ENOVIA VPLM V5R19 – FACT SHEET

High-Performance Collaborative Engineering

INTRODUCTION

ENOVIA VPLM helps companies take more innovative products to market faster by providing scalable Virtual Product Lifecycle Management of complex Product, Process, and Resource (PPR) information and services. By linking key lifecycle processes and knowledge, ENOVIA VPLM improves decision making and removes obstacles to innovation. Stakeholders in medium to large enterprises can leverage real-time PPR information, Web-based 3D navigation, advanced simulation, and collaboration tools to share insights, optimize designs, and reduce development time and costs - anywhere, anytime.

Together, CATIA, DELMIA, and ENOVIA VPLM provide a virtual, 3D-collaborative environment where stakeholders from marketing to design, to production planning and support can explore and validate decisions within the context of the rich relationships between Product, Process, and Resource knowledge throughout the product development lifecycle.

What distinguishes ENOVIA VPLM from integration-driven PLM systems is our focus on ensuring that product, production, and maintenance data are defined, captured, and managed concurrently so that digital Design for Manufacturability and Maintainability can be achieved. By exploring the rich relationships between product, process, and resource (PPR) objects defined in CATIA and DELMIA, developers and planners can optimize designs and production processes early on in development when the opportunity to innovate is high and the cost of change is low. Validating the product and

its production processes before the design is released and any capital investment made eliminates costly physical prototypes and significantly reduces development costs and time-to-value. With this new paradigm, “First Built First Sold” products are no longer a dream but a reality.

ENOVIA VPLM places lifecycle engineering, manufacturing, and maintenance information securely at the fingertips of global development stakeholders, whether it is trade studies, sourcing data, digital mock-ups, design reviews, or supply chain production status. This knowledge- rich PLM environment provides the best opportunity for our customers to generate the time and cost savings they need to compete and the continuous innovation they need to win.

Finally, to facilitate flexible and cost-effective integration of our solution with enterprise systems currently in place, ENOVIA VPLM solutions are built on standards-based middleware to support changing market requirements and business growth.

ENOVIA VPLM Delivers:

- Virtual product development environment and lifecycle management of 3D Product, Process & Resource (PPR) data.
- The only integrated PLM platform (based on common architecture) for digital design, manufacturing, and maintenance.
- Leverages CATIA and DELMIA Relational Design capabilities for concurrent development of design and the virtual production.
- Real-time digital mockup validation - from visualization through virtual reality – to drive product optimization.
- Connectivity and openness across engineering, manufacturing, and the value-chain.
- Sourcing and manufacturing fully immersed in PLM from design through end-of-life.

WHAT'S NEW AT A GLANCE

ENOVIA VPLM V5R19:

- VPM Navigator optimizes 3D collaborative design & fast iteration through flexible component modification rights enabling designers to simultaneously work closely on design concepts involving one or very few shared assemblies
- Information to capture and store design context, illustrate key attributes during the modification and save routine, and modify certain data values on-demand is always readily available with V5R19 VPM Navigator
- Product preview in 3D and product view specification ‘favorites’ make design-in-context search, navigation, and recall much faster in V5R19 VPM Navigator
- ENOVIA VPM speeds the exchange of design details with suppliers and improves the repeatable processes that ensure the accurate data exchange and collaboration that is needed to revisit past decisions quickly when issues arise
- Allows faster direct interference detection and resolution by using new methods to find and retrieve interference context, improving access and management in VPM Navigator and adding Clash Server support of powerful 64-bit computing technology
- Huge productivity increases for designers using ENOVIAVPM & 3d com with time savings of 90% on PSN search and save and 50% on PSN load and expand
- Fully compatible with the Microsoft Windows Vista operating system

ENOVIA VPLM V5R19 OVERVIEW:

- Bold improvements to the component lock/unlock mechanism logic, an improved active session refresh, and the ability to discard individual unwanted modifications before a design save means VPM Navigator in V5R19 further improves work-in-process collaboration when multiple designers work on the same assembly at the same time.
- Beyond concurrent design, V5R19 VPM improvements streamline formal design changes and informal iterations with support of customized Actions and individual Action modifications upon save, improved Clash issue management, the ability to lock/unlock instances and references directly from the save panel and vastly improved error messages to help designers resolve data management issues immediately at their desktop, which reduces designer delay and helpdesk overhead.
- Capture of engineering knowledge is more robust in V5R19 with the ability to nest Product View Results to build larger knowledge contexts and accomplish more advanced CATIA applicative data management.
- Introduction of a 3D preview window in the component properties panel and recall of a stored product view specification from a favorites menu or directly from the query results panel reduces the time designers spend looking for data and recovering accurate design sessions - saving valuable engineering time.
- ENOVIA V5R19 improves supplier exchange with updates that include better management of exposed publications and making the exchanges more repeatable when designers use new tools to store, test, and send designs.
- Real-time rendering solutions in V5R19 Digital Mockup improve the designers' ability to 'see' their designs with new control of their 3D environment in a single panel, pre-set material rendering configurations, more realistic shadowing, and various off-line tools and libraries that speed rendering performance to shorten design iteration cycles.
- Continuous improvement of ENOVIA 3d com offers designers using ENOVIA$_{VPM}$ applications on Microsoft Windows additional capabilities to customize toolbars and contextual menus for higher productivity, filter, navigate, and print the Product Structure Navigator, and modify technical and multi-model links embedded in designs.
- Performance of ENOVIA$_{VPM}$ on the Unix operating system and Microsoft Windows via 3d com is stronger than ever. New enhancements to the Product Structure Navigator user interface and CATIA multi-model links support guarantee customers continued benefit from superior CATIA data management.
- V5R19 is the first ENOVIA VPLM release to fully support the Microsoft Windows Vista operating system.

