

SAP Solution in Detail
SAP Product Lifecycle Management
SAP 3D Visual Enterprise Author

Leverage 3D Content from Engineering in Business Processes



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Quick Facts

Summary

The SAP® 3D Visual Enterprise Author application lets business users share and reuse product data from engineering CAD systems. The software converts visual content for presentation in common desktop documents and back-office applications, and business users can then integrate the illustrations into their work in R & D, manufacturing, sales, marketing, and support. Those busy professionals can intuitively comprehend previously inaccessible design details and base decisions on visible fact.

Business Challenges

- Help business users work with graphic content from diverse sources by integrating it into your business processes and data
- Help readers retain complex concepts through reusable visual and interactive content
- Minimize the risk of misunderstanding in cross-functional collaboration by emphasizing visual components of information

Key Features

- **Outlining step-by-step instructions in 3D** – Produce complex assembly sequences with interactive content
- **Creating step-by-step procedures in 3D** – Simplify repair and maintenance decisions and workflows
- **Preparing training materials and documentation** – Reproduce models and parts lists quickly and accurately for courses and manuals
- **Rendering photo-real 3D images** – Make high-resolution product illustrations readily available to sales and marketing groups

Business Benefits

- **Simplify complexity** of data, procedures, and processes to improve understanding
- **Shorten time to market** by reducing training periods and optimizing product delivery processes
- **Reduce costs and increase consistency** through standard task and process execution
- **Enhance collaboration** by boosting communication across departments through easily absorbed visual elements that help reduce discussion

For More Information

To learn more, contact your SAP representative or visit us online at www.sap.com/lines-of-business/research-development/product-visualization/index.epx.

Collate and Reuse 3D Product Data from Diverse Sources

The SAP® 3D Visual Enterprise Author application helps you **distribute sophisticated graphic and interactive content** outside engineering systems. This lean software transforms existing CAD models into neutral formats for use in a wide range of marketing documents, training materials, and assembly and repair procedures. Manufacturing, support, and sales personnel can reuse the content without CAD software, letting you leverage the valuable information in graphics throughout the product lifecycle.

EXTEND THE POWER OF MODELING BEYOND ENGINEERING

Today's engineering design teams are using 2D and 3D CAD applications in combination with product data management

functionality, simulation programs, and analysis tools to support complex product modeling and simplify prototyping requirements. The SAP 3D Visual Enterprise Author application helps you bring those capabilities to business users as well.

Figure 1 shows a typical example of using CAD data to illustrate step-by-step assembly instructions. The integration of 3D animation with business and operational step information is made available on a mobile device. With information and process integration at this level, you can bring products to market sooner, drive greater process productivity, and improve overall product quality.

Because the graphic content can move easily beyond the engineering department, you can extend the benefits of intuitive and immediate communication to other functional areas of your business. All stakeholders can borrow drawings without interrupting engineers and adapt the content without costing you extra CAD licenses.

LEVERAGE CONTENT FROM DIVERSE FILE TYPES

SAP 3D Visual Enterprise Author helps you deliver files from more than 80 CAD or digital content creation (DCC) file formats quickly and easily into common desktop applications. The software makes CAD-based product models from engineering organizations available in a neutral format for reuse in manufacturing, documentation, service, support, marketing, and training organizations.

With attractive and readily available graphic content, your extended enterprise can infuse its processes with high-fidelity visual information. Your staff members can review and collaborate more effectively and produce a wide variety of images, animations, videos, and documents to support their various tasks. Predefined workflow templates streamline collaboration. And communication becomes more intuitive, which helps eliminate misunderstandings and speeds learning.

Figure 1: Operation Step in SAP® 3D Visual Enterprise Viewer Displayed on Mobile Device



Match Visual Content to User Context

The ability to view and access the latest CAD models is of maximum benefit only when it provides users what they actually need for their work, in a format compatible with their processes and tools. SAP 3D Visual Enterprise Author delivers on that promise of truly relevant content by publishing the graphic and interactive information easily into standard desktop applications like Microsoft Office and Adobe Acrobat.

