



Preview Guide

Executive Summary

We are proud to introduce AutoCAD® 2002!

As we move into the 21st century, AutoCAD software continues to evolve, expanding into a platform serving all aspects of the design community. The actual process of drafting and design—that is, the specific use of a CAD tool to create engineering or construction documentation—is estimated to be no more than 5 percent of a company's business process. Yet the resulting design data embodies 95 percent of your company's value.

To make use of your existing design data, and the millions of legacy DWG files, you need tools that can extract this information, not just create it. You need a product that integrates your design work with the broader business infrastructure. The mission of AutoCAD expands to meet these growing needs.

AutoCAD 2002 continues to deliver improved ease-of-use, exceptional new productivity tools, performance, and compatibility with your existing CAD data. AutoCAD helps manage your standards and collaborate with your peers to get the very most out of your design data.

In AutoCAD 2002, we improve upon your everyday design activities with the inclusion of true associative dimensioning, the capability to manipulate drawing geometry with a corresponding and immediate change in the dimension or annotation. Drafters will also make immediate use of the new layer, text, and attribute tools.

For those who publish design data, an updated DWF format allows for printing directly from within our popular viewing technology, Volo™ View and Volo™ View Express. The Publish to Web feature is expanded in this release to allow for full customization of output as well as the addition of new templates and themes.

For the CAD manager who needs to validate design data against a company or industry standard, we offer the new CAD Standards toolset. This feature provides CAD managers with a robust set of tools to check and encourage standards compliance, resulting in better coordinated teams, a more efficient and effective design process, and a higher return on investment in design tools.

As a part of the expansion of AutoCAD into data sharing and consumption, we built i-drop™ technology directly into the product. With i-drop, you can bring intelligent design content directly from a manufacturer's website into your drawing file. In addition to an object's geometry, i-drop allows the content provider to attach important and useful information like spec sheets or material costs and drop it into your design. This data can then be extracted using the tools in AutoCAD 2002 to create a bill of materials, for example.

AutoCAD is the platform behind Autodesk's industry product offerings, including

- Autodesk® Architectural Desktop
- Autodesk® Mechanical Desktop®
- AutoCAD® Mechanical
- Autodesk® Land Desktop
- Autodesk® Map

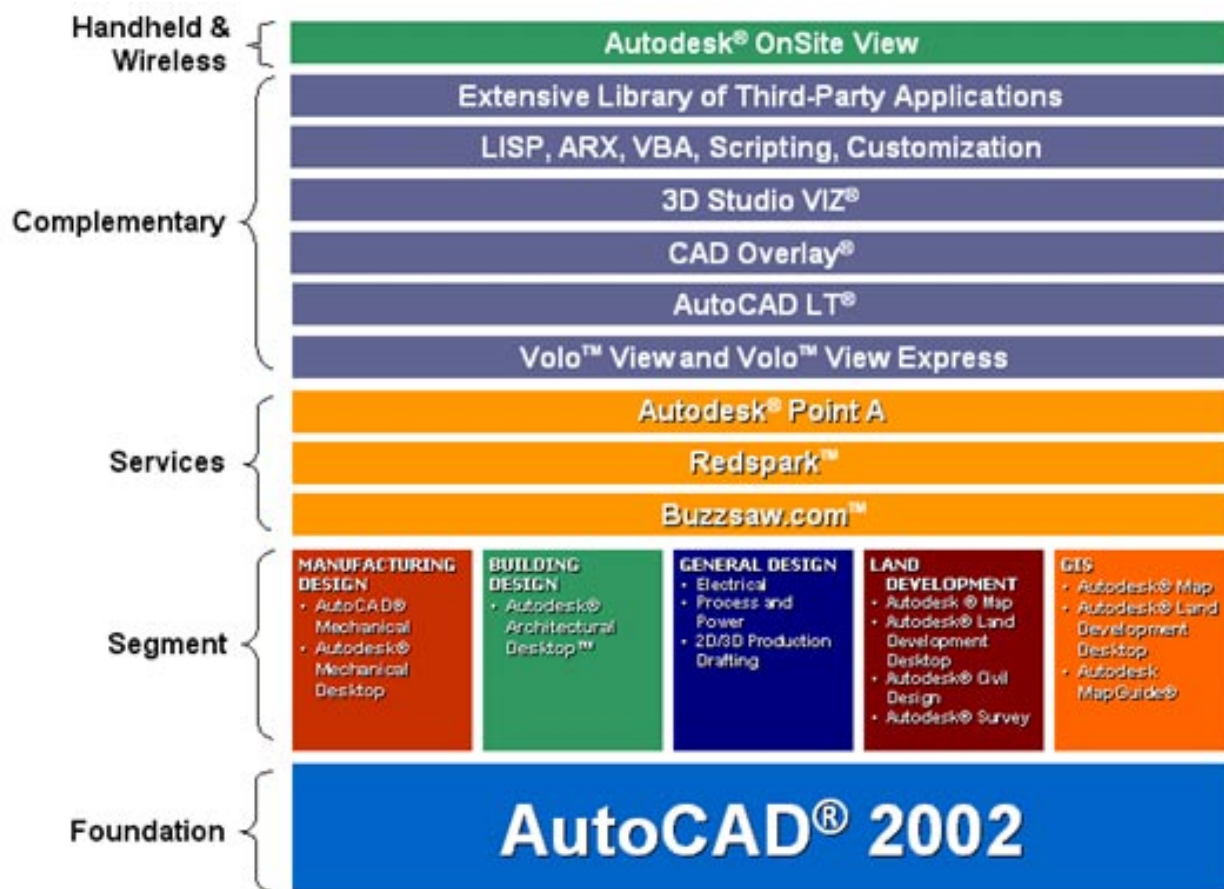
Each of these products contains all that the base AutoCAD product has to offer plus specific functionality designed to meet the needs of each particular industry. Because they are AutoCAD platform-based products, data can be shared seamlessly and all are interconnected with tools to help you work more effectively with your design partners.

