
>This allows you to identify a default directory or file for exported Robot tasks in XML format.

Supporting Panasonic CSR Translator
>This provides upload and download support for Panasonic CSR programs in DELMIA OLP.

Supporting Kawasaki AS Translator
>This provides upload and download support for Kawasaki AS programs in DELMIA OLP.

Uploading Multiple Programs Simultaneously
>This allows you to upload multiple programs simultaneously.

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.

Standard Robot Library

New Libraries

Hyandai
Panasonic
Kawasaki

DMU Fitting Simulator

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

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.

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.

When you select Shuttle, 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.

When you click the Activate Analysis button from the Track dialog box, you can edit the analysis object
>   Users have the option to edit one analysis object at a time while using the Track command; they do not have to exit the Track command and use the analysis commands.

The format options for Generate a Video have changed
>   VFW Codec and DirectShow Filter have replaced Microsoft AVI and Microsoft MPEG.

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.

Kinematics Simulator

Enhanced Functionalities

Deleting Joints
    The Delete All Children option is now selected by default in the Delete dialog box.
Copying and Pasting a Mechanism
    You can now copy and paste a dress-up.

DMU Space Analysis

Enhanced Functionalities

Sectioning

Exporting Section Results
> You can now export sectioning results to VPM Navigator using the **Open and Export** command available in the **Result** tab in the **Sectioning Definition** dialog box.

Exporting Section Results
> Polyline results have been improved and thus increased the quality of a smoothed curve.

DMU Space Analysis Interoperability

Performing DMU Space Analysis Tasks with VPM Navigator
> Interference object is now integrated within VPM Navigator (you can thus perform open, send to and delete operations).

Human Activity Analysis

New Functionalities

3D Display of Biomechanics Results
> A better way to display the results in 3D, each segment results are highlighted in the list when the related segment in the 3D model is selected.

Defining Loads on Other Segments
> This provides a more realistic behavior of the Biomechanics Analysis by allowing the use of loads positioned on segments other then just the hands. Therefore, Biomechanics Analysis can be applied on manikin having loads on shoulders, forearms and back.

Enhanced Functionality

Increased the number of analyzed joints - wrists
> For a more complete analysis of the human biomechanics Results a new analysis will cover both wrists in flexion-extension and Radial-Ulnar deviation

Human Builder

New Functionalities

Displaying Balance

    This displays the support polygon of manikin's balance in the viewer. The color of the support polygon will change from green to red if the manikin loses his balance.

Defining the color of the Manikin Referential

    Choosing the color of the manikin referential for each manikin enables the client to differentiate them and to make sure that it doesn't blend with the environment.

Auto Grasp Offset

    The need for this highlight comes from wanting more control over an existing function that automatically generates a grasp posture of the hand by checking the collision between the hand and one or several objects to be grasped. A new option would allow you to edit the offset that control the reaching position of the hand which is currently automatically set to a default value.

Human Task Simulation

New Functionalities

Editing MoveToPosture Activities with constraints
> A new command will be provided under the contextual menu of MTP and also accessible from /Edit /MoveToPosture object / Synchronize 3D Model.

Manikin Motion speed
> This highlight provides the capability to set default joint speed for each manikin segment based on ergonomic data and also provides the capability to specify a rating on Human Task, Human Activity Group and Walk Activity.

Opening a Active Task tree
> Users modify the task and child activities from within the active task set on process activity (in the Process List). Modifying the task in the process tree provides the position of objects in the process sequence. In the current release, when users want to modify the active task in a process activity, it is very difficult to find the active task since all tasks under the manikin resource are displayed. This makes the selection of active task not only cumbersome but also error prone.

Reassigning Human Operations
> This provides the ability to re-assign human operations within the same process document or across different process documents.

Enhanced Functionalities

Structural change of Operate
> This highlight fits into the final assembly workflow of the user and helps in providing dependable & consistent simulation time and reduces the time required for creating Operate activities thereby improving productivity.

Line Balancing with Human
> This highlight provides the ability to set the HAG as an active task freely without any restrictions.