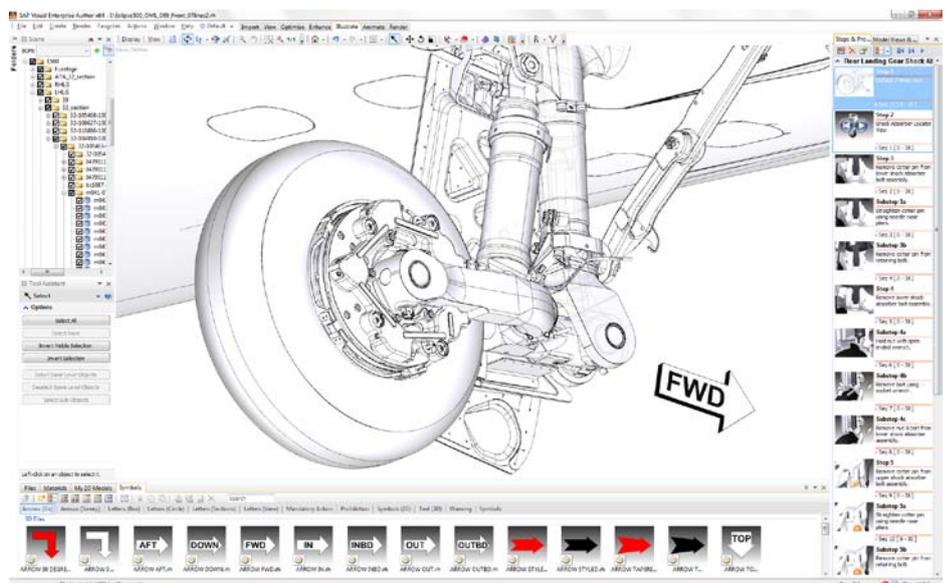
CUSTOMIZE THE USER INTERFACE FOR EACH ROLE

To maximize productivity, a configurable user interface in SAP 3D Visual Enterprise Author presents the right set of tools for the task and all the data the user is authorized to access. Screen design, frame placement, and layout of accessible data are fully under user control so the visual working area reflects each individual's display preferences. Users who have not been able to leverage 3D content before can now illustrate their documents without assistance. They can produce line art for parts catalogs, glossy photographic images for marketing brochures, and interactive 3D animations for shop floor or maintenance instructions.

SUPPORT INDUSTRY STANDARDS

Authors of user guides and maintenance procedures typically write and illustrate their documents according to such standards as the interactive electronic technical manual (IETM) guidelines. This enables maintenance personnel to more easily execute the procedures step by step in the field. SAP 3D Visual Enterprise Author also makes it easy for writers to meet the S1000D standards for technical documentation that originated with the U.S. Department of Defense. Figure 2 contains a graphic from the visual enterprise software that is compliant with S1000D manufacturing standards for the shop floor.