AutoCAD is now released regularly, in conjunction with technology “extensions” which are offered for the current release. Autodesk extensions are small modular enhancements to Autodesk software products that deliver incremental features and functions as they are developed. They offer three direct benefits:

- Immediate access to the latest design tools
- Ease of learning—they’re single tools, not widespread changes to the whole product
- Full compatibility with your current AutoCAD software

Each extension will be incorporated into the next release of AutoCAD.

These extensions, combined with over 3000 existing third-party applications; full customizability with Visual LISP™, ObjectARX®, and Microsoft’s VBA programming languages; a handheld and wireless solution; and project hosting and procurement services, make AutoCAD 2002 the design tool of choice.



This Preview Guide is intended to present information about product features and benefits new to AutoCAD 2002. This product is built upon technology found in AutoCAD 2000 and AutoCAD 2000i. The following table lists those features common to these products that are now a part of AutoCAD 2002.

Features from AutoCAD 2000 and AutoCAD 2000i

HEADS-UP DESIGN ENVIRONMENT

Multiple Design Environment (MDE)
AutoCAD DesignCenter™
AutoSnap™ and AutoTrack™ enhancements
IntelliMouse Support—Real-time zooming and panning
QDIM (Quick Dimensioning)
Partial Open and Partial Load
UCS per Viewport
In-Place Reference and Block Editing

IMPROVED ACCESS AND USABILITY

Object Properties Manager
Find—Find and Replace Text
Quick Select—a Quick Selection Set Builder
Object Property toolbar
Context Menus—Right-click shortcut menus
Solids Editing enhancements
Drawing Properties
Text enhancements
Layer Properties Manager
Extended Symbol Names (ESN)
Dimensioning enhancements
Bhatch Dialog enhancements
Appload Dialog box
Startup Dialog box
Command Line Standardization
SAVEAS

STREAMLINED OUTPUT

Layouts—Multiple Paperspaces
Nonrectangular Viewports
Plotting enhancements
Lineweights
OLE Text Scaling
True Color Support
Plot Merge Control
True color plot styles
Printer & paper size filters

GREATER CUSTOMIZATION AND EXTENSIBILITY

Integrated Visual LISP Development Environment
Full objectification
ActiveX Extensions and Events
VBA Projects
Options (Preferences) dialog box
API Extensions
ObjectDBX™/ObjectARX

PERFORMANCE AND SIMPLICITY

File Navigation update
Performance increases
UCS Icon
Regenless Tab Switching
Multiprocessor support
Improved I/O memory management
TrueType Font Caching

3D PERFORMANCE

3D Orbit
Up Axis Constant
Heidi® 3D graphics pipeline

FEATURES ENHANCEMENTS

Multiple Polyline Editing
Extend and Trim combined
Layer States

INTEGRATION OF LT FEATURES

Drag and Drop Hatch
Purge All Nested Objects/New User Interface
Array dialog box

INTERNET-INTEGRATED DESIGN

AutoCAD Today
Publish to Web
Meet Now
Hyperlinks dialog box
eTransmit
i-drop
Direct Browser Access
Object Hyperlinks
ePlot—Electronic Plotting of DWF files
dbConnect—Database Connectivity
DXF™ enhancements