Collision Free Walk enhancements
> True collision free walk or absolute collision free walk and indicates the collision free algorithm will account for arm swinging, picked part (if any), current body posture for computing the walk path.

Move to Posture Activities enhancement
> 3D state is displayed in the MTP node under the PPR tree. The icon of MTP will be changed to indicate a 3D state has been assigned to the MTP. Upon removing the 3D state assignment, the icon will be restored to normal.

Operate Walk with Device Move
> The Operate Walking command can be used to define Operate Walking with Robot Tasks and Device Tasks.

3 Axis Surface Machining

New Functionalities

Part Operation:
        You can now use the Part defined at the Part Operation level,
        Collision Checking is available at the Part Operation level.
Four probing operations:
        Holes or Pins Probing,
        Slots or Ribs Probing,
        Corner Probing,
        Multi-Points Probing.

Enhanced Functionalities

3/5-Axis Converter:
        Now available for all End Mill tools, TSlotters and Lollipops,
        A new strategy guide is available: Normal to drive surface,
        An Angle parameter has been added to the Thru a guide strategy mode,
        ZLevel tool path can be optimized.
Tool Path Editor lets you now:
        Edit feedrates of tool paths, either locally or globally,
        Edit PP Words in tool paths,
        Edit V4 NCMill operations.
Roughing
        Management of start point is enhanced,
        You can choose to compute a tool path free of collision with the tool holder,
        For pockets, you can create engagements from external zones, and add a circular approach for automatic macros,
        You can skip small holes in the rough stock, instead of avoiding them.
Plunge Milling
        A new grid type has been added: By Offset,
        You can visualize plunging points before computing the tool path,
        A new parameter is available for retract motions: Axial corner radius,
        You can modify the feedrate of the clearance macro.
Contour-Driven machining operations:
        Improved guide definition for parallel contour mode,
        (guide defined by faces boundaries, zig-zag motif defined by either two points or one point and an axis),
        New Strategy side parameter for parallel contour mode,
        Option Reference now available in mode Parallel contour with Constant 3D strategy,
        Improved selection of faces in a polygon trap: new option to select visible faces only,
        In Between contours mode, with a constant 2D stepover, the offset on guides can be applied to stops.
ZLevel machining operations:
        An offset on tool path in the machining plane is now available,
        You can compute a circular interpolation of the tool path, or approximate one,
        The Reverse Machining Conditions command inverts the Climb and Conventional cutting modes.
Spiral Milling
        A new strategy mode has been added: Back and Forth,
        A new option Always stay on bottom has been added to the Helical tool path style,
        Face Mill Tool is now available,
        Clearance feedrate management occurs via a contextual menu,
        New Ramping up to a plane macro is available.

Lathe Machining

Enhanced Functionalities

B-axis management for turning operations
> New capability to define a tool axis on each Turning operation. This allows the B-axis orientation to be managed and eliminates the need for a tool change activity.

Turret C-axis management for turning operations
> A new **C-axis inversion** option on the Strategy tab page of the Machining Operation editor enables a C-axis rotation (0/180 degrees) without requiring a tool change activity.
> This allows machining of different areas (front and back areas of a part, or part on main spindle and part on a counter-spindle) using the same tool assembly. Only the tool orientation (inversion) differs when machining the different areas or parts.

Automatic Generation of ROTABL and TLAXIS for Changeover from Lathe to Mill
> This enhancement allows automatic generation of ROTABL and TLAXIS statements whenever there is change-over between Turning and Milling Operations.

Multi-Axis Surface Machining

Enhanced Functionalities

Part Operation:
> You can now use the Part defined at the Part Operation level,
> Collision Checking is available at the Part Operation level.dd>

Tool axis guidance:
> A Lead angle parameter has been added to the Thru a guide strategy for multi-axis sweeping operations, multi-axis isoparametric operations, multi-axis contour-driven operations and multi-axis curve operations.
> A new strategy Normal to drive surface has been added to multi-axis sweeping operations, multi-axis isoparametric operations and multi-axis contour-driven operations.

Contour-Driven
> In Between contours mode, the offset on guides can be applied to stops.