Figure 2: S1000D-Compliant Artwork Rendered Without CAD Software



Boost Collaboration Across Your Enterprise

OPTIMIZE REVIEW AND DELIVERY OF ILLUSTRATED MATERIALS

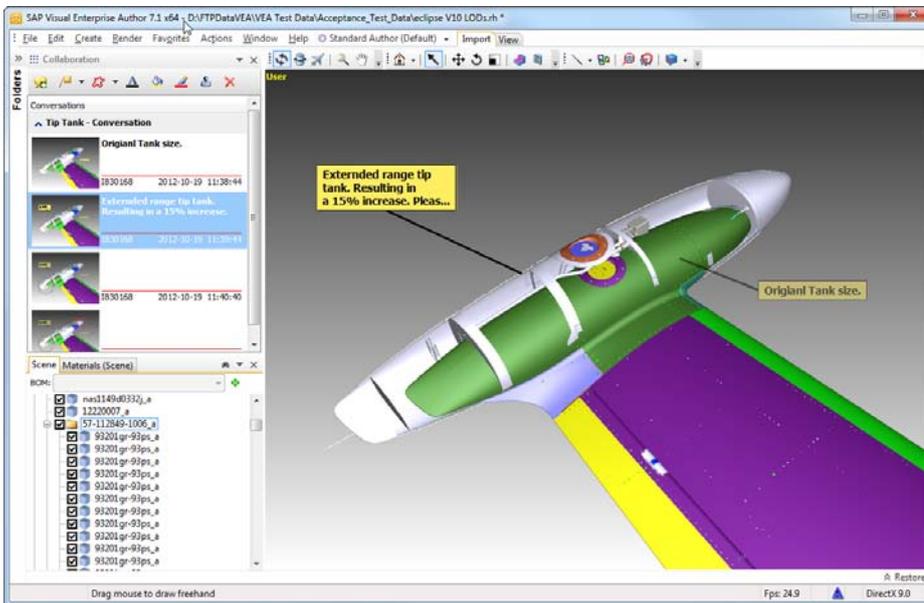
With SAP 3D Visual Enterprise Author, business users can review product models by manipulating images streamed in real time to their own desktops.

Figure 3 illustrates a design review process that enables collaboration on products to capture input from supply chain partners and customers. Supply chain communications are more efficient with the addition of mock-up graphics, and engineering change and shop floor

processes also run more smoothly. When the ratio of visual content is higher, workers can understand the details more easily and more quickly, minimizing opportunities for error. With products in the field, maintenance personnel can do their jobs better by using illustrated and animated data sheets, manuals, and procedures.

And with an eye toward maintaining your valuable customer base, you can create high-resolution images with the click of a mouse to enhance marketing and advertising collateral, presentations, Web pages, and electronic catalogs.

Figure 3: Capturing Design Review Input from Business Users



Look Ahead to a Transparent Enterprise

CHECK THESE SIMPLE TECHNICAL REQUIREMENTS BEFORE YOU START

SAP 3D Visual Enterprise Author supports the following operating systems in both 32-bit and 64-bit versions:

- Microsoft Windows XP service pack 3
- Microsoft Vista
- Microsoft Windows 7

For best results, we recommend the latest Windows operating system supported. In addition, be sure that your Microsoft Windows Server software recognizes the .rh file type.

The application requires the following minimum hardware configuration on each user's machine:

- Pentium 4 with a 1-gigahertz processor
- 512 MB of RAM
- Graphics card supporting 24-bit color and using the latest drivers
- 3D graphics hardware accelerator video card
- Microsoft DirectX, version 9

You will want additional RAM for large models and intricate textures. For best results, we recommend a Pentium 4 with a 2-gigahertz processor, 3 gigabytes of RAM, and a graphics card with the latest drivers, 128 megabytes of RAM, and support for the latest Microsoft DirectX or OpenGL standards. Shader Model 3.0 and OpenGL 2.0 are optimal for high dynamic range rendering.

To create custom PDF templates using the template designer in SAP 3D Visual Enterprise Author, you must be running one of the following versions of Adobe Acrobat:

- Acrobat 8.1+ Pro
- Acrobat 3D v8.1+
- Acrobat 9 Pro
- Acrobat 9 Pro Extended

Without any other graphics software running, you can reproduce images in the following formats.

Filename extension	Typical source of file
.3ds	Autodesk 3D Studio
.3dm	Cadent by Cadent Inc.
.dxf	Autodesk AutoCAD
.fbx	Autodesk Kaydara
.lwo	NewTek Lightwave 3D
.lws	NewTek Lightwave 3D
.obj	Relocatable object code from a compiler
.rh	C++ program
.u3d	Ultimate 3D Engine
.wrl	Virtual reality modeling language

You must have an active Internet connection to perform 3D Web searches. To view and save Autodesk 3ds Max or Maya files, you must have a copy of the native software running. To view Autodesk Inventor files, you must install a copy of Autodesk Inventor Viewer. To view 3D HTML files, you must install a copy of the SAP 3D Visual Enterprise Viewer application.