USER ASSISTANCE

HTML Help
Drafting Tips
Active Assistance
Workaround Solutions
Support Database Lookup
Natural Language Query Engine
DEPLOYMENT AND INTEGRATION
Web Registration
Network Support enhancements
AutoCAD Learning Assistance™ (ALA)
AutoCAD Support Assistance (ASA)

Contents

A Powerful CAD Platform	5
Associative Dimensioning	5
Attribute Tools	7
The Block Attribute Manager	7
The Edit Attribute Dialog Box	8
The Enhanced Attribute Editor.....	10
Extracting the Attributes of a Block.....	12
Layer Tools.....	16
Layer Translator	16
Layer Previous	17
Spell Checking and Text Scaling	18
Connected and Collaborative	18
AutoCAD Today	20
Meet Now	21
Publish to Web	21
i-drop	23
eTransmit.....	24
File Navigation	26
Updated DWF Format.....	27
Volo View and Volo View Express.....	27
DesignXML	28
Autodesk Point A	29
Buzzsaw.com	30
RedSpark	31
Managing Your Corporate Drawing Standards	32
The Standards Manager	32
Interactive Auditing	34
Batch Auditing	35
Summary Report Information.....	36
Licensing.....	37
Globetrotter FLEXlm Network License Support.....	37
Flexible License Models	37
Deployment and Integration	38

A Powerful CAD Platform

With each new release, AutoCAD provides those drafting features that customers ask for most. We identify key productivity enhancements that enable your design team to work faster, smarter, and better. With AutoCAD 2002, we concentrate on those features that every drafter utilizes, namely Dimensioning, Block Attributes, and Layer control.