Macros
> Additional macros are now available for 5-axis machining operations:
> Add normal motion helps avoiding collisions in the linking macros of tube machining.
> Add Circular motion is very useful in return in a level macros of tube machining, when the Guiding strategy is set to Along guide.
> Enable 5-axis simultaneous motion.
> An additional clearance option is available: Smooth tool axis moves.

Multi-Pockets Machining

New Functionality

Multi-Pocket Flank Contouring

Enhanced Functionalities

Power Machining:
      You can choose to compute a tool path free of collision with the tool holder,
      For pockets, you can create engagements from external zones, and add a circular approach for automatic macros,
      You can skip small holes in the rough stock, instead of avoiding them.
Part Operation
      You can now use the Part defined at the Part Operation level,
      Collision Checking is available at the Part Operation level.

Multi-Slide Lathe Machining

Enhanced Functionalities

Improvement of output based on Counter Spindle

    This enhancement is provided by the **Use Spindle Axis system according to the Spindle involved on the Machining Operation** checkbox in the Option tab of the Part Operation editor for a Multi-slide lathe machine or a Mill-Turn machine.

    If this check box is selected, tool tip points are computed based on the spindle that is set on the machining operation.

    If this check box is not selected, the main spindle axis is used. This is determined by the default reference machining axis system set on the Part Operation.

NC Machine Tool Builder

New Functionalities

Defining Machines with Interchangeable Heads
> Previously, the creation of Milling Machines and Milling Heads, with the capability to do a head change during simulation, was not supported. This functionality enables to create such machines to be used in simulation. It allows to create a new Milling Machine Head, which can then be inserted into the milling machine CATProduct.

Defining Tool and Work-piece Mount Points
> This section describes how to create, modify and delete multiple tool and work-piece mount points on milling machines, using the Create Mount Point command.

NC Machine Tool Simulation

New Functionality

Simulation with Interchangeable heads
> This functionality allows you to simulate Milling machines with interchangeable heads, thus enabling to verify NC tool paths for travel limits, collisions and modify if necessary.

Enhanced Functionalities

User-selectable Machining Axis System for Workpiece automount
> This provides the ability to mount the workpiece on a Milling machine bed or Mill-Turn machine with respect to a user-selected machining axis system.

Machine Instruction Support for Turrets
> For Mill-Turn Simulation, this enhancement allows you to define Machine Instruction activities on Turrets.

Machine configuration management for Machining Operation
> This functionality allows you to associate and persist a machine configuration with a particular tool path point, from within the Modify Tool Path dialog box. This machine configuration will be applied during machine simulation, when that particular tool path point is to be reached.

Simulating Machine Motion for Milling and Mill-Turn Machines
> This provides support to simulate machine motion with Integrated Material Removal for Milling and Mill Turn machines.

NC Manufacturing Infrastructure

Enhanced Functionalities

ToolPath Editor: Feedrate Modification
> This enhancement to feedrates is integrated to the Area Modification command of the tool path editor and works on one or several tool paths. Tool path editor is available on APT imports and milling operations. Tool paths can be modified partially or globally.

ToolPath Editor: V4 NC Mill Support
> This enhancement enables Tool Path edition on manufacturing data from V4 NC MILL models.

ToolPath Editor: PP Word Management
> This enhancement enables merging several PP instructions and editing PP words inside a tool path.

Video Mode: Usability Improvements
> This enhancement provides a number of usability improvements such as improved error messages; open fixtures support; extended support of turning tool holders; save CATProduct at the same location as the Process; interruptible progress bar; capability to disconnect non cutting diameter; and support of probing operations.

Feed Support for Transition Paths
> This enhancement provides a number of improvements for transition feedrates. In particular, you can now locally set the feedrate for a transition path to a machining operation B from a machining operation A or from a tool change activity. This is done by selecting the **Transition** check box in the Machining Operation dialog box for operation B.

Head Change Activity
> This enhancement provides a new **Head Change** command in the Auxiliary Operations tool bar.
> Clicking on this command inserting a new Head Change activity in the program, if an NC machine with at least one head is assigned to the Part Operation.