DETAILED DESCRIPTION

ENOVIA V5 VPM:

- Major efficiency gains are provided with a new optimistic lock behavior available through customizable settings. You can insert, move, replace or delete a child part without locking the part within the parent reference assembly or peer instances.
- Refreshing documents in session has been improved by allowing you to refresh based on iterations or modification dates or to ignore both of these. Refreshing modified documents under control allows you to maintain CATIA session integrity
- Search and navigation has been improved by providing 3D preview integrated in the edit and properties windows. It is available for Documents, Part References, Part Instances, PRC's and provides multi-selection and positioning.
- You can send GCOs to a new VPM Navigator window to maintain consistency between different projects and products. This will facilitate search, browsing and working across the GCO structure from VPM Navigator and reduce design lead time, because you have spent less time searching for data.
- Part instance search results have been improved allowing you to add parent instance and parent PRC to instance masks. This provides easier identification of peer instances and their corresponding assemblies.
- Filtering & Product View Specification (PVS) has been enhanced by allowing you to capture specific instances within a filter by direct selection in VPM Navigator or CATIA feature tree. You can also edit a PVS and modify its definition and open a PVS directly from a search into the authoring workbench
- Your most recently used PVS and documents are directly accessible from the ENOVIA V5 menu providing one click shortcuts to your favorite working environments.
- Reuse parts are already stored in ENOVIA and may be replaced from an existing ENOVIA.
- Partial save improvements allow you to choose for each part or document to discard it or to save it as an alternative design.
- Modification Chooser on Save / Synchronize allows the use of actions with multiple modifications in VPM Navigator by giving the user a choice of which modification under an action to use when saving or synchronizing a version.
- Custom Action Support extends the change management capabilities in VPM Navigator by introducing the ability to create action types other than design actions, including custom action types.
- You can revision Non-CATIA Documents from search results or the VPM Navigator tree view.
- You can also force a maturity check of a document before revisioning, allowing the revision only at a certain maturity level.
- Document information is now available in the Documents tab in Properties panel and in a tooltip window when the mouse pointer hovers over the document name.
- ENOVIA Send To File command now has simple incremental data exchange.
- ENOVIA Send To ENOVIA command has been added to quickly copy an existing work package assembly directly in ENOVIA V5 VPM. It is not limited by CATIA client memory.

- The cost of attribute retrieval has been drastically reduced by reducing the number of server call to two instead of the calls being based on the number of objects to open.
- The User Interface has been improved by simplifying the toolbars and menus, creating more consistent wording and improved error list window with “size memory” and better search and filter capabilities.
- The change management capabilities in VPM Navigator have been extended by introducing the ability to create action types other than design actions, including custom action types
- The user can now replace a component with a stored stand alone Part version, replacing the multiple steps needed to perform the equivalent operation.
- The command ENOVIA send to file now resolves broken and multiple links improving the efficiency of the transfer of documents from the ENOVIA database to a file based storage system. The copying of large work packages from one ENOVIA database to another no longer requires memory resources from the requesting client because the workpackage is not loaded to the client first, but is sent directly to the new ENOVIA system. The user can also customize the document information shown for the selected documents in the ENOVIA to ENOVIA user interface. Additional user scenarios are supported in VPM Navigator by allowing new revisions of non-CATIA documents to be created from search results or the VPM Navigator tree view. Additional control of the document revision process is provided by validating that the document is in a revisable state before allowing a new revision to be created.
- The user has the option to force part versioning when performing document revisioning to best fit the user work process. The maturity leaves of the current documents are shown in the dashboard, giving the user quicker view of the document status. The user is also given a warning, when saving, if the maturity level adversely affects the ability to save the document.
- The PVR solution has been improved by enabling PVR creation without automatic save, extending attribute mapping in PVR to Item Instance, and adding the option to create a PVR without synchronization. A PVR can also be created at each level of the product structure, allowing nested PVRs. The user can reuse information from a previous PVR to create a new drawing, analysis, or alternative design. A batch process allows file migration to a PVR in ENOVIA V5 which moves data from a file to a structure exposed CATProduct.
- Improvements have been made to the reconciliation process to which enable the user to more accurately Publications and CATShape documents and use the PVS to filter the product structure when using batch reconciliation.
- The user can create a Replication package in the VPM Navigator workbench and can simulate the creation process to ensure the package they intend to create is the one that is created.
- Security processes have been improve to prevent unauthorized modifications and versioning and give enhanced permission control for Change objects
- Visualization of links is improved for documents and parts allowing easier selection and management of objects.
- Overall system improvement in memory management allow you to load more objects and let the system recover without loss of data by warning of low memory situations and guiding the user through the recovery process.
- The user can select a single instance geometrically impacted by the currently selected instance to facilitate sending a design context to CATIA.