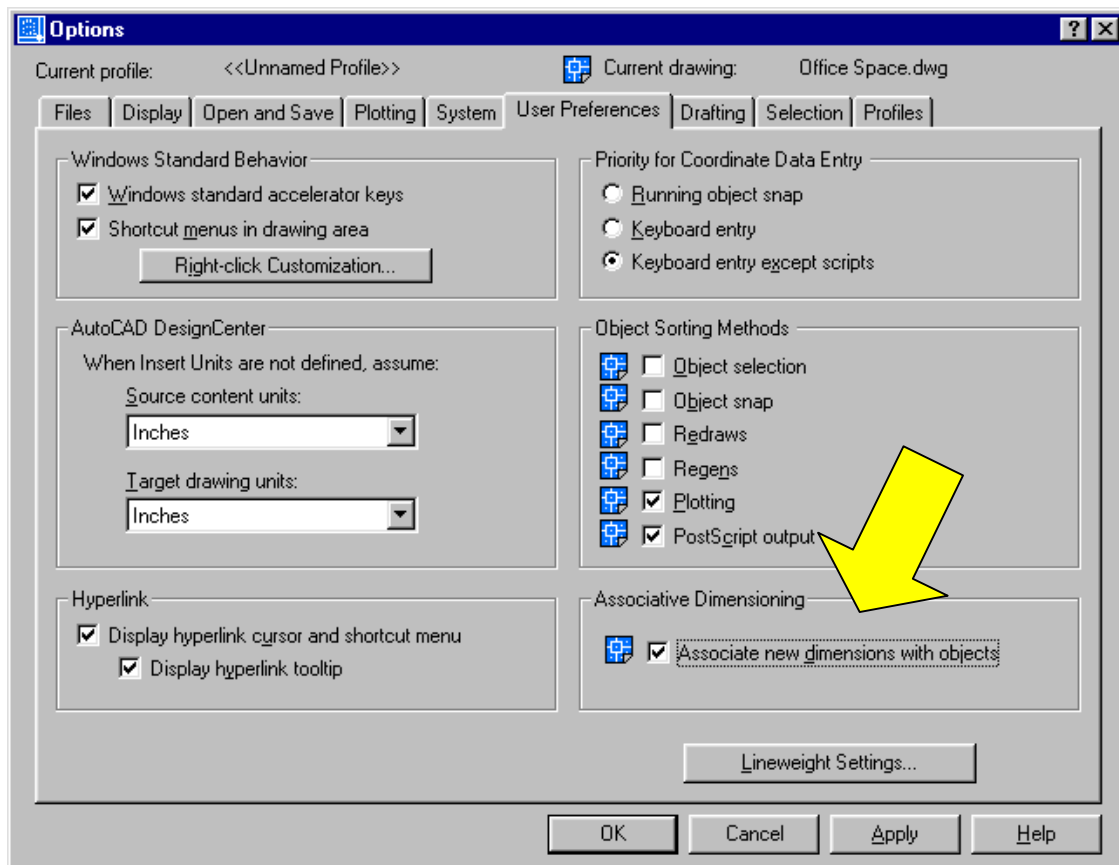
Associative Dimensioning

Associate dimensioning defines the relationship between geometric objects and the dimensions that give their distance and angles. The associative dimensions in AutoCAD 2002 automatically adjust their locations, orientations, and measurement values when the geometric objects associated with them are modified. Design integrity of drawings is improved, since changes in geometry are reflected immediately in the dimension tied to the geometry. Usability of the software is improved, as users do not have to work with defpoints.

This feature improves support for paper space dimensions of model space objects (trans-spatial references), eliminating the need for manual updating of this type of dimension when the associated model space geometry is modified. A long-standing wishlist item has been to tie paper space dimensions to model space geometry. That need is now satisfied with associative dimensions.

Enabling Associative Dimensioning—For every new drawing, associative dimensioning is turned on by default. For legacy drawings, this functionality is manually enabled through the **DIMASSOC** command. A value of **2** (or **ON**) enables this functionality, **1** creates nonassociative dimension objects, and **0** creates exploded dimensions.

This toggle can also be found Under Options>User Preferences:



Updating Associative Dimensions—The **DIMREGEN** command forces an update of all associative dimensions in the current drawing. You may need to use DIMREGEN to update associative dimensions after panning or zooming with a wheel mouse, after opening a drawing that was modified with an earlier AutoCAD release, or after opening a drawing with external references that have been modified.

Associating Legacy Dimensions—The **DIMREASSOCIATE** command allows you to associate a nonassociative dimension to an object or object snap points on geometry.

The command sequence for DIMREASSOCIATE starts by prompting for one or more dimension objects. Objects are filtered for dimensions, locked layers, incorrect spaces, and other attributes that would prevent updating.

For each selected dimension, the command sequentially highlights the dimension and prompt for definition points (object snap locations) for each association required for that dimension type. A marker is drawn for each association point; this marker is removed after the association point has been handled.

The appearance of the marker is dependent on whether the dimension object is associative or nonassociative at the location of the marker.



Associative marker



Non-associative marker

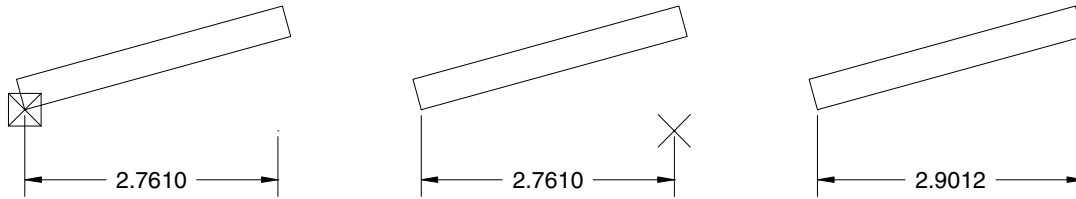
A new association point can be selected by snapping to an object, or individual association points can be skipped by pressing the Enter key; this action leaves any definition point in its current state, either associated or not. If a new point is picked that can't be associated, a message appears stating that the dimension point was not associated and the command advances to the next prompt.

```
Specify first extension line origin or [Select object] <next>:
<pick in empty space or without an osnap active>
Dimension point not reassociated.
Specify second extension line origin <next>:
```

When the select object option is chosen, the command prompts for a single object to be selected. A warning message is displayed if no object or an inappropriate object is selected, and the user is prompted again to select an object. If you press Enter, the command is advanced with no change to the current dimension.

```
Specify first extension line origin or [Select object] <next>: S
Select object: <pick in empty space>
No object selected.
Select object: <pick invalid object>
Object selected is not a line, arc or circle.
Select object:
```

The three figures below illustrate reassociating a linear dimension that is partially associated with a rectangle. The first extension line is already associated, so the marker is displayed as a box with an X, and the second extension line is not associated, so it is displayed as an X. After the new association point is selected, the dimension is updated with full associativity.



Removing Associativity—The **DIMDISASSOCIATE** command allows you to remove any associations for a set of dimensions.

The command queries for a selection set of dimensions that are filtered for dimensions, locked layers, incorrect spaces, and other attributes that would prevent updating. After the selection is complete, the command proceeds to disassociate dimensions and reports the number of dimensions modified.