Automatic Generation of ROTABL and TLAXIS for Changeover from Lathe to Mill
> This enhancement allows automatic generation of ROTABL and TLAXIS statements whenever there is change-over between Turning and Milling Operations.

Ordered List of PP Tables in Machine Editor
> Prior to this release, Post Processor (PP) word table names were not listed in an order, thus making it difficult for the user to locate a PP word table. This enhancement addresses this usability issue and lists the PP word tables in an alphanumerically sorted order. Controller Emulator and Post Processor selections are also listed in sorted order.

Improved Error Messages for Output Generation
> This highlight improves the message issued after NC data output generation by quantifying the number of errors/warnings along with success/failure information.

Replace the Tool Assembly of Multiple MOs
> Prior to this release, the **Replace Tool** contextual command could be used to replace the tool of selected Machining Operations. This enhancement allows the tool assembly of selected operations to be replaced.

Tool Number in Process Table
> This enhancement allows the following additional parameters to be accessed in the Process Table: Tool Number, Corrector Id, Corrector Number, and Radius Number. The tool number can be edited.

Prismatic Machining

New Functionality

Intermediate Stock Management
>It is now possible to compute and visualize the input/output intermediate stock for milling and turning operations.
>The computed stock is taken into account to optimize and secure the tool path.

Enhanced Functionalities

Helical Interpolation Output for Machining Operations
>A helical interpolation instruction can now be generated in the output file (APT source and Clfile) for machining operations which support helical tool motion. These operations are Thread Milling, Circular Milling in Helical mode, Sequential Groove with Helical motions, and Profile Contouring defined with a Helix tool path style.

Multiple Radial Passes for Thread and Circular Milling Operations
>This enhancement allows the user to create multiple passes (rough and finish) for Thread Milling and Circular Milling in Helical mode, and provides capability to create a spring pass. The user no longer needs to create separate operations for rough, finish and spring passes.

Support Multiple Tool Axis in Point to Point Operation
>This enhancement enables the user to select different tool axes for multiple points in a single operation, and simplifies the selection procedure.

Extended Tool Type Support for Machining Operations
>This enhancement gives user a wider selection of cutting tools on the following machining operations: Circular Milling, Countersinking, Counter Boring, Sequential Axial, Sequential Groove, and Pocketing.

Prismatic Machining Preparation Assistant

Enhanced Functionality

New option to recognize features based on Technological Results

    This enhancement provides the capability to create axial machinable features corresponding to existing Technological Results of holes of the selected body.

DPM Work Instructions

New Functionalities

Generate Template has been added
> The Generate Template command enables you to create a template for a printable work instructions document.

Generate Document has been added
> The Generate Document command enables you to create printable and customizable documentation from a work process.

Update Documentation has been added
> The Update Documentation command enables you to update documentation when a work process or the product data within it changes.

Generative Drafting

New Functionality

Setting Large Scale in V5 Session

The Large Scale feature allows you to create larger geometries, ranging in kilometers. In drafting there are a few points, which you should consider.

Enhanced Functionality

Propagating View Modifications

The **Synchronize View Definition** capability allows you to synchronize view from 3D (Functional Tolerancing and Annotation workbench and 2D Layout from 3D Design workbench) during the update process when the support plane in 3D is changed.

3D Clipping

The **Add 3D Clipping** capability has been enhanced to allow you to select 2D or 3D geometry (point, line, edge, planer face, plane) as 3D clipping object to modify the view.

Customizing Settings

View

This option allows you to synchronize the view generated from 3D, during the update process, when the supporting plane is changed in 3D.

Interactive Drafting

New Functionalities

Setting Large Scale in CATIA V5 Session

The **Large Scale** feature allows you to create larger geometries, ranging in kilometers. In Drafting there are a few points, which you should consider.

Visualizing Broken Constraints between 2D and Generated Elements

The broken constraints are visualized as a red warning symbol above the 2D geometry when a generative geometry is modified or deleted.

