AutoVue®

Cimmetry Systems, Inc.®

Cimmetry Systems, Inc.,the global leader in Visualization & Collaboration for the A/E/C, Engineering, Manufacturing and Electronics markets offers a complete family of solutions for your individual, company-wide and business-to-business viewing and collaboration needs.

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AutoCAD : DWG / DXF / DWF

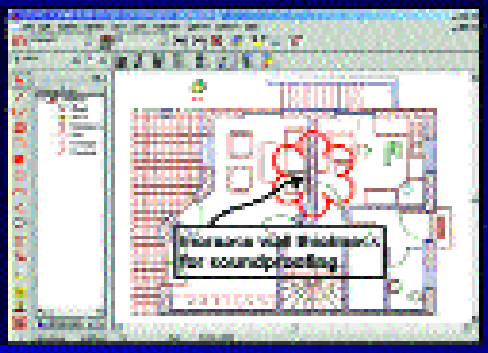
MicroStation HPGL CGM IGES

CADkey EPS

2D SolidWorks 2D Solid Edge

ME10

etc.



2D

CATIA Unigraphics

Pro/ENGINEER Solid Edge SolidWorks

Inventor Mechanical Desktop

JT SolidDesigner ACIS STEP

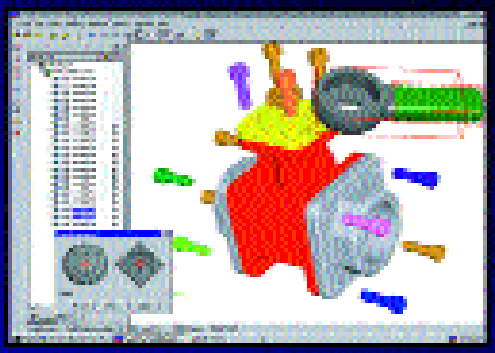
IGES

3D

STL

VRML

etc.



Office

EPS

TIFF

Acrobat PDF Visio Word

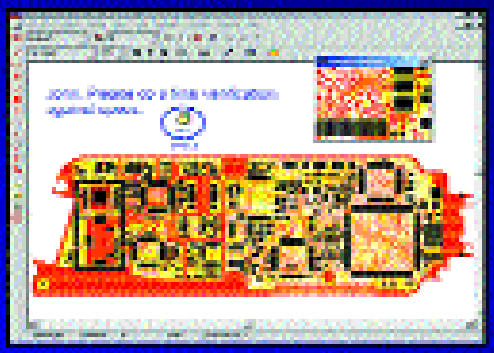
Excel PowerPoint

Microsoft Project

WordPerfect

etc.

EDA



P-CAD

Orcad

Mentor Board Station Cadence Allegro

Mentor Neutral EDIF PDIF

Zuken CIF IDF Gerber

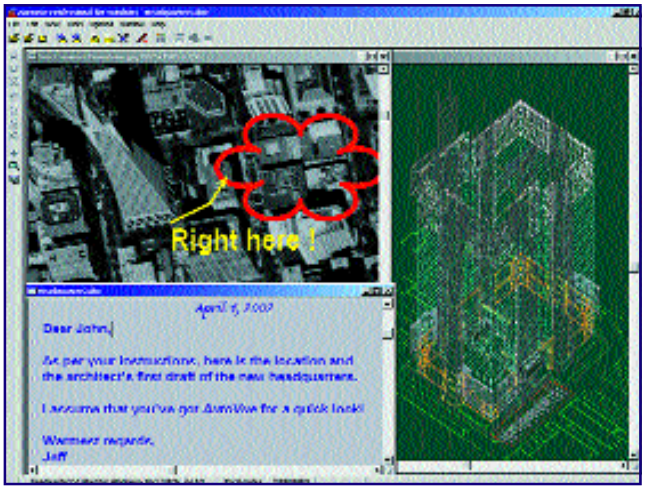
ODB++ PADS GenCam

Barco GDS II etc.

AUTOVUE IS USED IN A WIDE RANGE OF INDUSTRIES

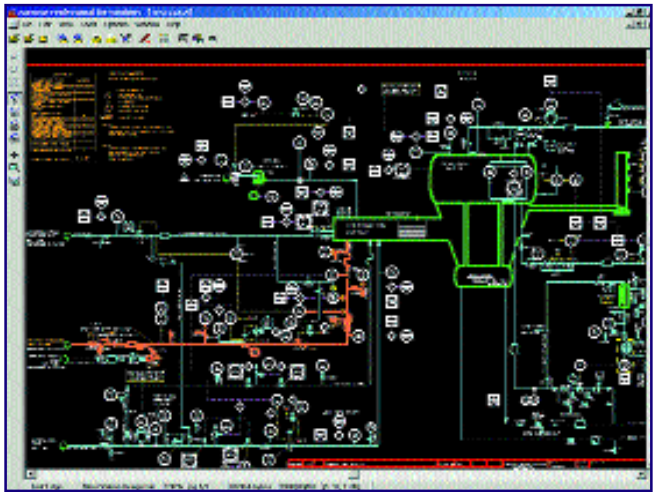
Architecture / Engineering / Construction

A/E/C organizations make extensive use of drawings throughout the entire project life cycle. From the initial concept, through design, engineering, construction, maintenance and ultimately decommissioning, these drawings need to be easily accessible to a wide range of users often from many companies and regulatory organizations. AutoVue makes sharing these drawings in electronic form easier, quicker and more secure. "Changes" are easily and quickly communicated using AutoVue's Redline/Markup features. The need to make multiple plots and blueprints for distribution is reduced, and shipping costs are greatly lowered. Housing, buildings, roads, airports, bridges, mines, processing plants, factories etc. are being built faster and more cost effectively thanks to AutoVue.



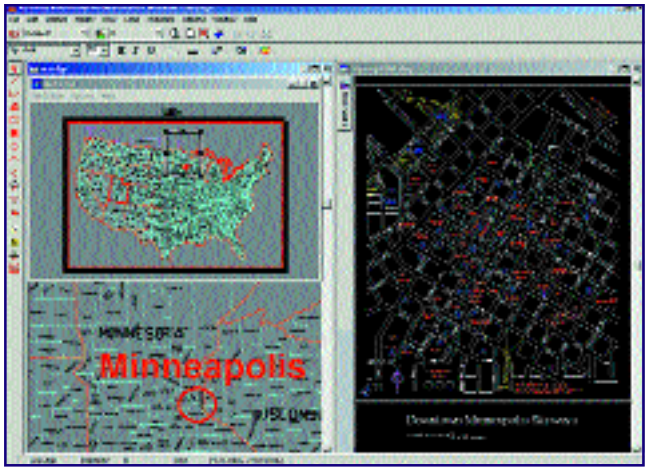
GIS

Oil & gas companies, pipeline operators, municipalities, government, electricity and telephone utilities all use electronic drawings and maps to manage their networks and facilities. AutoVue delivers significant benefits by providing easy and quick access to data for a large number of staff. When you need to visit a site for maintenance, AutoVue eliminates the need to request a copy of the site blueprints and wait hours or days to get them. You can print the documents directly from AutoVue or even load them on your laptop and use them on site. Should you need to annotate the drawings, it can be easily done on site with AutoVue.



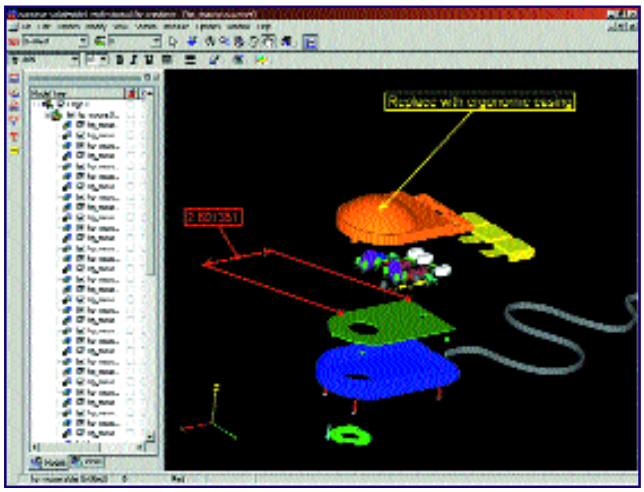
Process Manufacturing

Companies involved in the production of food and beverage, chemicals, cosmetics, paints, plastics or pharmaceuticals need to continuously improve their plants and processes in order to remain competitive. Plant owners and operators receive a tremendous amount of documents and drawings from the engineering companies that designed and built their plants. These documents must later be managed and distributed to the appropriate people. During the plant lifecycle, changes will need to be requested, managed and reviewed. Compliance with regulations is important and tools such as AutoVue are becoming a must. From the day a decision to build a new plant is made, to the day the plant is decommissioned, a tremendous number of documents and drawings are generated by various parties and need to be shared among many participants. Electronic viewing and markup of documents and drawings easily translates into tighter timelines and millions of dollars in savings.



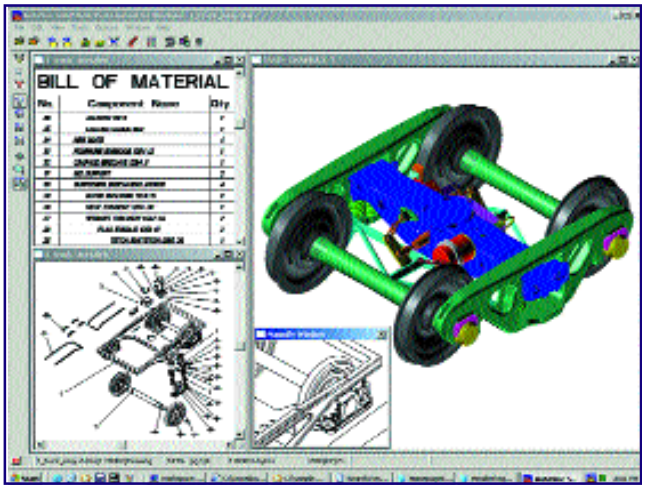
Discrete Manufacturing

AutoVue is an integral part of the product design and lifecycle management for hundreds of discrete manufacturers throughout the world. By integrating with various DM, ERP and PLM systems, or being used standalone, AutoVue acts as the communication and feedback method of choice allowing all members of the supply chain, team or cross-functional group to provide their necessary input with the least hassle and lowest risk of misunderstanding. This leads to increased procurement efficiency, fewer production delays, lower costs, improvements in quality, a faster time-to-market and substantial ROI. With AutoVue, manufacturers significantly collapse the time and expense necessary to complete the component steps in the manufacturing process, from development to shipping.



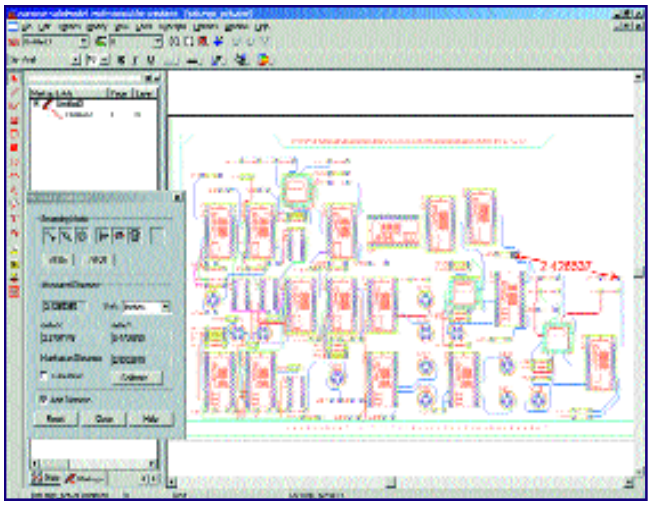
Electronics

It is no secret that competition in the electronics industry is becoming increasingly intense. Reducing the time to innovate, design, source and manufacture a product is now a question of survival. Over the last decade, the importance of Electronic Manufacturing Services (EMS) has grown and the process of concept, design, production, marketing, sales and distribution is no longer done within a single company, as it was a couple of decades ago. Today, it is divided among partners that have the greatest efficiencies in their domain of competence. In such an environment, collaborating on electronics design, schematic capture or PCB layout is vitally important. AutoVue allows individuals within an organization and throughout the supply chain to easily view Electronic Design Automation (EDA) documents and participate in the design, review and procurement processes.



E-Commerce, B2B, ASPs and Corporate Portals

The .com bubble may have burst, but some of the driving factors that led to the proliferation of Web / Internet based solutions remain. Today, two trends have emerged: 1) a number of focused independent operators that provide tools needed in specific markets and 2) portals created / operated by companies to collaborate with their suppliers, customers, partners, regulatory bodies and government agencies. Publish your office documents and engineering drawings online and provide instant and secure access to essential data regardless of its format.