Attribute Tools

An attribute is a label or tag that attaches data to a block. Examples of data that might be contained in an attribute are part numbers, prices, comments, and owners' names. The tag is equivalent to a column name in a database table. Attribute information extracted from a drawing can be used in a spreadsheet or database to produce a parts list or a bill of materials. You can associate more than one attribute with a block, provided that each attribute has a different tag.

We've created a set of attribute tools that makes managing and extracting this information easier than ever before.

The Block Attribute Manager

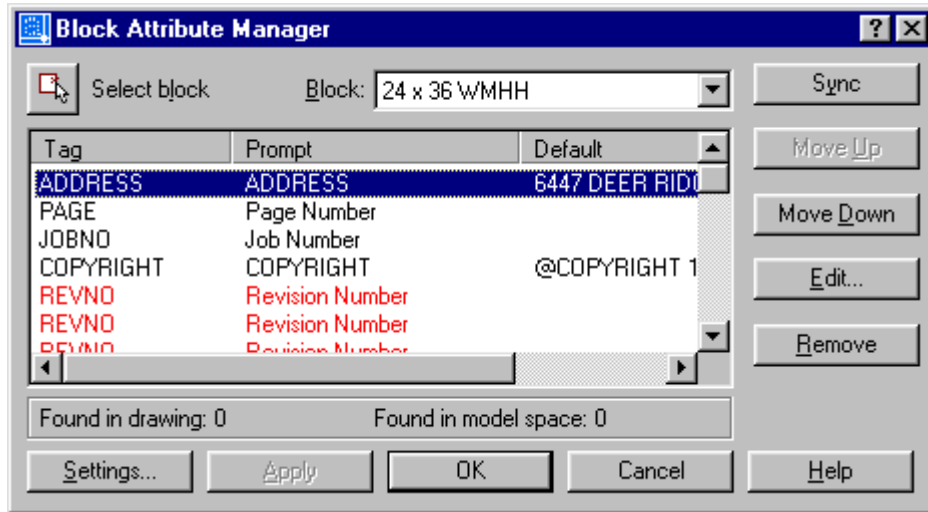
The **Block Attribute Manager** enables you to easily modify attributes within a block without having to explode or redefine the block. All changes are immediately reflected in the existing block insertions. You can do any of the following:

- Remove an attribute from a block definition.
- Change the order of attributes. This affects the order in which attributes appear in the Edit Attributes dialog box and the order in which attributes prompt for input during block insertion.
- Force the attributes in existing block references to update themselves to match their block table definition. This updating process does not affect attribute values.
- Change an attribute's tag name, prompt string, default value, or mode.
- Change an attribute's text settings.
- Change an attribute's properties.
- Customize the main attribute list to display selected columns of information and highlight redundant tag names.

By default, all changes made to an attributed block using the Block Attribute Manager are "pushed" out to all existing references of that block. This can be controlled in the Settings dialog box so that only new inserts of the block are affected by the change.

The **Select block** button enables you to select an attributed block in the current drawing. The selected block object provides the name of which block table definition should be edited. This

name is then selected in the Block list and the attribute information for that block is displayed in the attribute list. If you select an attribute in the block object, that attribute is highlighted in the attribute list.



The **Block dropdown list** displays the names of all the attributed blocks in the block table. This list does not include blocks that do not contain attributes. When a block is selected, the attribute list displays the attributes contained in the selected block. If the Block Attribute Manager has previously been used in the current drawing, the last block and attribute edited is selected during initialization. If the last block edited no longer exists, selection defaults to the first block in the list.

The **Attribute list** displays information about all the attributes defined in the currently selected block. It can be customized to display specific columns of information and to highlight redundant tag names.

The **Sync** button forces all existing references to the block displaying in the Block list to update themselves to match the block table definition. This update does not affect attribute values. This synchronizing operation automatically occurs when the block is edited.