Enhanced Functionalities

Making an Existing Annotation Associative by Creating Rigid Positional Links

The **Positional Link** capability allows you to create rigid positional links between the annotation and another element. The annotation cannot be moved manually relative to the reference element.

Element Visualization in Specification Tree (Fix Together, 2D Component Instances)

Visualizing the Fix Together Constraints in the Specification Tree

The elements constrained together using the **Fix Together** constraint can be visualized under the **Fix Together Constraints** node in the specification tree.

Visualizing the 2D Component Reference in the Specification Tree

The 2D Component instances can be visualized under the **Component Instances** node in the specification tree.

Customizing Settings

General

The **Display features under views** option allows you to display in the specification tree the representation for fixed elements and 2D component instances.

Annotation and Dress-Up

The **Create rigid positional link** option allows you to create rigid positional links whenever new positional links are created for text, table and geometrical tolerance annotations.

Shop Floor Review

Enhanced Functionality

Analysis Window Viewpoint and tabs
> The Analysis Window now has four radio buttons for viewing the data. The viewpoint stays the same when flipping through different windows.

Shop Order Review

New Functionalities

Performance and Quality in SOI Generation Service: Dedicated EXE for SOI Generation
> You will be able to automate the SOI generation service with improved performance in terms of elapsed/CPU time. Your third party applications would call COM Application and place request for SOI generation.

Image Capture based on the Process Verification
> This allows you to have a way to visualize the build up of products as the process progresses. You can display Cross highlighting based on Parts or EI consumption in the captured images. This is generated by using the command, Image Capture for a Process in DPM Shop Order Release.

Support for batch generation of process 3D XML in Create Shop Order API
> 3DXML's initiative aims at providing a generic file format and associated tools to support the efficient use, distribution and visualization of 3d data.

SOI-Generation-Services through Web services
> Web services are based on the concept of service-oriented architecture (SOA). SOA is the latest evolution of distributed computing, which enables software components, including application functions, objects, and processes from different systems, to be exposed as services.

Service Orientated Architecture (SOR) Web services
> To improve the deploy ability & scalability, this project aims in launching the SOR functionalities through state-of-art Web Services which are developed over the DS Web Services Infrastructure and are deployable in packaged format.

Steps to deploy the Web services
> This section explains if, and how, the user or the administrator is given the opportunity to change the way the highlight behaves.

DELMIA D5 Integration

Customizing Settings

Within **Tools** > **Options** > **Compatibility** > **DELMIA D5**, the user can retain the D5 visibility settings that were created for tags and/or paths.

MULTICAx AD Plug-in

Enhanced Functionality

ACIS R16 and R17 are now supported on Windows 32 bits.

MULTICAx PD Plug-in

Enhanced Functionality

Indirect Mode is no longer available.

MULTICAx SE Plug-in

Enhanced Functionalities

Parasolid V17 and V18 and SolidEdge 20 are now supported on Windows 32 bits.
SolidEdge .psm files are supported.

MULTICAx SolidWorks Plug-in

Enhanced Functionality

Parasolid V17 and V18 and SolidWorks 2007 and 2008 are now supported on Windows 32 bits.

MULTICAx UD Plug-in

Enhanced Functionality

Parasolid V17 and V18 are now supported on Windows 32 bits.

CSM Module and Block Editor

Enhanced Functionalities

Partial Import
  Some data can be added to a block using the partial import.

Ergonomics Improvements
  New icon in the Product tree for the Internal Logic, Control Logic and Runtime view

  The user can sort names and types by alphanumerical order in the dialog box

  The user can add comments in the different editors (the comment are represented by a kind of post-it).

CLM Device Logic Design

Enhanced Functionalities

Automatic Internal Logic Generation

    A new command allows the user to generate automatically the code of the internal logic that manages Device Tasks, Robot Tasks and Robotic IO's.

    Refer to Generating Internal Logic Automatically.

New Commands Replacing the External Functions

    The 3D interaction functions in the SmartDeviceLib library are now replaced by commands. It is no longer necessary to enter the name of the function and its parameters in an SFC action.