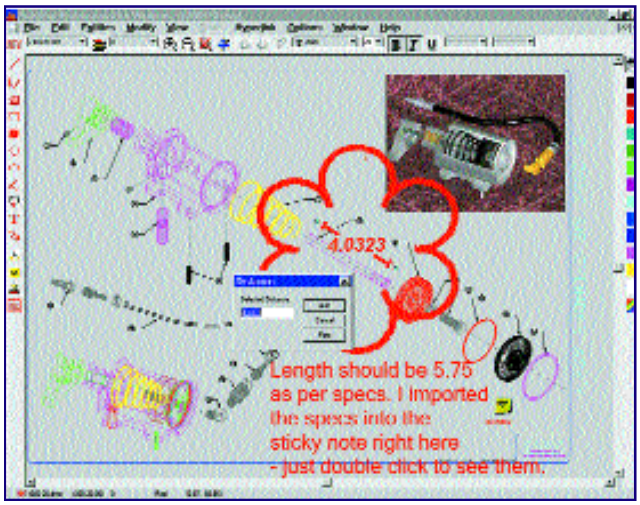


USES

Viewing & Markup

Today's IT environment delivers documents in a wide array of formats which you may be unable to view without a copy of the authoring application. Regardless of whether your information comes from a 3D CAD model, a 2D drawing, an EDA Layout / Schematic, a scanner, a word processor, a spreadsheet or any of over 200 different formats, AutoVue will open it and display it quickly and allows for printing or conversion.

Markup / Redline / Comment / Annotate documents, even those that do not normally support markups, using a variety of tools: lines, shapes, text, graphics, sticky-notes, symbols and hyperlinks. Markups are performed on a separate layer and are saved as a different file, leaving your original document intact.



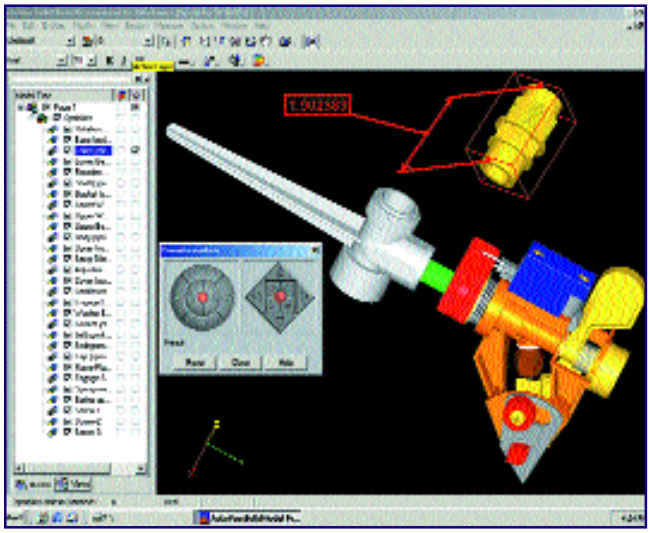
Content & Document Management / Product Lifecycle Management

Increase the power of your DM / PLM / ERP system by integrating AutoVue. Here are some of the many benefits:

- Heighten the power and functionality of your system providing visual access to your data.
- Streamline and speed up engineering and creativ processes.
- Comply easily with ISO, OSHA and other quality and regulatory publishing standards.
- Reduce printing and distribution costs.
- Track information easily.
- Streamline your communication processes.
- Seamlessly integrate AutoVue into your workflow process.

Design Change Management

Engineering and design change cycles are a key issue in every product development cycle. If properly performed they can shorten time-to-market, reduce design errors, cut costs, and generally improve your company's competitive position. AutoVue will simplify your ECR (Engineering Change Request) / ECN (Engineering Change Notice) / ECO (Engineering Change Order) cycle. Automatically notify recipients on your mailing / distribution lists when a markup is created or modified. Consolidate several markup files from different reviewers into one. With AutoVue, communication throughout the product development cycle is streamlined. Whether you work within a standalone system, communicate change externally via e-mail, or work fully integrated with a host system, AutoVue is right for you.



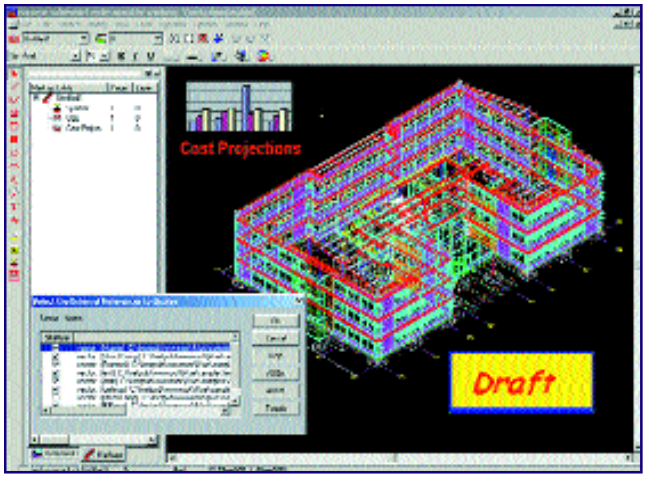
Efficient Information Access

Finding information related to a given document can cost valuable time. AutoVue can be extended to make use of the metadata embedded in documents to provide links to other related data. When combined with a document management system, this capability can provide an intuitive navigation system for the repository of information.

AutoVue provides further extension and customization for your information access using hyperlinks. Hyperlink the elements in a P&ID (Piping & Instrumentation Diagram) to the related information in the database, then access that information with one click.

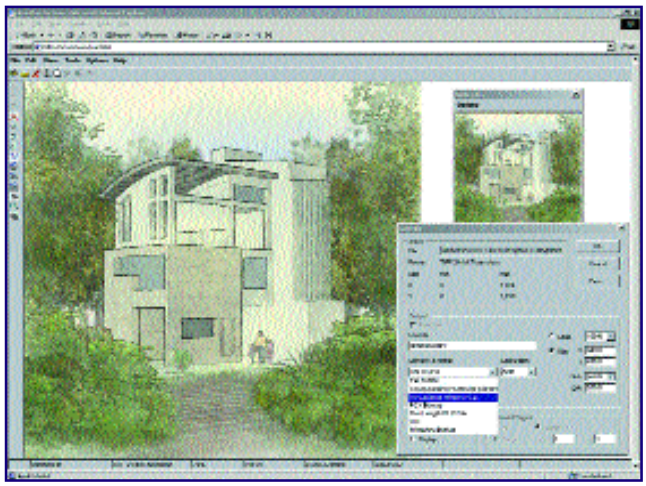
Quality Control & Regulatory Compliance

Quality and regulatory standards such as ISO and OSHA demand compliance with a strict set of requirements. Meeting these requirements can be either difficult or simple, depending on which technology solutions you implement. AutoVue can help your organization meet ISO standards by providing the required view and print features securely integrated with your ISO software and processes.



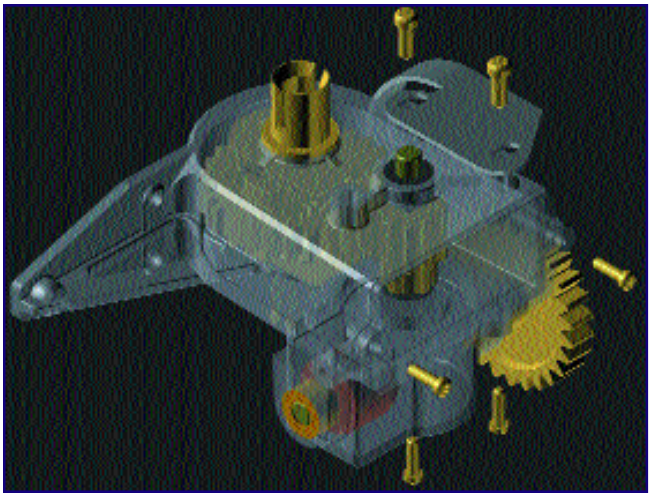
Printing Solutions

We've all heard of the paperless office, but most of us still want a hard copy. AutoVue is a printing solution too. It offers a vast array of valuable printing options including batch printing, stamps, watermarks and banners. AutoVue's printing options are straightforward enough if you are a casual user yet feature-packed if you are a power user. Print Preview helps eliminate unwanted print jobs, giving you complete control over what comes out of your printer or plotter.



Versatile Solutions

Does your organization have unique requirements? Cimmetry Systems is the global expert in Visualization and Collaboration solutions. Contact us and we'll be glad to help.



VISUALIZATION

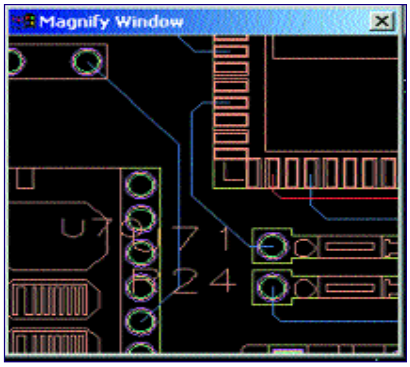
Users require reliable access to their data. The key to accessing information is the ability to view or visualize information made available to users, whether on a local workstation, across the organizational LAN, or across the Internet.

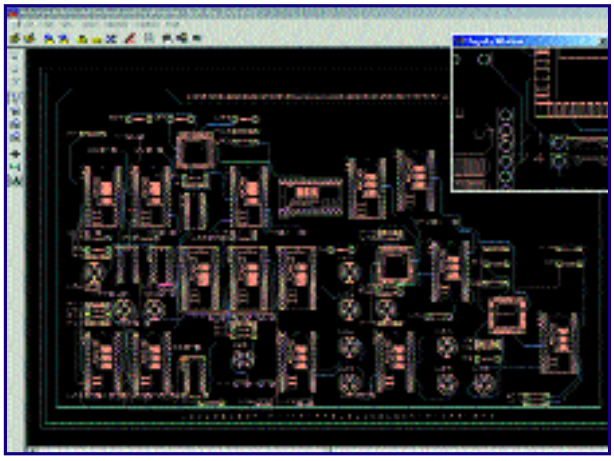
Although solutions exist that deliver the infrastructure for collaboration, users cannot participate in most of the processes because they lack the tools to view the large variety of file formats required. AutoVue provides access to all product data, regardless of format, from a single easy-to-use interface. Thus, the review, inspection and printing of critical information are simplified for technical and non-technical users alike. Stakeholders both within the organization: Engineering, the Shop Floor, Purchasing, Procurement, Sales and Marketing; as well as those external to the organization: customers, contractors, suppliers and regulatory agencies, can collaborate with unprecedented ease.

General Features

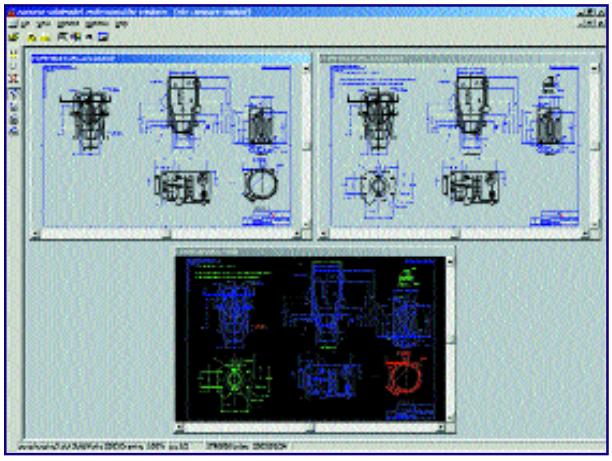
- **Supports over 200 native formats** including: 3D CAD parts and assemblies, 2D CAD drawings and drafts, EDA PCB layout and schematics, scanned and raster documents, vector files, hybrid documents, Office formats and graphics.
- **Windows compliant user interface** includes multiple, dockable, customizable toolbars allowing you to set up the desktop the way you want.
- **Intuitive user interface** makes functions available in drop-down menus, in the right-click menus and on the toolbars. The graphical user interface will be familiar to Windows users, allowing most people to pick up the basics in half an hour.
- **MDI interface** allows multiple windows, even containing documents in different formats, to be open at the same time.
- **Automatic document format recognition** relies on the contents of the file, not the file extension, so that the file opens in the correct mode every time.
- **Built-in scripting language** for creating macros makes repeat tasks faster and easier.
- **Powerful right-mouse-button functionality** lets you quickly access frequently used features via context-sensitive right-click menus.
- **Thumbnail feature** lets you create thumbnail images for entire directories for quicker visual browsing and navigation, allowing users to easily and efficiently locate the right file.