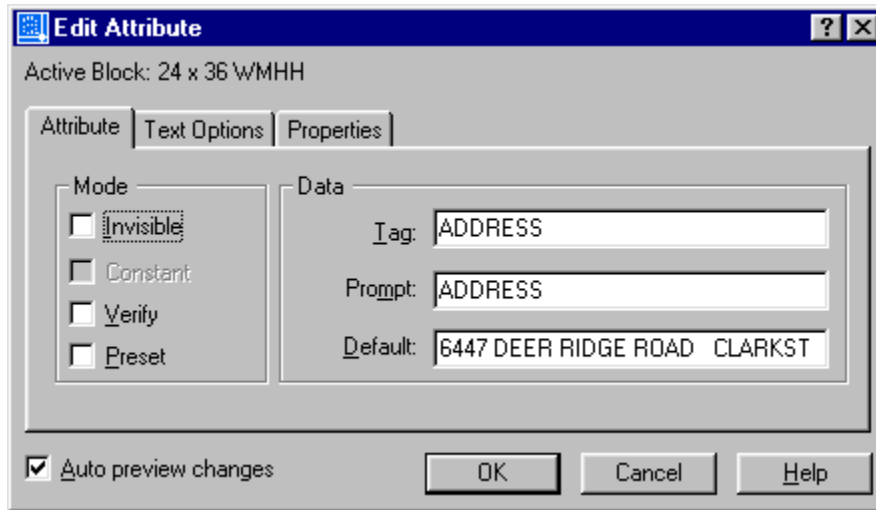
The **Edit** button displays the Edit Attribute dialog box.

The Edit Attribute Dialog Box

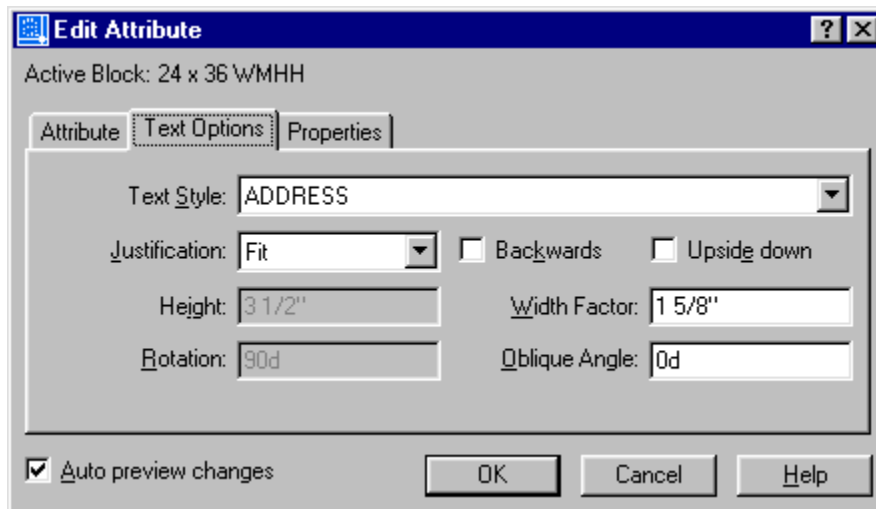
The Edit Attribute dialog box consists of three tabs for editing different aspects of the highlighted attribute.

When "Auto preview changes" is checked, all edits that affect the visual appearance of the attribute are automatically displayed in the editor. This permits you to see how edits being made actually affect the attributed block.

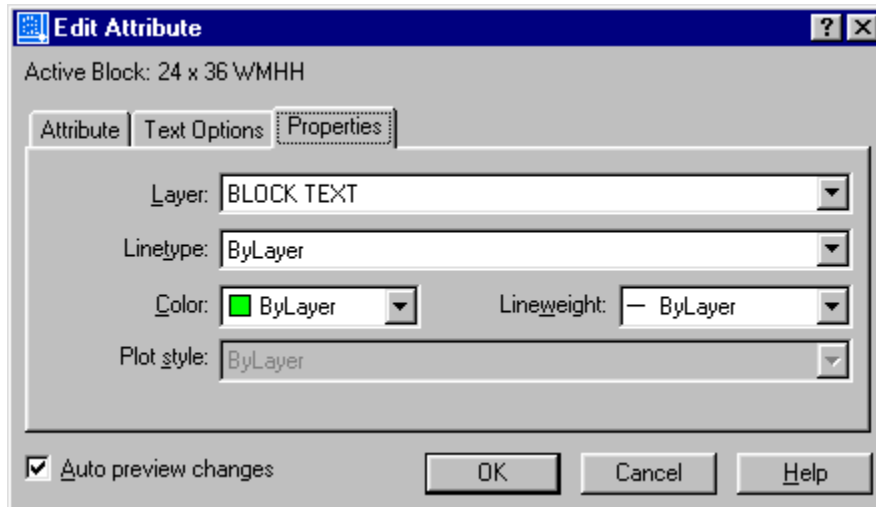
On the **Attribute** tab, you can edit the attribute's tag, prompt, default value, and mode.



On the **Text Options** tab, you can edit those values that affect the text-based properties of the attribute.