    Refer to:

    Piloting a Device Task

    Getting and Setting the Joints of a Device

    Moving a Device to a Home Position

    Setting a Device Color

    Tracking the Click on a Device

    Selecting a Home Position

    Getting and Setting TCP values

    Reading and Writing Robotic IO's

    Defining a Device Motion from the DOF Values

Partial Import

    Ports, instances, signals, connections and SFC behaviors can be updated/added to an existing block using the command **Partial Import**. Refer to Using Partial Import.

New Management of the Resource Sensors

    In order to ease the management of the data returned by the sensors, the behavior of the signals Detected and Value has been changed. Refer to Creating a Resource Sensor.

CLM SFC Editor

Enhanced Functionality

Usability Improvement
    The user can add comments in the SFC+ and Block editors (the comments are represented by a kind of Post-it).

CLM FBD Editor

Enhanced Functionalities

Usability Improvement
    The user can add comments in the FBD editor (the comment are represented by a kind of post-it).

CLM Ladder

Enhanced Functionality

Usability Improvement
> The user can add comments in the Ladder editor (the comment are represented by a kind of Post-it).

CSM Device Control Connection

Enhanced Functionalities

New OPC parameters

      External block (OPC protocol): two new parameters have been added to monitor the OPC server read and write modes. The write mode can be synchronous or asynchronous. The read mode can be cache or device.

Check block definition

      This new Check command allows you to verify that the definition of the external block (OPC protocol) is compliant with the tags defined on the OPC server.

3D Manufacturing for Simulation

New Functionality

Exporting analysis results and device messages to a file

Analysis results and messages related to various devices/robots obtained when running simulations can be saved to external files.

Data Exchange Interface

Customizing Settings

STEP

      Cloud Of Points Properties (COPS) are available.
      You can decide to use Geometric or Assembly Validation Properties.
      Large Scale is taken into account by STEP settings.
      Export supports light assemblies.

IGES

      Large Scale is taken into account by IGES settings.

DXF

      Click here to read about the impact of changing scales.
      AutoCAD 2004 and AutoCAD 2007 are now supported.
      The semantic of 2D component (Detail/Ditto) can be exported.

IGES 2D

      Click here to read about the impact of changing scales.

Infrastructure

Enhanced Functionalities

Selecting Using the Selection Traps
>   The **Polygon Selection Mode** now lets you select concave polygons.
>   Ability to pan or zoom the model when working in **Polygon Selection** Mode.

Capturing Simple Images
>   You can now choose the monochrome filter to be applied when capturing images in monochrome color mode.

Dragging and Dropping Objects onto Objects
>   You can now drag an element from one location and drop it onto another location without changing its name.

Knowledgeware

Read-only design table edition

You can now open a design table document (in read-only mode) whenever you want to refer to the file. By clicking Edit button available in design table editor dialog box, you can access the design table file even if you do not have write access to the file or if it is locked by another user

Excel 2007 support

Now the new Excel extensions (.xlsx and .xlsm) of Microsoft Excel 2007 will be supported in the entire existing Knowledge GUI dealing with Excel worksheet documents.

Installation and Deployment

New and Enhanced Functionalities

Support of 64-bit mode for offline licensing
    Offline licensing is now supported on Windows laptops running a 64-bit operating system.
Enhanced user interface for PLM database and vault server setup
    The user interface for setting up the PLM database and vault server has been enhanced on both Windows and UNIX.
Enhanced user interface for online documentation installation
    The user interface for installing the online documentation has been enhanced on both Windows and UNIX.

Product Structure

Enhanced Functionality

Impacts Handling on Instance Name or Publication Name Change
  You can handle impacts on publication or product instance renaming.

Administrative Tasks

New Functionalities

Automatic termination for Lock and Update Managers
> To help avoid excessive memory fragmentation for long processes, the Lock Manager and Update Manager can be terminated automatically when there are no IPD server connections. Once terminated, these processes are then restarted when the next IPD server process is started.

Variant filtering
> Variant filtering is based on the selection of a calculation model, and considers the relation relationship_component_variant. If this relation exists between the selected calculation model and a process, the process will be visible and no additional filtering by effectivity will be applied.