View details with the Magnify Window





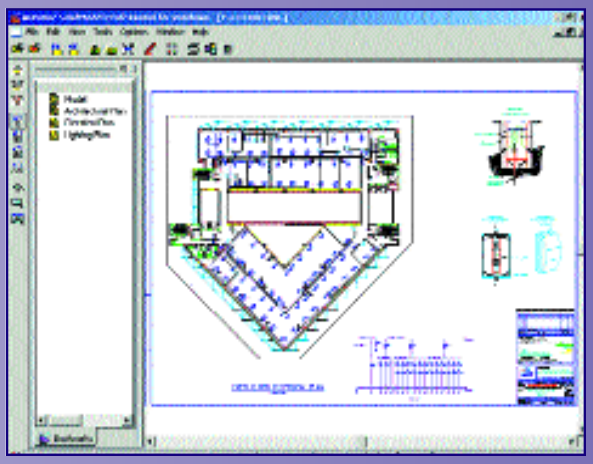
Compare drawings

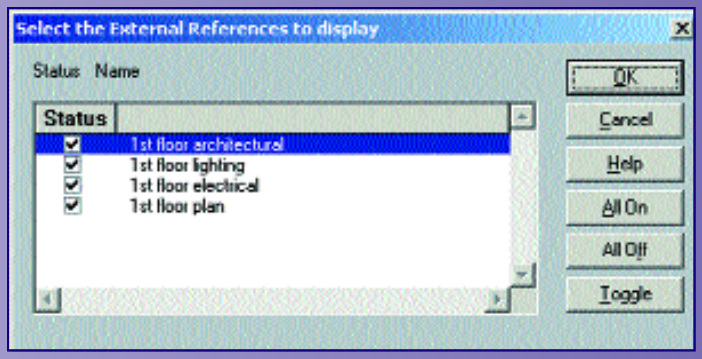


- **Streaming and Interruptible** - AutoVue displays data as it is being read and processed. No need to wait for the entire document to be read, processed and finally displayed before you can begin working on it. You may also interrupt the loading of a file and load a new one at any time.
- **Capture interface to TWAIN compliant scanners.**
- **MAPI e-mail enabled:** send your files and / or markups directly from within the AutoVue interface.
- **Extensible Menus** allow users to include any additional tools, script files or other applications they desire.
- **Desktop Platforms:**
  Windows 95/98/ME/NT/2000/XP
- **Thin-client Platforms:** Windows, Mac, Unix, Linux.
- **Languages** include: English, French, German, Japanese, Korean, Russian, Traditional and Simplified Chinese, Norwegian, Portuguese, Spanish, Italian, Danish, and Swedish among others

Viewing Features

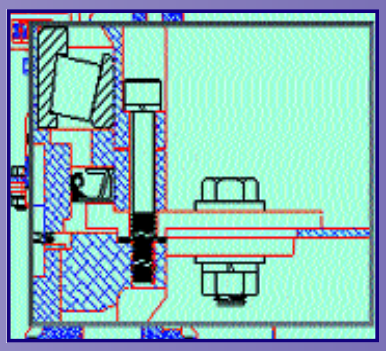
- **View over 200 popular native formats:**
  1. **2D CAD,** Engineering drawings and large format raster, including AutoCAD, CALS G4, HPGL, IGES 2D, MicroStation, Postscript, large format TIFF, etc..
  2. **3D CAD** parts and assemblies including CATIA (2D/3D), Inventor (2D/3D), Pro/E (2D/3D), Unigraphics (2D/3D), SolidWorks (2D/3D), Solid Edge (2D/3D), Solid Designer (2D/3D), IGES (2D/3D), STEP, STL, VRML, etc..
  3. **EDA Layout,** Schematics and Manufacturing formats including Mentor Board Station, Cadence Allegro, Orcad, P-CAD, EDIF, Gerber, ODB++, etc..
  4. **Office and Graphics** formats including Acrobat PDF, Lotus 123, Microsoft Word, Excel, PowerPoint, Project, TIFF, Visio, WordPerfect, Illustrator, etc..
- **Advanced zooming and pan functions** let you view the data you need at the zoom level required. Dynamic or static Bird's Eye, Magnifying Glass and Magnifying Window allow you to zoom along paths, i.e. follow a pipe, electric wire, road, etc..
- **Zoom, Rotate, Flip, Fit-to-screen** are some of the many viewing options available.

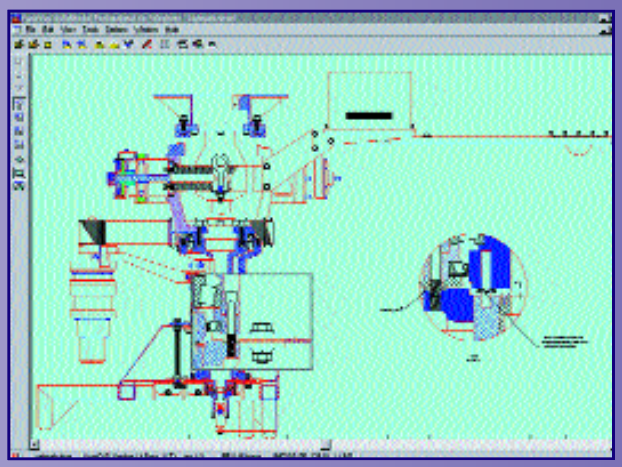




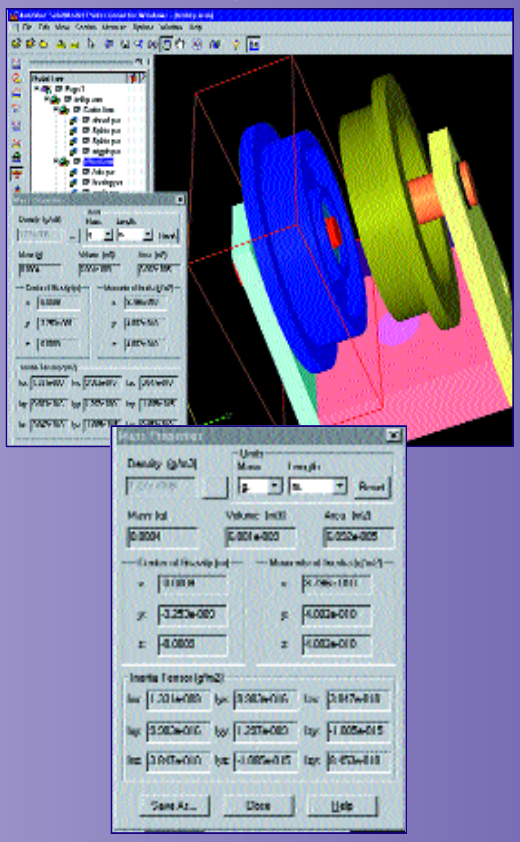
View an AutoCAD drawing with Xrefs

View details with the Magnify Glass

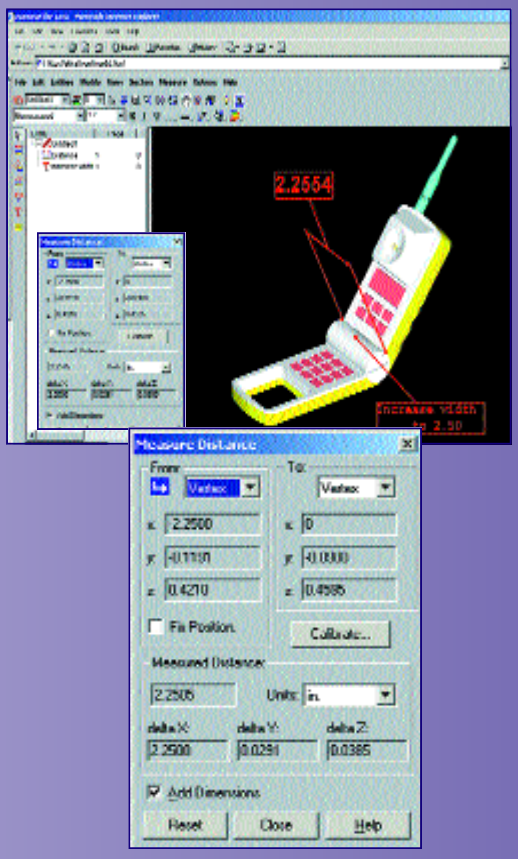




Check Mass Properties



Measure Distance



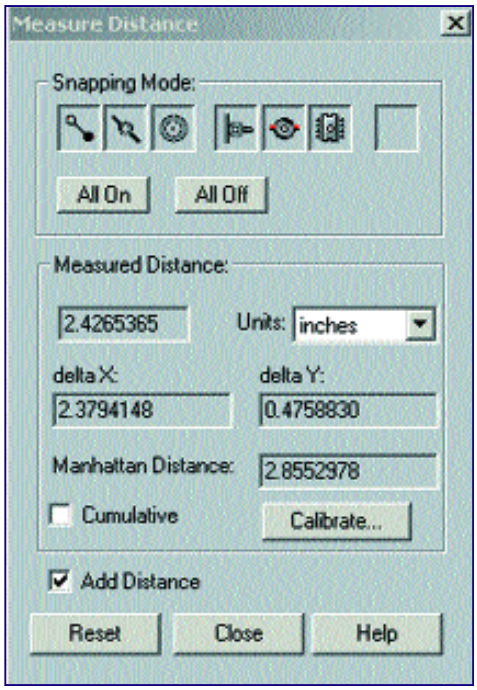
- **Text Search function** lets you search for specific words or phrases, even within CAD drawings.
- **Take 2D measurements** including, area, distance, cumulative distance and takeoffs.
- **Compare two versions of a drawing** and AutoVue will automatically highlight those elements that have been added, removed, or remain unchanged. Color-coding makes this a simple yet invaluable feature.
- **Overlay Drawings** - view or print several documents or drawings at once, even if they are in different formats. This is particularly useful for hybrid files or scanned documents with a vector counterpart.
- **Directly access Xrefs, Blocks, Layers and Named Views** (AutoCAD); Reference Files, Cells, Levels and Saved Views (MicroStation). Toggle layer levels on and off.
- **Call up Cells and Views.**
- **Query non-graphical CAD drawing entity information** such as element tags and attributes.
- **Image Enhancement of large raster files** for display purposes.
- **Includes support for hybrid files** (raster / vector).

3D Specific viewing Features

- **Render 3D models in several modes** including shaded model, wire-frame, silhouette and hidden line removal.
- **Spin, rotate and manipulate 3D models** in real-time & view them from any angle or use Standard 3D views such as isometric and perspective. Users can also define their own views.
- **View 2D modes and drafts of 3D models.**
- **Colorize and highlight different parts of assemblies** or make them visible or hidden for ease of distinction.
- **Define the light settings** such as light direction, color and type.
- **Alter the transparency of parts** to view hidden parts.
- **Transform model parts and explode assemblies.** Explore different configurations, move parts out of the way to better view hidden areas of the model, and break an assembly down into its components.
- **Navigate through an assembly** and its related drafts at a click of the mouse.
- **Perform precise measurements** on all dimensions, including angles, arcs, circles, surface area, distance, minimum distance, and cumulative distance. Measurement is precise, based on boundary representations (B-reps).

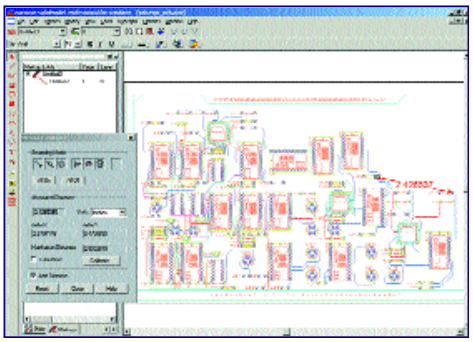
- **Section models or parts** with user-defined section planes and export the section edges as a separate file.
- **Snapping** lets you precisely locate edges, vertices, mid-edges and arc-centers so that your measurements will be exact.
- **Calculate mass properties** for the whole or part of the model, including center of gravity, moments of inertia, inertia tensor and many more. Mass properties are precisely measured based on boundary representations (B-reps). You can also measure using tessellation.
- **Collision Detection** allows you to assess whether there is any spatial overlap or clash between parts in an assembly.*
- **Digitally Mockup** a 3D CAD assembly. Import various parts/assemblies to mock-up a new assembly and detect collision between those parts.*
- **Fly through a** model or structure by defining the camera path and viewing angle for a period of time. This is ideal for demonstration purposes and to get a clearer perception of the layout and spatial relationships between elements.*
- **Compare two versions** of a 3D model/assembly and AutoVue will automatically highlight and color-code those elements and parts that have been added, removed, or remain unchanged.*
- **Support for Logitech's 3Dconnexion Spaceball device**, allows you to intuitively zoom, pan, rotate and manipulate 3D models.*

* These features were under development at time of print: please call to confirm availability.