On the **Properties** tab, you can edit those values that affect the general visual appearance of the attribute, either in the editor or during plotting.



The Enhanced Attribute Editor

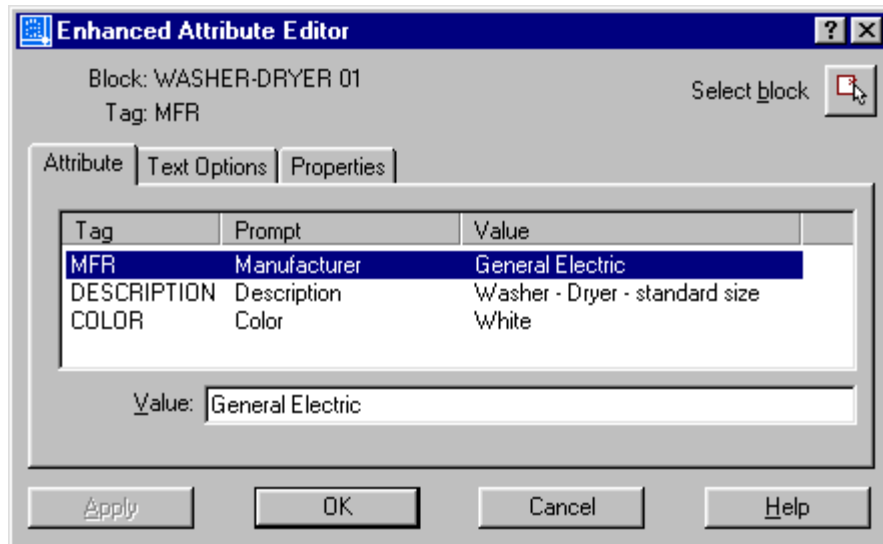
The **Enhanced Attribute Editor** improves and supplements the existing DDATTE/ATTEDIT and -ATTEDIT commands, and allows the editing of attributes in a selected block reference. You can edit an attribute's value, text-related settings, and properties, and all changes are automatically displayed in the AutoCAD editor as they are made.

The Enhanced Attribute Editor allows editing of attributes in a selected block reference. Its functionality and user interface design are like the Block Attribute Manager but restricted to editing only selected block references. The Enhanced Attribute Editor is designed to be a replacement for DDATTE/ATTEDIT and -ATTEDIT. Unlike the older attribute editing commands, the Enhanced Attribute Editor permits editing of *all* text-related options and properties, and all changes are automatically displayed in the AutoCAD editor as they are made.

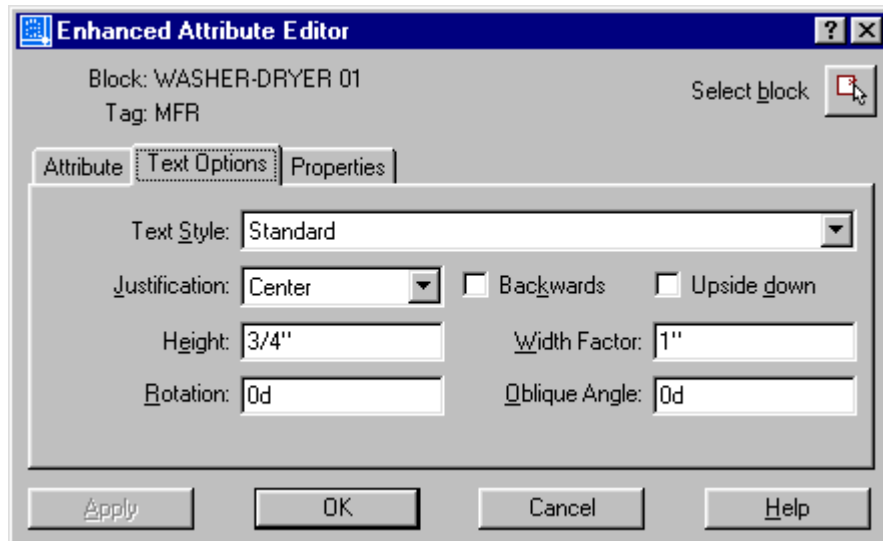
The main dialog box consists of three tabs for editing different aspects of the attributes in the selected attributed block.

The **Select block** button enables you to select an attributed block in the current drawing for editing. The name of the selected block is displayed in the Block field and its attribute information is displayed in the attribute list.