Resource-centric Supplier Integration
> Supplier projects can be created starting with a list of resources. Selected resources can be merged into the original project as new alternatives.

Automatic Line Balancing

New Functionalities

PMS Features: Parallel Stations

    Now you can show parallel stations in ALB – indicated by color and the number of duplicates. Furthermore the moving of processes with owned containers to and from those stations is also possible. When storing the data to the hub, the part bins and all other material planning data are automatically multiplied for the parallel stations.

PMS Features: Layout Planning: Takt Time per Varian**t**

    Now you can optimize a balancing by its takt time and its layout planning. you can balance the same variant in one balancing with different takt times.

PMS Features: Layout Planning: Merge Part Bins

    Now you can look for same parts within the complete line, inside one station or inside a material area. Until now, the complete line was considered when a same part was searched. That means, if Part 1 is manufactured in station 1, and another part 1 is manufactured in station 10, the algorithm would have put only one part bin in station 1, and the process in for Part 1 in station 10 would have to use the part bin in station 1.

PMS Features: Layout Planning: Merge Tools

    You can calculate the right number of necessary tools at the line. When saving the data to the hub, it create instances of the tools. From now on, the tool information is used by ALB to instantiate the right number of tools at the right place in the line. That means, if Tool 1 is required by Process 1 in Station 1/Workplace1 (S1/WP1), and another Tool 1 is required by Process 2 in the same workplace, the algorithm has to put only one tool in S1/WP1.

PMS Features: Layout Planning: Use Template Processes

    You can create non-value adding processes inside ALB. Standard processes are loaded from a standard process library. The processes created are copies of the standard processes.

PMS Features: Multiple Activity Chart: One Worker working in different workplaces

    You can create, delete, and assign active resources to stations from within ALB. Now worker can work on two different workplaces. In PMS there are no real workplaces anymore. In the 2D View there are two rectangles, previously used as workplaces which are now used to represent the work content of a machine or a worker in that station.

PMS Features: Multiple Activity Chart: Worker Bar Chart View

    Now there is Active Resource oriented View in ALB, where the processes for each worker and machine (= Active Resource) are shown.

PMS Features: Variant Matrix: Load Processes for Product Variants

    You can load the data in a different way by loading a tree of processes and also their relations to Calculations Models (which represent a PV).

PMS Features: Variant Matrix: Honor Process Sequence

    You can start a new balancing but not using the automatic balancing algorithm. ALB put all processes in the list of unbalanced processes. It create the first station automatically. In PMS area, the process planners often plan their processes in the sequence which is used for manufacturing. That means the sequence of the processes in the product variant matrix could also be used as manufacturing sequence of the processes. The list of unbalanced processes is customized. The processes can be sorted according to their order in the variant matrix. When selecting processes (single selection or multiple selection) the sum of the process times is displayed in the status bar of that view. By selecting the first process and the using Shift+Cursor-Down keys, you can select processes that fit into the takt time. You can then can do a Drag and Drop of the selected processes in the first workplace. You can repeat the selection procedure and balance the processes to the second workplace and can continue until all processes are balanced.

DELMIA Process Engineer Pooling Server and Server Tools

Enhanced Functionalities

Global Emergency Mode
> Global Emergency Mode is raised when a master process runs into a critical error state that affects functionality used by other processes. Critical errors are then resolved automatically, such that Process Engineer does not require a manual restart.

Improved Server monitoring
> A set of resource indicators continuously monitor system resources to detect potential resource overloads. This new resource control mechanism monitors available physical memory, available virtual pagefile memory, server machine CPU utilization, the number of active IPDServer processes, the total number of processes and total number of allocated handles.

ENOVIA VPM V5 - DELMIA Process Engineer Integration

New Functionalities

64-bit PPRLoader
> The importing LCALoader application (and it's underlying DLLs) are migrated to 64-bit technology, thus extending the current memory limitations (2/3GB) tremendously up to 8TB on Windows 64-bit OS.