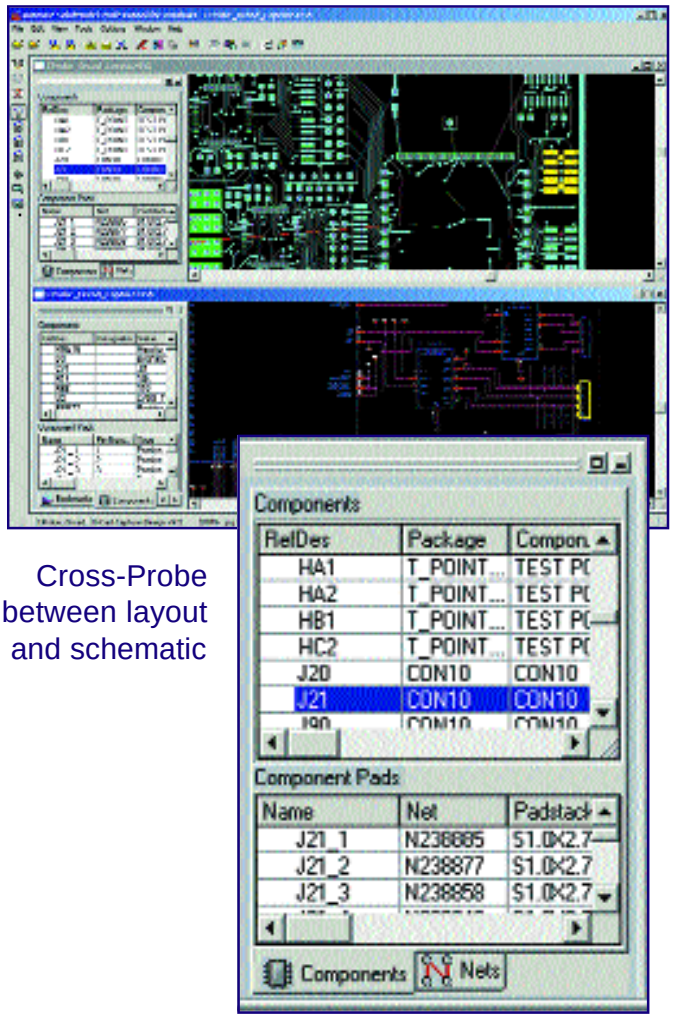


EDA Specific Viewing Features

- **View all relevant EDA formats** including: Artwork formats, PCB / IC Layouts, Schematics and Manufacturing formats.
- **Cross Probe** between a PCB Layout and related schematics. Select a net or component in a Schematic and it is located and highlighted in the Layout or vice versa.
- **Full Search and Highlight for multiple Components and Nets** based on a variety of attributes, keywords and values. Search for Nets, Components, Pins, Vias, Devices or Parts. Export these custom lists in a variety of formats.
- **Access the full, embedded intelligence in a PCB** with attribute querying for Traces, Nets, Components, Inserts and Geometry Library Objects.
- **Take precise measurements** using the snapping feature: position the cursor precisely on the endpoint / midpoint of a line, the intersection of two nets, the center of a circle, or on any pin / via / symbol origin.
- **Masking feature** makes selected components stand out from their surroundings on the PCB for ease of visualization.
- **Highlight physical and logical nets.** Trace the path of a net or signal through various PCB layers and across multiple schematic pages.
- **Dynamic Layer control** allows you to toggle layers on and off at a single click of the mouse.
- **Generate and export BOMs** (Bill of Materials) in a variety of formats.
- **Highlight and Zoom** to selected Nets or Components.
- **Highlight all Net Connectivity** on a selected Component / Pin / Via / Pad.
- **Access pre-defined layer sets**, views, or define your own.



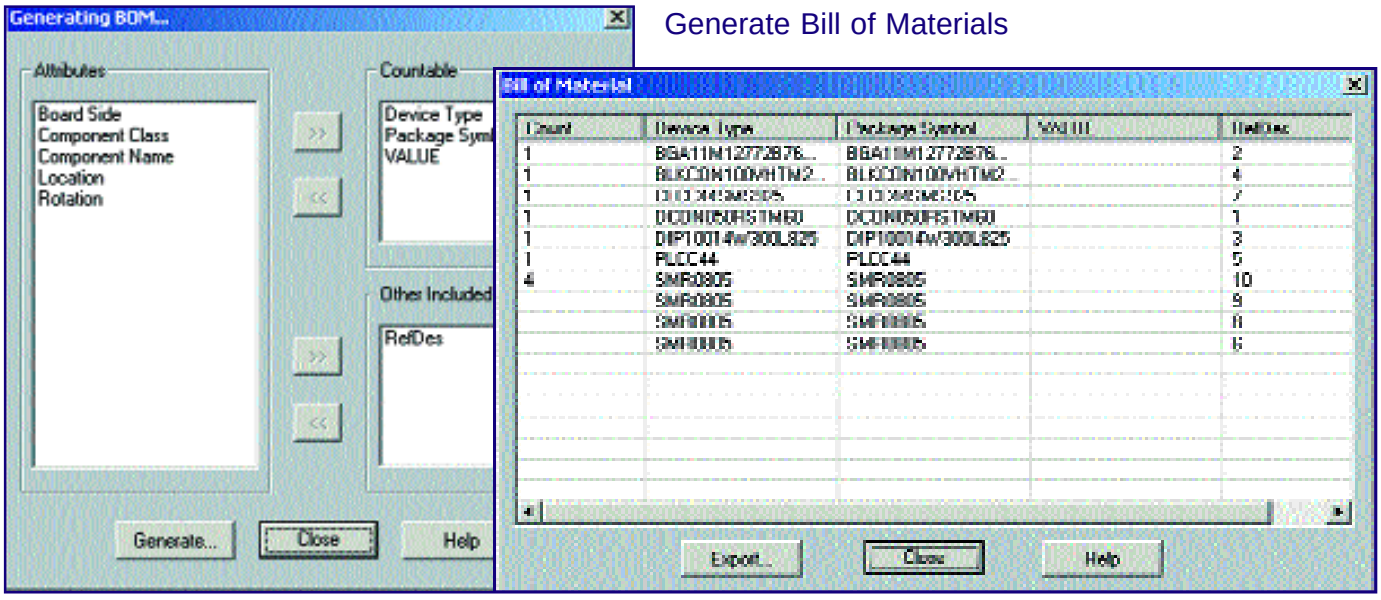
Measure Distance



Cross-Probe between layout and schematic

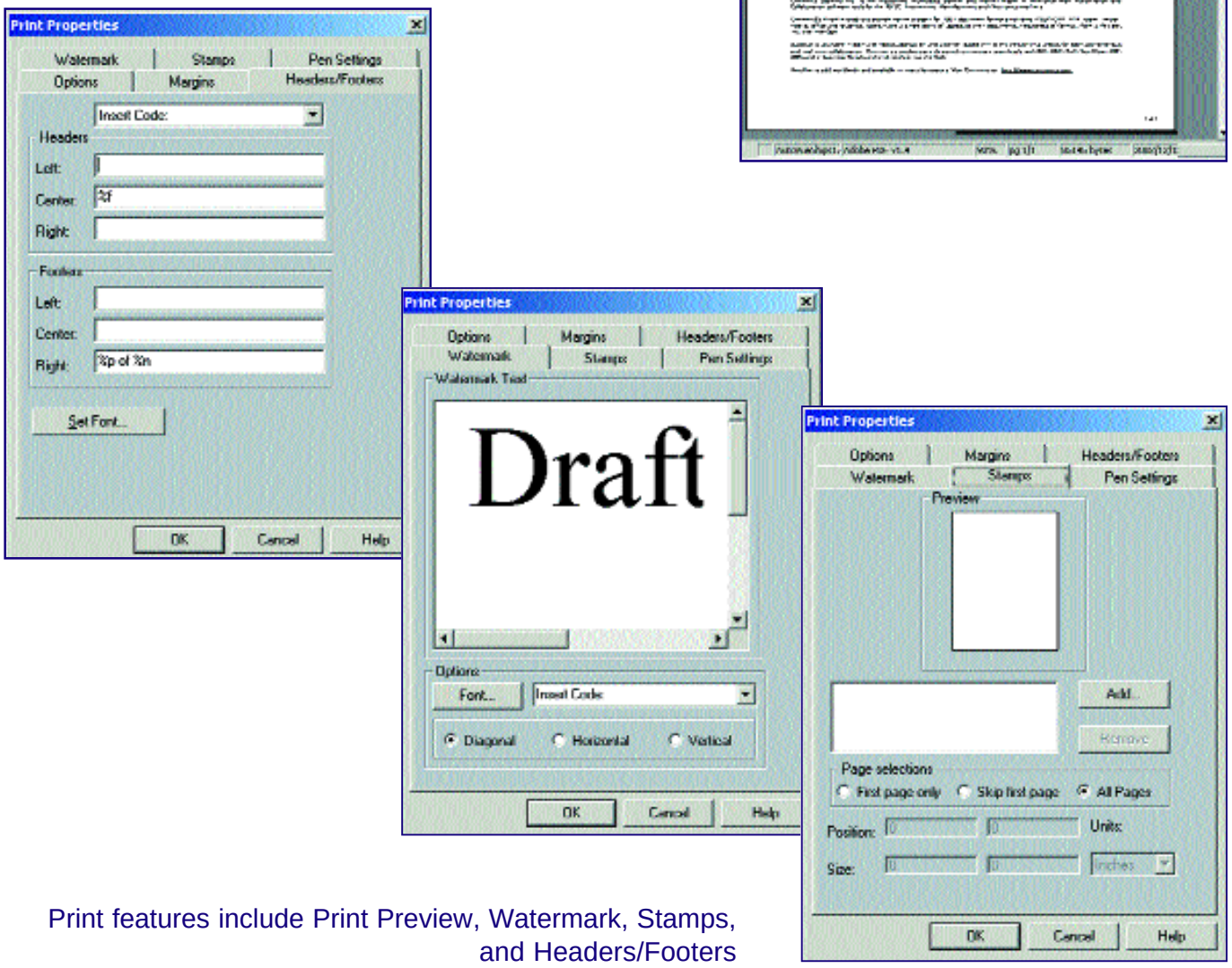
Printing, Plotting & Conversion Features

- **Feature packed printing options** for the power user, yet easy to use for the casual user.
- **Print Preview** your documents before printing, saving time as well as ink and paper.
- **Print or Plot to any Windows supported printer or plotter.**
- **Print to Scale, Print to Fit**, print whole drawings, print the extents of a drawing or only the displayed portion, print large output as tiles, select paper, define margins and Force to black are just a few of the options available to you.
- **Use AutoVue to print from other applications** or from the command prompt.
- **Print markups and markup notes** along with the document.
- **Batch-print** sets of documents.
- **Recognize and emulate your CAD system's print / plot features.** Apply attributes to your markup entities to match those you use in your drawings, whether you use AutoCAD or MicroStation. Match markup Pen colors and Line widths to the ones you use in your CAD drawings to produce identical prints and plots. You can also create and save settings to use on other print or plots that you may generate.



Generate Bill of Materials

- **Insert Watermarks, Stamps, Headers and Footers** with information such as the full path, drive, directory, base name, file extension, total number of pages, current page number, date, time, or any text you want. This information can be queried from the host system (DM, EDM, PLM, ERP…) with which AutoVue is integrated and can even include data such as workflow status, user name, etc.. Import a graphic to be used as a stamp and change its position and size as needed. This essential feature allows for easy regulatory compliance and generates an audit trail on all hard copies.
- **Convert files to** other formats such as CALS G4, HPGL, TIFF.
- **Batch-convert** multiple files.