NURTURE EVOLVING LANGUAGE INDEPENDENCE

The SAP 3D Visual Enterprise Author application helps you interact with 3D product imagery in radically new ways that are far simpler than manually copying or scanning. You create your content only once and share it everywhere. You can combine multiple models in inventive new ways, as in the composite view illustrated in Figure 4, with fewer hardware and software constraints. As the globe shrinks and you expand across national borders, you come closer to language independence by relying more on visual and interactive content than on words that need to be translated.

Engineering teams are using 3D CAD applications to support complex product modeling and simplify prototyping requirements. SAP 3D Visual Enterprise Author brings those capabilities to users on their mobile devices no matter where they are working.



The “Big Data” that companies everywhere are beginning to encounter is also easier to analyze and understand when enhanced by visual context. Imagine selecting areas of a product and seeing interactive charts of associated business data pop up immediately. Or finding all the parts in a product that come from a supplier experiencing slowdowns to check which work in progress will be jeopardized by shortages. Or exploring graphically which areas of your manufacturing line are most at risk for accidents, or which supply lines are vulnerable to

flooding, or which loading procedures at a plant have inefficiencies. You can achieve all this with far fewer words than before. The possibilities are endless.

FIND OUT MORE

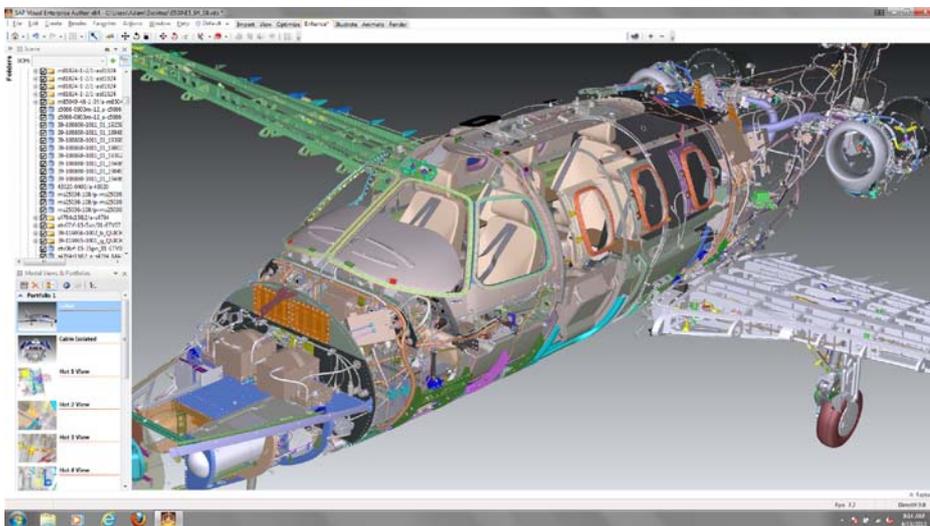
To learn more about software for the visual enterprise, call your SAP representative or visit us on the Web at www.sap.com/lines-of-business/research-development/product-visualization/index.epx.

CHECK OUT OUR OTHER APPLICATIONS FOR THE VISUAL ENTERPRISE

The **SAP® 3D Visual Enterprise Viewer** application enables sharing of and collaboration on all published content created in the SAP 3D Visual Enterprise Author application. The viewing technology has become an integral part of several SAP back-office applications, but even on its own it provides powerful functionality for viewing and sharing 3D content in HTML as well as Microsoft Office applications.

The **SAP 3D Visual Enterprise Generator** application serves on the front end as the automation engine of the visual enterprise, performing the heavy work of transforming massive engineering design files into ultralightweight neutral formats. To support downstream processes, the application associates business data with high-resolution imagery and can be used to create graphics, media files, or documents.

Figure 4: Massive-Model Aircraft Visualization Created from Multiple Models



With readily available graphic content, your extended enterprise can infuse its processes with high-fidelity visual information. Your staff can **collaborate more effectively** and produce a wide variety of images, animations, videos, and documents.

www.sap.com/contactsap

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