Support Product Maintenance Lifecycle
> Data necessary to support Product Maintenance in the Manufacturing Hub is transferred from the Engineering Hub. In the Engineering Hub the list of Product Specifications of a given Product Root Class is extracted by ProductDataGen into XML files (for each Product Specification one XML file is generated).

Increase Export Capacity on 32-bit platforms
> In previous releases, the maximum capacity of the exporter ProductDataGen is about 50000 instances per 1 GB virtual address space. The address space of such an application is technically constrained to a maximum of 4 GB. Depending on the operating system, an even lower value, e.g. a maximum of 2GB virtual address space may be available.

Finder

New Functionality

Setting Search Options

     Now through componenet finder you can set search options in the project i.e. search condition value, string search, and attribute serach criteria.

Graphic Tools

New Functionalities

Geometry Catching

Enable the setting Tools < Settings < Change < Maintenance Tool < Global < Set graphic/not_copy_cad_files value to 1, and then there is no need to copy the geometry of resources if:

- The referenced file already is in the cadpath or in the product_cadpath directory no path is used in the graphicname, only the name of the file is used.

- The referenced file already is in a subdirectory of cadpath or product_cadpath the absolute path is changed to a relative path.

- Other source files get copied if this setting is not set.

Manufacturing Change Management

New Functionalities

Improved Usability via Switch Button
> This provides the usability to switch the Action through component properties dialog box. The Switch Action button appears on Properties dialog for the component.

Creating Versions for CCZ
> Now you can create versions for PPR-components, which are indicated with option CCZ Owner or No CCZ Member. You can create versions with help of the options Check Out, Create, Check Out (Deep). or Create (deep).

PPR Navigator

New Functionalities

Variant Matrix
> Now PPR navigator supports variant matrix. You can select and assign calculation models of interest in the available list of calculation Model. The assigned calculation Models of Interest are further displayed in the Variant Matrix window.

Variant Matrix Main UI
> With variant matrix you can assign weightings for different calculation models.

Variant Matrix Printing
> You can export the items in the grid view into an excel sheet. This could be subsequently used for printing.

Variant Matrix Customization
> You can create a profile and load the profile while opening the variant matrix. Profiles are recommended to store the settings. Also, for entering weightings, Variant matrix provides multiple ways. 'X' is a way of entering 100% weight. Also based on setting it should be possible to enter fractions.

Variant Matrix Capabilities
> Now you can edit attributes of the plan types and weights on calculation model. You can also assign and copy weights from one calculation model to another as well as copy values of attributes between processes.

Printing

Enhanced Functionality

Enhancements in Object Wizard

Now you can specify the desired relation when selecting an entry in the **Search to Plan Type** field in Object wizard.

New Functionality

Inserting Logo and Copyrights in Print Form

Now you can insert the DELMIA logo and copy rights in print forms via Tools < Settings < Change < Printing < Insert DELMIA logo and copy rights in print forms. You can also modify the print forms and reports.

Process Planning for Body-in-White

Enhanced Functionality

New section describing how to extend the fastener and fastening process model

This section includes information on both point and curve fasteners. Because the addition of this new section expands the overall content of this document, its name has been changed to Process Planning for Body-in-White to reflect its more comprehensive role.

Settings

Enhanced Functionalities

Expand Mode for "Find in Tree"
> This setting in Browser and Menu Items tab allows you to can expand your search in finder when you search for a component in tree.

Show Relation in Object Wizard
> This setting in Printing tab allows you to enable the relation combobox in Author Object Wizard.

Disable MCM Warning Message
> This setting in Miscellaneous tab enables to disable the display of warning message while opening MCM projects if Mod statement is not selected.

Open Maximized
> This setting in Other DS Software Modules tab enables to launch the DPE application in maximized mode otherwise it get launched in normal mode.

Work Instructions Composer

The DELMIA Process Engineer Work Instructions Composer is a new product that allows you to load a process plan with its assigned products and resources, and then author work instructions for each of the processes in the process plan. The robust tools of 3DVIA Composer allow you to annotate, mark-up on the products and resources, and save all the work instructions back to the Manufacturing Hub.