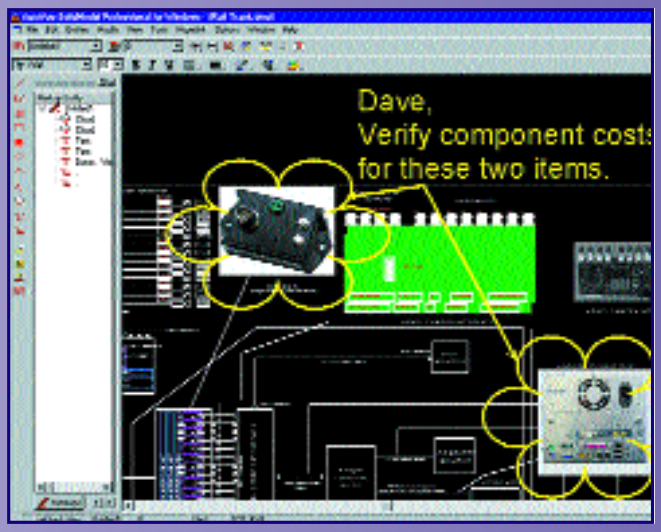


Print features include Print Preview, Watermark, Stamps, and Headers/Footers

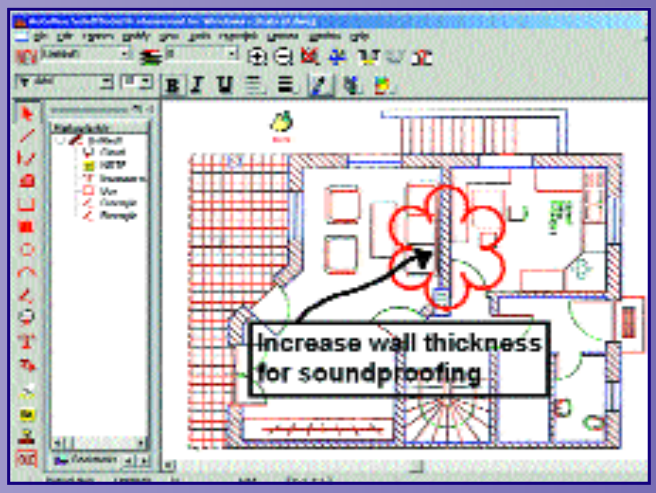
COLLABORATION

Collaboration across the enterprise requires that all users be able to access, review, and comment on information being developed within or outside the organization. This should occur regardless of whether the documents originate in the engineering, manufacturing, purchasing, marketing or the executive offices or whether they come from business partners or customers. AutoVue permits users in any department of the organization and beyond to view, markup and collaborate on documents. The ability to markup documents and to electronically communicate feedback results in improved communication processes and a reduction in communication barriers, allowing for lower project costs and accelerated project completion times.

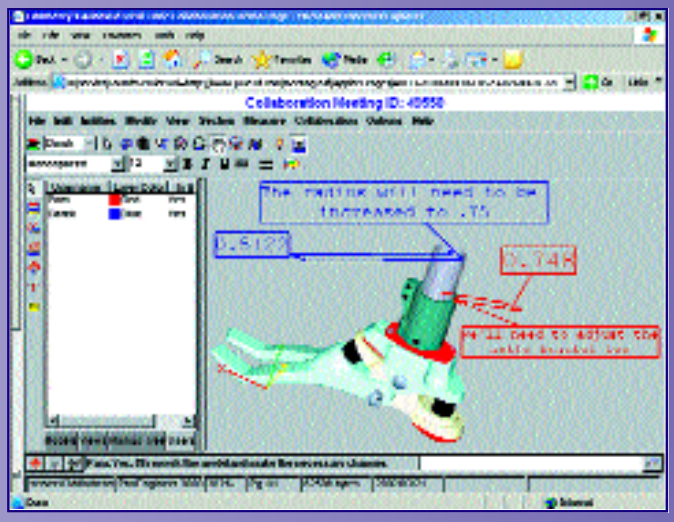
AutoVue provides for two methods of Collaboration: asynchronous and synchronous. **Asynchronous collaboration** refers to the process of users marking up documents and saving their markups, thus allowing other users to access their feedback. With this method, users collaborate at their own pace or as the workflow demands. **Synchronous collaboration, also referred to as real-time collaboration**, allows multiple users to hold real-time meetings and access the same document simultaneously. Users have the ability to chat, co-view, co-interrogate and co-markup documents online in real-time, instantaneously communicating their feedback.



View Xrefs and markups



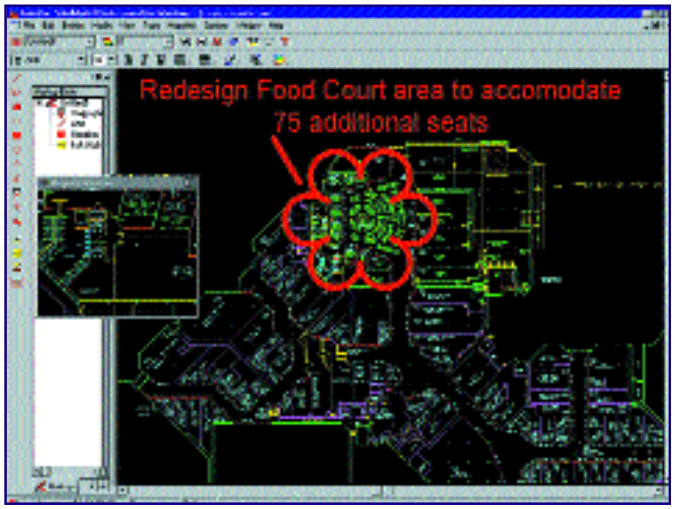
Cloud, Line and Text entity markups



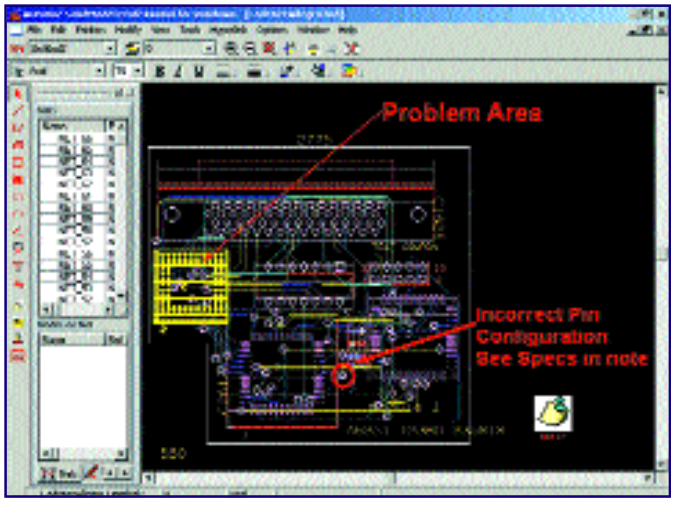
An Online Collaboration Meeting

Markup / Annotation, Commenting / Redlining

- **Markup both 2D and 3D** with an extensive set of entities including text, notes, clouds and symbols. You also have complete control over markup attributes such as line and fill type.
- **Markup Navigation Tree** window provides a list of markups or comments created by the user. This allows users to quickly navigate through the markups of collaborators, guaranteeing that none are overlooked. A set of properties is generated for each markup comment, such as creation time, date, author, layer or page, and can be sorted according to each property. This information is recorded and saved in the markup file, providing all the required elements of a proper audit trail.
- **Different markup colors** for different users or disciplines can be selected or assigned allowing users to easily distinguish one person's feedback from another's.
- **Import or create symbols** and organize them into libraries. Browse through libraries and preview symbols before using them.
- **Attach hyperlinks** to any entity to establish logical links between files. Establish the hyperlink in your first document and set a target document, file, application or URL. For example, you could link an architectural drawing to a spreadsheet, web page, word processing or database document containing project-related bills of material or contract information.
- **Attach sticky-notes**. This tool includes full word processing features.
- **Open and view multiple markup files simultaneously** and activate / deactivate them selectively. Turn markup layers on and off as required. Combine markup files from several participants into a consolidated file.
- **Support for multiple layers**. Layers can selectively be toggled visible or hidden.
- **Import your markup files into your CAD application**.
- **Add new entities**, markup functions, or tools with external plug-ins created using tool kits provided by Cimmetry. Intellistamp is one example of an external plug-in tool developed by Cimmetry. Intellistamp allows you to stamp a markup with document and user information pulled directly from your host system.
- **Markup migration** allows designated markup files to be linked to new versions of the document to which they were originally attached.
- **AutoVue recognizes four types of markup files** and provides specific facilities for their management. Some markup file types are only available when AutoVue is integrated with a host system.
- **Regular Markup** files can be edited by anyone viewing them.
- **Read only Markup** files may only be edited by the author.
- **Master Markup** files are automatically loaded as a document is opened for viewing by a user other than the author. Only the author has editing privileges of the Master Markup. This is useful to alert team members to new critical information about the file.
- **Consolidated Markup** files: the markup consolidation feature simplifies the management of markup files by centralizing change requests, and comments and instructions from workgroup members. Users can select two or more markup files associated with a given document and combine them into a single file, which will then contain all of the chosen markups.



View and Markup native files



Marking up an EDA document

Real-Time Collaboration

Real-time Collaboration =
Meeting + Co-Viewing + Co-Markup + Chat.

Designing the right product and getting it out the door at the right price and at the right time requires tapping into the expertise of several individuals and groups within the organization. Factor in customers, suppliers, experts, subcontractors, outside consultants, and the logistics that are involved in bringing all stakeholders together in one location for brainstorming sessions, design reviews, or troubleshooting meetings, can be quite difficult.

At the same time, organizations are challenging themselves to shorten time-to-market, improve product definition processes, reduce costly iterative engineering changes (ECOs), and eliminate rework. For many of them, achieving these objectives will mean broadening their sources of input and seeking better quality input by assembling multi-disciplinary teams whose members run the gamut of technical skills.

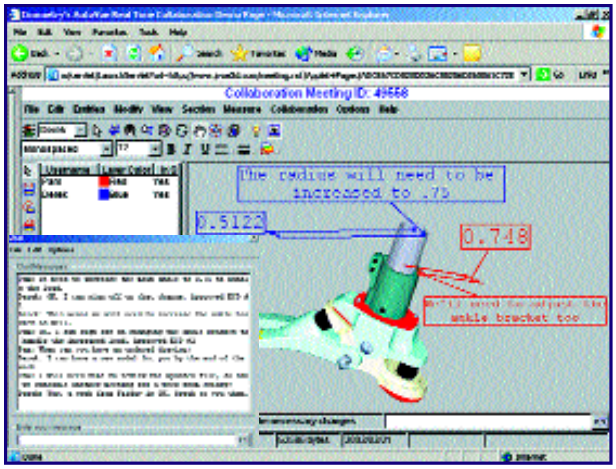
A solution is needed that offers the advantages of same-room meetings without the disruption and expense. With applications throughout the product lifecycle, from the initial stage of product definition to product retirement, real-time online collaboration is a viable alternative to more traditional means of exchanging ideas and information.

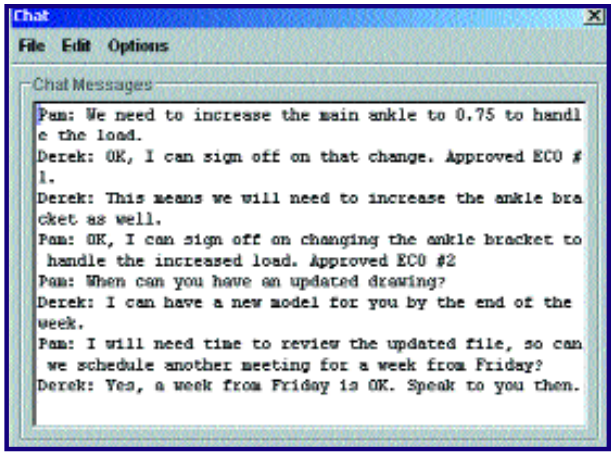
Virtual Meeting Rooms With Real Participants And Real Documents

Users are now able to call, schedule, and host or join collaborative work sessions without leaving their familiar environment. The real-time collaboration functionality built into AutoVue is as easily accessible as the viewing and redlining functionality.

- **Co-View:** Simultaneously and interactively view, manipulate, and query any document with remote contributors, in any of the more than 200 supported formats.
- **Co-Markup:** Simultaneously create and accept markups and input from other contributors in the course of the meeting without passing control of the session from user to user.
- **Chat:** Textual messaging between users in a common chat window allows for easy, bandwidth-friendly communication between collaborators. Whisper functionality allows users to chat with specified participants without broadcasting to the entire meeting.
- **Productive Collaboration:** Share information & ideas, inspect designs, solve problems, coordinate activities, and assign action items, all in real-time.
- **Optimized connection:** Share design documents, viewpoints, etc. with speedy updating of displayed engineering data.
- **Collaborative Meeting:** Sign-in to a session, be individually identified by the system, have color-coded markup and chat assigned for creating feedback, and collaborate in real-time with other contributors.
- **Invite users as observers** only.
- **Audit trail:** A transcript is saved at the end of the session in which the meeting host and all contributors are listed; each participant's contribution is clearly identified, and a chronological accounting of all discussions, issues, decisions, action items, and other interactions is recorded.