- The user can customize the Parent Lock policy on the move, add, replace, and delete commands. If the user changes the position of a CATPart, then refreshes the view, the position is maintained instead of being lost and requiring the position change to be repeated. If the user is prevented from saving an object because it is locked by another user, the error message now shows the lock owner name to help the user to resolve the conflict. The user can also perform searches and lock operations directly from the error list to help resolve the errors.

DMU:

- Penetration management enables users to retrieve the two catalogs and the KnowledgeWare Rule Base file (CATProduct) that are defined as resources in the Project Resource Management (PRM) project file. Users can then load the related design data and update the penetration information.
- Clash KnowledgeRule CATProduct management within ENOVIA V5 VPM **-** You can set the options panel to allow you load Clash rules from CATProduct files save on the ENOVIA V5 database as well as files saved locally. This will save time because you do not have to ensure the file containing the clash rules are saved on your local drive.
- Clash report contains workpackage name and product paths when connected to ENOVIA V5
- The user can save sectioning result to VPM Navigator and search clashes directly from VPM Navigator
- New Exported Sectioning Model **-**Exporting a cross-section has been improved to save the section outline as one polyline, instead of many connected lines. This saves in file size and processing time, as well as allowing you to select the section with one click of the mouse.
- Directly open a section into its editor **-** A cross-section can also be opened directly into a new VPM session, allowing the user to use the cross-section immediately, with the option to save the section using the save command from the menu.
- The copy/paste function of a mechanism is enhanced to include the duplication of dressup, the full form of the model as opposed to the skeletal form, in addition to the joints and the associated commands and parameters. This gives you a more complete simulation, showing the entire volume of space through which the model moves.
- The performance has been improved by increasing the number of joints (wrist flexion-extension and radial-ulnar deviation) that can be analyzed and the ability to define the load on more segments (hands, forearm, shoulder and back) of the manikin. The biomechanical results are more clearly displayed using 3D rendering of the results by showing the results for a chosen segment, rather than all results for all segments **every time**.
- The user has a more convenient way to review and edit the variable that control the 3D environment in a single panel and can choose reflection maps with one click convenience. The user is provided a command to switch between pre-selected materials for comparing different looks. Shadows have been made more realistic with the addition of multiple light sources and full compatibility with CgFX. The user now has the ability to compute and store light maps off-line then loaded so a scene can be rendered in real time without waiting on calculations to be made. More materials have been added to the materials library, such as car paint and you can import external shaders for even more effects.

- To improve the realism of computed images, Photo Studio 2 now includes the Architectural and Design Shader. This will provide realistic looks such as brushed metal, frosted glass, translucent material, etc. For ease of use, a list of presets for the many parameters is provide to let the user choose the closest effect for their material, but APIs are also provided to allow new rendering engines to define their own presets.

CES:

- As part of the engineering change process, designers can evaluate the alternatives, choose the best option and instantiate the part - all from within a single window – to improve data accuracy and realize more productive design.
- Attach the necessary documents (text, MS Word, etc.) or any other specifications to the QML (Qualified Manufacturer List) to support the qualification process and view these attachments when choosing a part for use in product structure.

3d com:

- Administrator settings direct the server to convert a CATProduct file to 3D XML when a user requests the file to be opened. This allows the viewer to properly create the CATProduct Schematics, specialized geometry and 3D representation used when a large number of similar parts are organized in a complex fashion.
- The ENOVIA - Multi-PDM - CDM/VPM Plug-in (VPL) product enhancements improve ergonomics and usability, environment customization, customer process integration, installation and scalability, and allow 3d com to better meet the VPM V4 Unix functionality.
- Enhancements to the use of the PSN allow the user to select the parent node of the currently selected node, preview a V5 document, VPM resource file usage, Assembly node support and added support for filtering and printing of the PSN.
- Customizations for icon toolbars, contextual menus, user exits and node labels add to the flexibility of this plug-in.
- Additional support for multi-model links (MML), technical link management, connectivity to the SAP enterprise management system, edition of P & O data, and launching of CATIA V5 has also been added.
- The popular *SpaceMouse* ergonomic user interface tool is now supported.

ENOVIA$_{VPM}$:

- Huge productivity increases for designers using ENOVIAVPM & 3d com with time savings of 90% on PSN search and save and 50% on PSN load and expand
- Creating ‘same as except’ assembly design alternatives is much faster with a new product structure duplication mechanism available in VPM 1.6 PTF10
- A new ‘Get Context’ selection from a part’s multi-model link contextual menu enables designers to derive the actual relational context directly into CATIA from the menu selection.