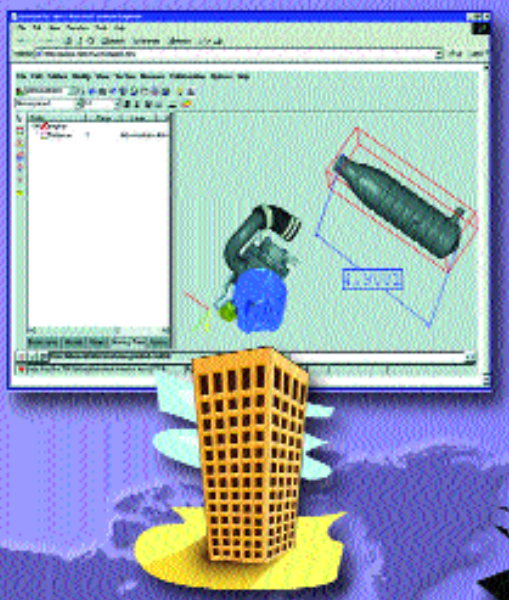
Since AutoVue with real-time collaboration is Web-based technology, groups can come together easily and quickly, even for ad-hoc sessions, to share ideas and resolve problems. AutoVue is a product that integrates all manner of documents. AutoVue requires no special training to get users up to speed. Non-technical users quickly find themselves manipulating even sophisticated 3D CAD data with confidence through an easy to navigate, browser-like user interface with readily understood menu selections, dialog boxes, and tool bars.

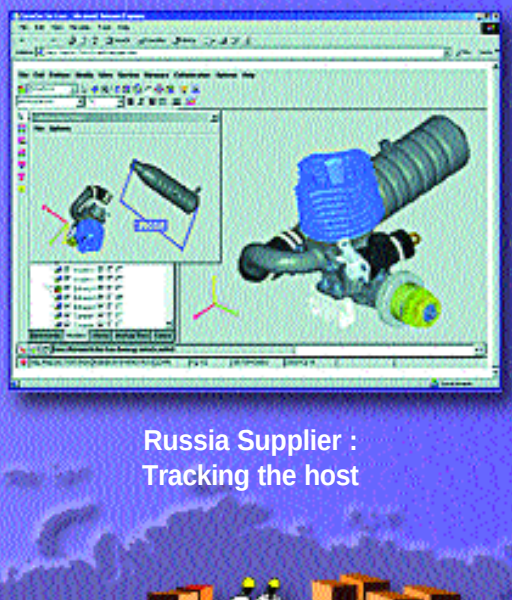




Share Views and Markups to Collaborate in Real-Time

AutoVue Real-Time Collaboration Session Across the Supply Chain



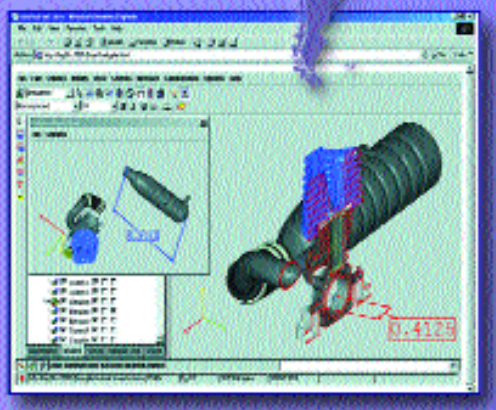


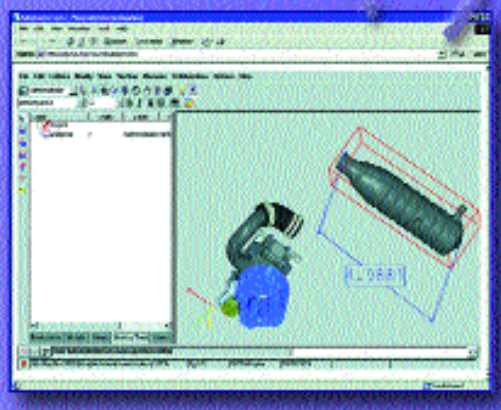
Russia Supplier :
Tracking the host

North American
Corporate Headquarters :
Meeting the host

European Sales Office :
Following the meeting

South America Supplier :
Tracking the host





INTEGRATION / INTERFACES / API

AutoVue has been designed to interface with other applications and systems to provide seamless viewing and markup capabilities. Many off-the-shelf integrations between AutoVue and DM / PLM / ERP / CMMS and other systems are available. They have been developed either by Cimmetry (VueLinks), by our partners or by third party consultants and developers.

There are several Application Program Interfaces (APIs) available in AutoVue:

Integration APIs

- **DM-API:** This API allows AutoVue to be tightly integrated with Document Management, PLM and ERP systems. This includes hooks to override document selections, the opening and closing of documents, saving documents, markup management and management of hybrid files and drawings with external reference files. The AutoVue DM-API is available for both the Windows desktop application and the Thin-Client server based edition.
- **ActiveX Controls:** Powerful capabilities are available through AutoVue's ActiveX interface. Quickly and easily add viewing, printing and markup capabilities to your custom application. Create Web pages that provide native viewing of documents. This API provides fine control over features, functionality and the UI when embedded in another Windows application. This is the API of choice for OEMs and custom applications.
- **VueBeans:** This is AutoVue for Java's low level API. It is callable from Java or JavaScript. This API allows OEM and custom Web application vendors to easily add and customize AutoVue's viewing, markup and collaboration capabilities to their products.

Local Productivity APIs

- **Command Line Launch Options:** these allow you to specify startup features. These specifications could include opening a set of documents, automatically printing documents, specifying alternative configuration files, or automatically performing a search.
- **Scripting:** AutoVue can automatically execute a script on startup. The startup script may perform a wide variety of operations, including disabling menu items, setting configuration options, view manipulations, printing and conversion operations.
- **Tool API:** additional commands can be added to AutoVue's user menus using this interface. Tools can provide a wide range of additional processing capabilities.

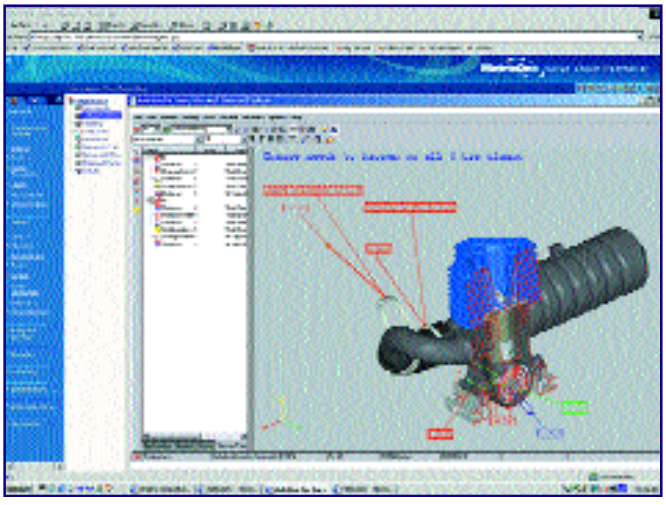
Additional APIs and Tools

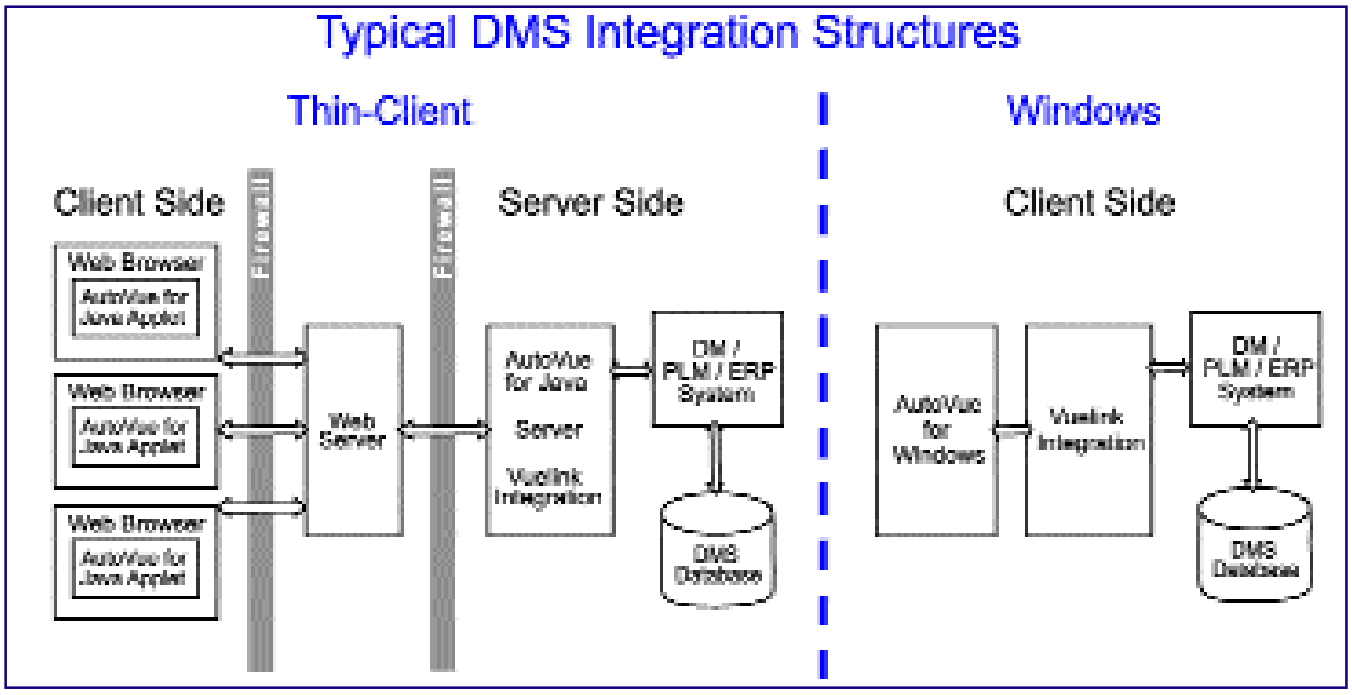
- **Markup UDE API:** Special-purpose markup entity types can be added to the set of markup types that are provided by default. For example: an intelligent custom stamp tool could be added to your toolbar and menus, which when used would place user and DM specific information onto the markup.
- **Text extraction:** This utility lets you extract text strings from virtually any type of document, whether it be CAD, Vector, Office / Business, etc. This utility is perfect for extracting text from a file and providing the textual data to an index/search engine. Imagine being able to fully text index your AutoCAD or MicroStation drawings in your document management system!
- **Format type extraction:** This utility provides the file type of a file. For example, provided the filename doc1.doc, Ftype lets you determine that the file is a Microsoft Word 6 document - useful for implementing batch check-in of files into a document management system, or for providing MIME type information to your Web server.
- **CAD Integration:** Launch AutoVue seamlessly from within AutoCAD or MicroStation. Import Markups and more.

VueLink

Cimmetry developed interfaces are marketed under the name "VueLink" and include versions for Documentum, MatrixOne, FileNET, Hummingbird DM, Lotus Notes/ Domino, Open Text, Microsoft Sharepoint, SAP and PTC Windchill. Features include:

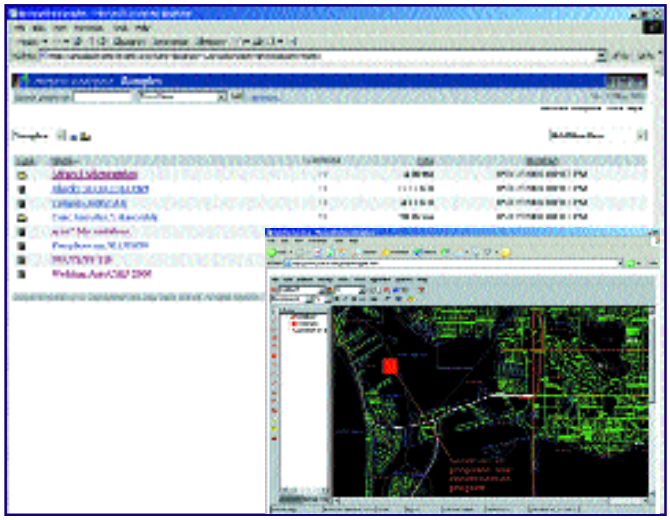
- **View documents securely** in their native format directly from the host system.
- **Markup files** are checked back in, stored and **managed by the host system.**

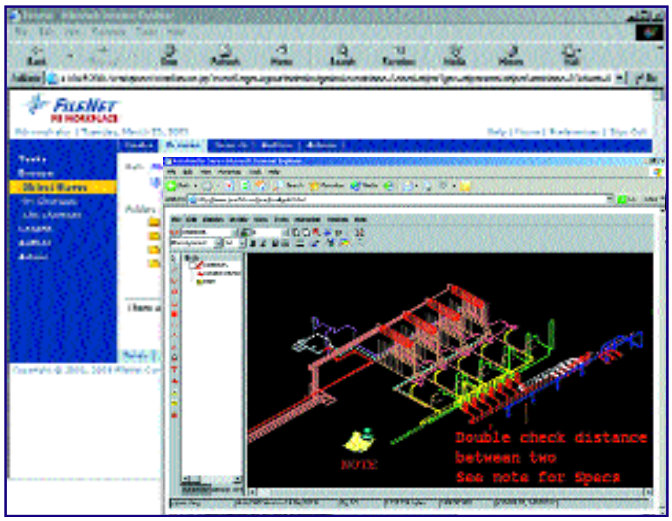




- **Print / Batch-Print directly** from the host system.
- **Check-in and resolve Xrefs** and reference files to the host system or repository.
- **Recognize and comply with the access rights** of the host system.
- **Graphically compare revisions** of drawings directly from the host system.
- **Query specific document and user information** (metadata) grabbed from the host system and add it to an intelligent markup stamp or print it in a Header / Footer / Watermark.
- **Host system controls access to different levels of markups** such as Regular, Read Only, Master or Consolidated Markup files.
- **Associate markups** with a specific document revision.
- **Create hyperlinks** to connect to other documents / applications found inside and outside the host system.
- **Check mail in-box** directly from AutoVue.

VueLinks also offer system-specific features. Visit the product section of our Web site for more details at: www.cimmetry.com.





PRODUCT PLATFORMS / PERFORMANCE / ARCHITECTURE

AutoVue is available for multiple platforms and with a variety of architectures to meet every kind of network configuration and workflow/collaboration structure. Cimmetry's products are available as either a standalone/desktop Windows install, or a server-based thin-client setup requiring no client-side installation / configuration. Here is an overview of the platforms available:

Windows Desktop Install

This is a standard Microsoft application installation. AutoVue can be installed on every desktop or it can be installed on a file server and run from the desktop client. AutoVue is compatible with standard Microsoft deployment and management tools.

AutoVue for Windows can be used for viewing and marking up local and network files as well as e-mail attachments. When integrated with a PLM, PDM, DM or ERP system, AutoVue can be used to view and collaborate on documents stored in that host system's repository.

Server based, Thin-client

This is a server-based solution with a revolutionary system to deliver fast visualization of 2D/3D/EDA/Office documents over intranets, extranets and the Internet.

There is no client installation on the client machines. Users can view and markup their 2D/3D CAD, EDA and office documents directly from within their Web browsers. Cimmetry proves that the expensive training and overhead that have long been the standard when implementing enterprise-wide visualization solutions are unnecessary. AutoVue thin-client is an out-of-the-box, easy-to-implement, server-based, native visualization solution.

AutoVue thin-client runs on a server. When a user needs to view a file, a small applet is sent from the server to the client and runs in the client's Web browser to display the document. The process is completed instantly, automatically, transparently and securely. No user interaction is required. The applet is downloaded only once and is cached for all future sessions.

AutoVue's thin-client features include:

General Features

- The functionality and feature set in the AutoVue thin-client products is complete and virtually identical to that of the Windows solutions allowing for the viewing, manipulation and markup of 2D CAD drawings and drafts, 3D parts & assemblies, EDA layouts & schematics and office document formats. (see “Visualization” and “Collaboration” sections for more details).
- AutoVue thin-client has the additional capability of providing real-time online collaboration between two or more users.
- Supports Microsoft Internet Explorer 5.0 or higher, or Netscape 4.7 or higher on Windows, Mac, Linux and UNIX clients.
- Support for Windows and UNIX servers.
- Concurrent multi-language capability: one server can provide user interfaces in the language of the Web browser. Supported languages include Chinese, English, French, German, Italian, Japanese, Korean, Russian, Spanish and Swedish to name but a few.
- Native visualization of documents, no external conversion required. No requirement to license the authoring applications of CAD data to generate metafiles.
- Tight integration with EDM / PLM / ERP / Supply chain solutions and corporate portals via our Document Management API (DMAPI)
- AutoVue for Java is written in Java 1.1, providing customers with a complete 2D/3D visualization solution on the most widely used Java platform on the market. Users are therefore not required to download any additional Java upgrades before using the product. This feature alone makes AutoVue unique on the market.
- AutoVue thin-client accommodates the need for high resolution and large format printing and plotting.

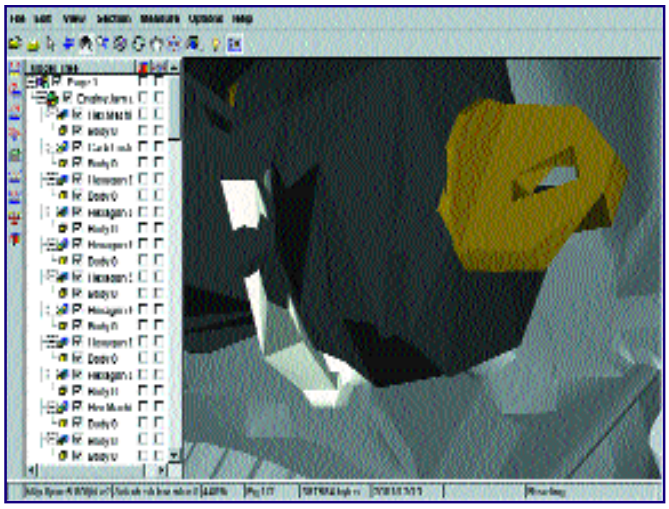
Security Features

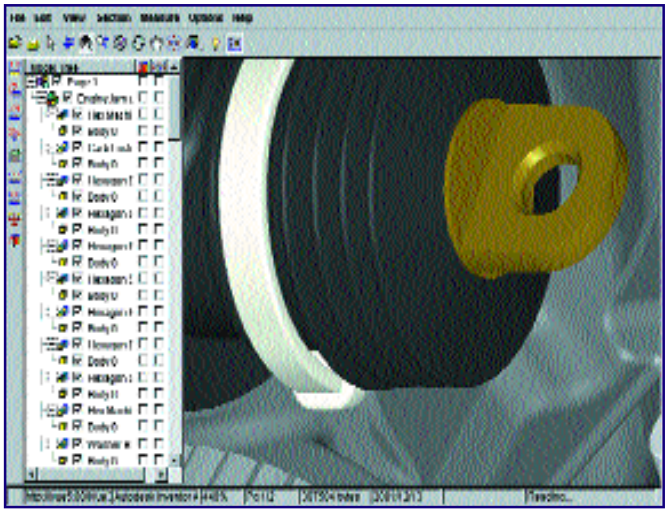
- Complete security for original data - only a metafile rendering of a document is transmitted to the client safeguarding valuable intellectual property.
- AutoVue complies with the security protocols of the host system when integrated with a PLM / PDM / ERP or document management system.
- There is no need to open ports on the firewall or proxy server. AutoVue can make use of the http or https port.

Deployment / Maintenance Features

- Rapid enterprise deployment. Installation is required only on the server and is out-of-the-box.
- Maintenance is only performed on the server. Fast updates are easily achieved.
- Straightforward server-regulated administration of privileges and access to feature sets and functionality such as redlining, printing or file access for greater control, flexibility, and security.

- The zero-administration client provides automatic installation and a single session application that does not have to be downloaded each time the user opens a new document for viewing.
- AutoVue features automatic versioning. When new versions of the software are installed on the server, the client browser will automatically detect the availability of a new version and run the new Applet.
- Customizable User Interface: interface, menu options and tool icons can be defined for each user or group of users as needed.





Detail is quickly filled in as parts are zoomed in upon

Scalability and Reliability Features

- Online server scalability allows extra users to be accommodated just by adding another server. There is no need to shut anything down.
- Scalable over large number of users, variable document size and network bandwidth.
- Multiple server / CPU load balancing means hardware is used at maximum efficiency.
- Highly fault-tolerant architecture automatically transfers workload to other servers in the event of hardware failure.

Performance

- After the initial viewing session, AutoVue generates a metafile called a CMF (Cimmetry MetaFile) to be used for subsequent faster viewing. The CMF is much smaller in size than the CAD design file (5-20% depending on the original document type).
- Streaming is interruptible for appropriate user interface feedback in case of browsing. The client displays data while the data is being rendered and transmitted and the user can begin interacting with the assembly or request a different one before the file has fully arrived.
- The CMF is stored in a cache that can be integrated into DM, EDM, PDM, PLM and ERP systems through AutoVue DM API mechanism.
- CMFs can be created online or offline (a batch process)
- Optimal rendering schemes may be selected according to parameters such as bandwidth and document size. Large documents can be viewed almost instantly even on slower modem connections.

Architecture

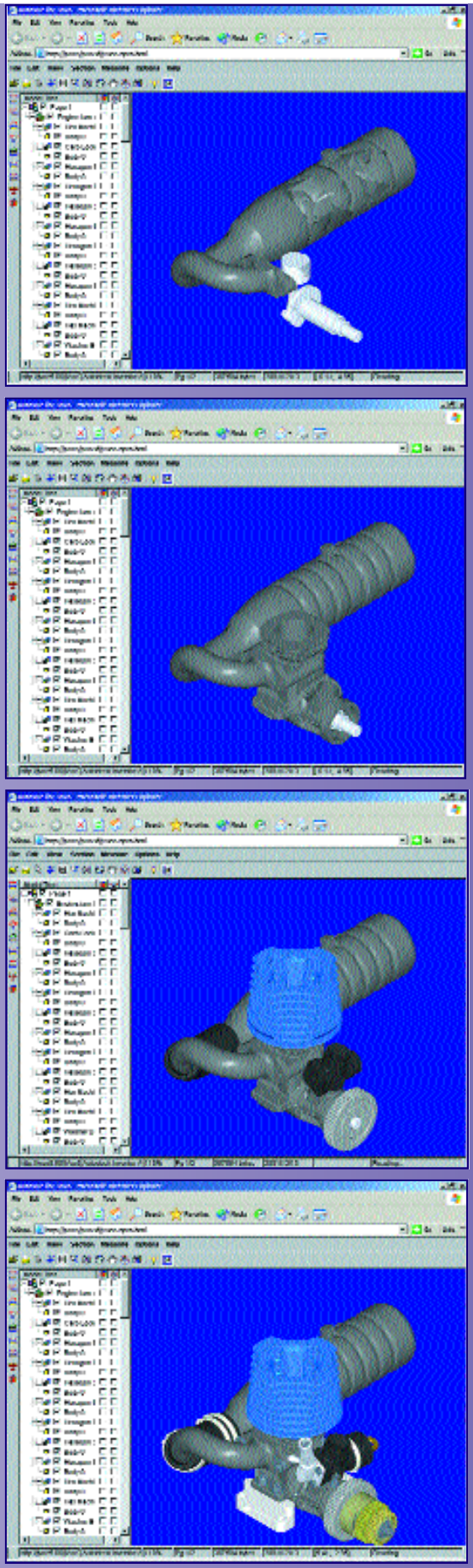
After the initial viewing session, AutoVue generates a metafile called a CMF (Cimmetry MetaFile) which is then streamed to the client. AutoVue has several streaming methods available:

2D & EDA Streaming (2 methods)

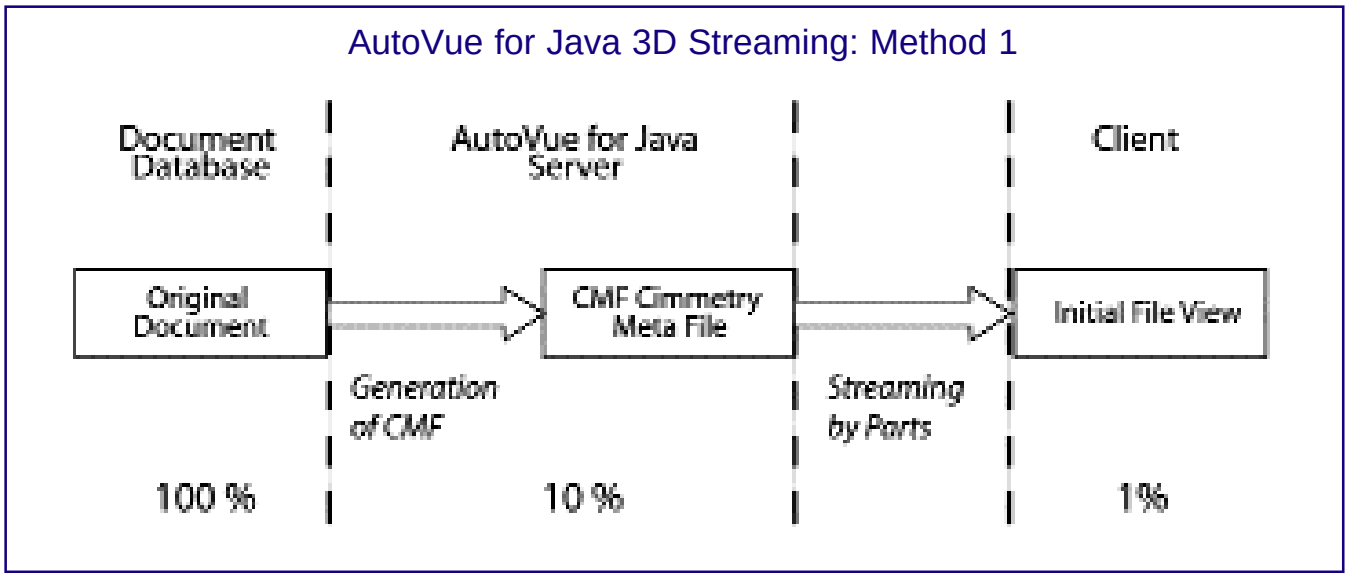
1. AutoVue streams down the CMF as a vector metafile which is built up on the client machine as it arrives.
2. AutoVue generates a series of intelligent raster tiles from the CMF, which are streamed to and cached on the client machine.

3D Streaming (2 methods)

1. AutoVue cycles through the parts in an assembly and requests data in chunks (e.g. 10% - configurable default value) until it reaches full resolution. The client initially sees the assembly at a coarse resolution, continuously refining. Since the CMF is about 10% of the original file size and the display data is streamed in 10% chunks, data of only about 1% of the original file size needs to be transmitted to the client for an initial view of the complete assembly. Furthermore, the data is streamed at the part level so the first part will display after only a few kilobytes of data have been received. See the diagram on the next page.



Streaming parts in AutoVue SolidModel for Java



For example, a 60MB assembly generates a CMF of approximately 3-12MB. About 300KB - 1.2MB must be received by the client to display the entire assembly at coarse resolution. Individual parts will begin to display after a fraction of this has been received.

Comparison: Display / Data transfer required	% of Original CAD Assembly	Example (60 MB Assembly)
Original CAD Assembly	100 %	60 MB
Complete CMF	5-20 %	3-12 MB
Initial view of complete Assembly	0.5-2 %	300KB - 1.2 MB

2. The second method is more sophisticated. It takes into account the current view parameters to compute the level of detail on a part-by-part basis. AutoVue only transfers enough data to accurately visually represent the assembly. It calculates how much data is needed for a part, based on its visibility and implements a number of algorithms.
For example:

If a part is completely off screen, it does not need to be updated.

If a user is zoomed in on a part, a higher level of detail is requested.

Only the amount of data needed to view a model/ assembly is transferred so it is efficient on the client memory and bandwidth usage. This is the default and preferred method of streaming in AutoVue SolidModel for Java.

The streaming method used can be detected automatically by AutoVue or can be set as a configurable preference on the server. AutoVue can also be configured to cache partial metafiles on the client or to initially send only the product structure and send parts and subassemblies on demand.

RETURN ON INVESTMENT

It is very easy to recoup the cost of purchasing AutoVue. In fact, the higher the penetration of AutoVue use within an organization, the greater the savings from cost reductions, productivity and competitive gains.

These templates describe how to calculate the return on investment (ROI) and break even point of any purchase of AutoVue. Returns have been broken down into three categories: Cost reductions, Productivity Gains and Competitive Gains. We encourage you to enter your own values in the templates, or use them to generate similar spreadsheets to calculate your ROI for AutoVue.

Cost Reductions:

Cost reductions are the easiest category in which to ascribe numbers. They involve calculating the present costs in several areas and estimating the reduction in those costs due to the use of AutoVue. For a more precise calculation, break down each category into individual component costs.

Types of Cost Reductions	A Cost/Unit	x	B Units/Year	=	C Cost Reductions / Year
Lower printing / plotting costs for engineering drawings (paper, ink…) :	$_____ Avg. cost per print / plot	x	#_____ Reduction in number of prints / plots performed per year	=	$_____ Savings per year
Reduction in equipment maintenance costs due to lower usage :	$_____ Avg. cost per maintenance occurrence	x	#_____ Reduction in maintenance occurrences per year	=	$ Savings per year
Reduction in equipment purchases due to lower usage :	$_____ Avg. cost per new printer / plotter	x	#_____ Reduction in new equipment purchases per year	=	$_____ Savings per year
Reduction in shipping of paper documents (regular and overnight delivery) :	$_____ Avg. cost per document shipment	x	#_____ Reduction in number of shipments per year	=	$ Savings per year
Reduction in paper management / storage costs :	$_____ Avg. yearly cost per stored / managed paper document	x	#_____ Reduction in number of stored / managed paper documents	=	$_____ Savings per year
Reduction in travel costs :	$_____ Avg. cost per trip - includes airfare, hotel, food, expenses	x	#_____ Reduction in number of business trips per year $	=	$_____ Savings per year
Reduction in alternate software license purchases : (You can break this section down into specific licenses for a more accurate ROI)	$_____ Avg. cost per license of alternate software	x	#_____ Reduction in software licenses purchased per year (# of licenses/user) x (# of users)	=	$_____ Savings per year
Reduction in training costs due to ease of use and reduced set of software used :	$_____ Avg. cost per hour of training per employee	x	#_____ (Reduction in hrs of training per year) x (number of employees using AutoVue)	=	$_____ Savings per year

Total Cost Reductions Per Year = $_____

Productivity Gains:

Gains in productivity involve reducing the time spent by employees on various activities. AutoVue improves processes in several areas. By calculating the time (man-hours) saved and multiplying by the dollar value of that time, we are able to calculate productivity gains. The need to hire additional staff can be reduced as well as achieving more with current employees.

Types of Productivity Gains	A Wage $ / hr	X	B Hours / Unit	X	C Units / Year	=	D Productivity Gain / Year
Increase in efficiency : Reduced time spent reviewing & commenting on paper documents	$_____ $ / hr for employee per year	X	#_____ hrs/yr Time saved per document by electronically reviewing & marking up	X	# Number of documents reviewed / annotated per year	=	$_____ Gains/ Year
Increase in productivity as CAD users are not interrupted by non-CAD users for printing /viewing of CAD files :	$_____ $/hr for CAD users	X	#_____ hrs Time per print/view	X	#_____ Prints/views requested per year	=	$_____ Gains / Year
Increase in IT staff efficiency by reducing admin performed on each client machine	$_____ $/hour for IT staff	X	#_____ hrs Reduction in man-hrs per client per year	X	#_____ Number of client machines in office	=	$_____ Gains/ Year
Reduced user training time due to ease of use of AutoVue	$_____ $/hr for employee	X	#_____ hrs Hrs/year saved in training on alternate software	X	#_____ Number of employees using AutoVue	=	$_____ Gains/ Year
Reduced ECOs & design changes due to early and accurate visibility of designs	$_____ $/hr for CAD users	X	#_____ hrs Avg. time spent per ECO or design change	X	#_____ Reduced number of design changes/year	=	$ Gains/ Year

Total Productivity Gains Per Year = $_____

Competitive Gains:

Competitive gains are the most significant types of Returns on Investment and the most difficult to quantify. These are the higher-level benefits with which executives must concern themselves. Savings in any one of the following categories can easily justify the purchase of AutoVue. These increases improve the competitive position of an organization, reduce time-to-market, and produce market share.

Types of Competitive gains	A Cost/Unit		B Units/Year	=	C Gains / Year
Better informed decision-making and reduction in number of errors	$_____ Avg. cost per error (recalls, retooling, etc.)	x	#_____ Reduction in number of errors per year	=	$_____ Gains per year
Collapsed design cycle, faster time to market & increased market share :	$_____ Avg. cost in sales per day while product is not on the market	x	#_____ Reduction in number of days to market per year	=	$_____ Gains per year
Higher product quality:	$_____ Avg. cost per defect (refunds, refurbishing, etc.)	x	#_____ Reduction in number of defects per year	=	$_____ Gains per year

Total Competitive Gains Per Year = $_____

Calculations:

Returns = (Total Cost Reductions + Total Productivity Gains + Total Competitive Gains)

ROI = (Returns) / (Cost of AutoVue Licenses)

Break even Point (in weeks) = (Returns / 52weeks) / (Cost of AutoVue Licenses)

Conclusion:

Thank you for taking the time to learn about our AutoVue family of Visualization and Collaboration solutions. We encourage you to download an evaluation version of AutoVue or try our on-line demo at www.cimmetry.com. Visit our Web site for our latest product news, reviews, announcements and technology papers.

For additional information or to make an immediate purchase, please contact us by phone at: +1 514 735 3219 (international calls), or at: 1-800-361-1904 within the USA and Canada; or by e-mail at: sales@cimmetry.com. You may also contact one of our Value Added Resellers (VARS) - call us to locate a VAR in your area.

Anvil
AutoCAD : DWG, DXF
Autodesk Inventor
Autodesk Mechanical Desktop 2D / 3D
Cadkey
CAI COMP
CATIA
CGM
DirectModel (JT)
Hitachi CADCORE
HPGL
HP RTI
IGES: 2D, / 3D
МГ10
MicroStation Drawing
MicroStation Modeller
Parasolids
Postscript
Pro/ENGINEER:
SolidDesigner / OneSpace Designer
Solid Edge
SolidWorks:
SPATIAL
STEP
STL:
Unigraphics
VRML
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Softelec
RasterDGW
Barco DPF
Cadence Allegro
Caltech Interchange Format CIF
EDIF
GDS II
GenCAM
Gerber Format
IDF
Mentor Neutral
Mentor Board Station
Mentor Design Architect
ODB ( ) / (X)
Orcad Capture / Layout
PADS PowerPCB
P-CAD
PDIF
Zuken CADSTAR
AIIM MSS3
AMIGA
Compuserve GIF
CorelDrawl Bitmap Preview
CUT Raster
Databeam
Dr.Halo PIC
GEM IMG Bitmap
IBM IOCA/MODCA
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Neutral Raster File
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Paintbrush PCX
Portable Bitmap
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SUN Raster File
TARGA
TIFF
Windows Bitmap
Windows 3 Icon Resource
WordPerfect Graphics Bitmap
X-Windows Dump
Excel
Lotus 1-2-3
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Amipro
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Word
WordPerfect
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Write
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Database Express
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Illustrator
Lotus PIC File Image
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PowerPoint
SVG
Windows Metafile
WordPerfect Graphics
VISIO
ZIP

Which product is right for me and my organization?

AutoVue allows you to view over 200 2D CAD, large raster, office and graphics formats. If you do business in 2D engineering and office formats with no need to mark up documents, AutoVue is the product you want.

AutoVue Professional is for users for whom viewing a document is simply not enough. If you need to make annotations and communicate suggestions, you need AutoVue Professional.

AutoVue SolidModel adds two important features to the AutoVue package: 3D CAD support and EDA support. This is the product for your organization if you need to view, but not markup, 3D, 2D, EDA and office formats.

AutoVue SolidModel Professional is the most complete solution from Cimmetry Systems. It allows the Viewing and Markup of office documents, engineering drawings, 2D CAD, 3D CAD and EDA formats. If our organization requires Markup capabilities for 3D models or EDA formats, this is the solution for you.

VueLink allows seamless integration with your DM, PLM, PDM or ERP system.

Come and see our latest list of supported file formats. product reviews, technical white papers and breaking product information at our Web site, and download your own fully functional evaluation copy of our software today!

www.cimmetry.com

Features / Products Comparison	AutoVue SolidModel PROFESSIONAL	AutoVue SolidModel	AutoVue PROFESSIONAL	AutoVue
Number of native formats viewed	200+	200+	200+	200+
Markup / Redline / Annotation capabilities	Yes		Yes	
Real-Time Collaboration capabilities	Yes		Yes	
Native 3D CAD format support	Yes	Yes		
Native EDA format support	Yes	Yes		
Native 2D CAD format support	Yes	Yes	Yes	Yes
Native Office format support	Yes	Yes	Yes	Yes

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