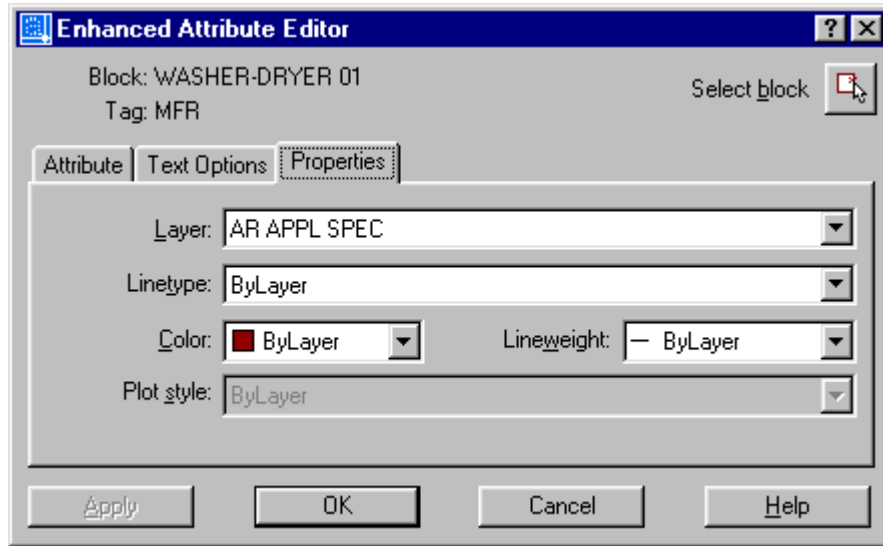
The **Attribute tab** displays a list containing information about all the attributes defined in the selected block. When an attribute is selected in the list, its value is placed in the Value field for editing.



On the **Text Options** tab you can edit those values that affect the text-based properties of the attribute.



On the **Properties** tab you can edit those values that affect the general visual appearance of the attribute, either in the editor or during plotting.

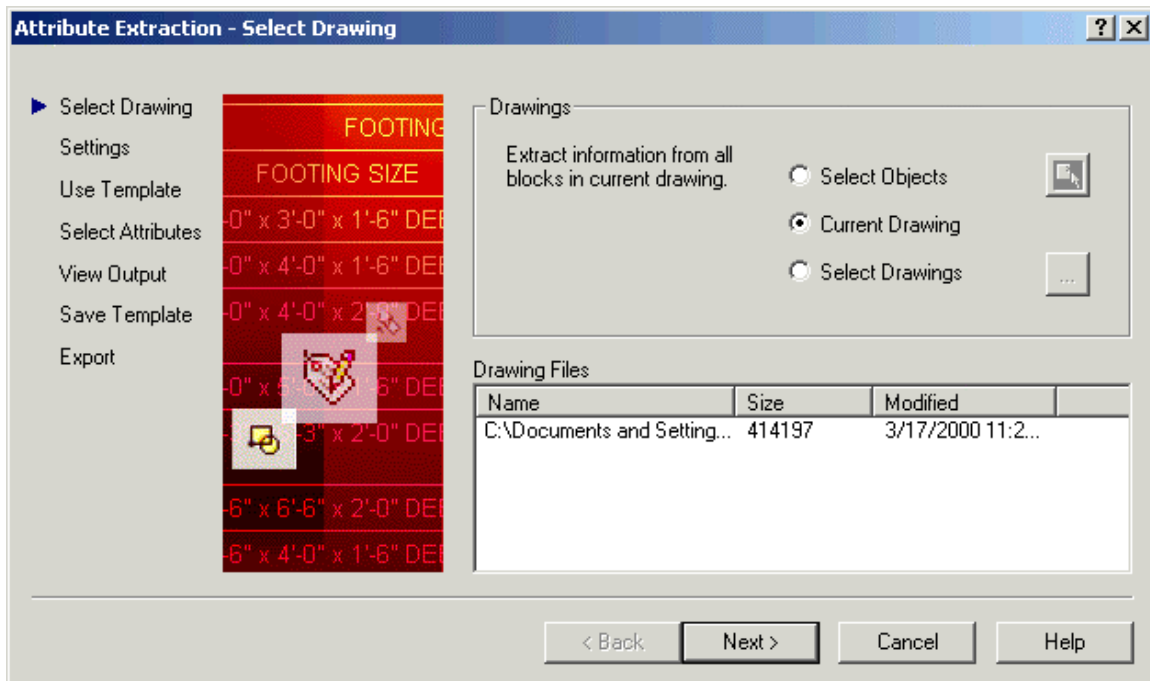


Extracting the Attributes of a Block

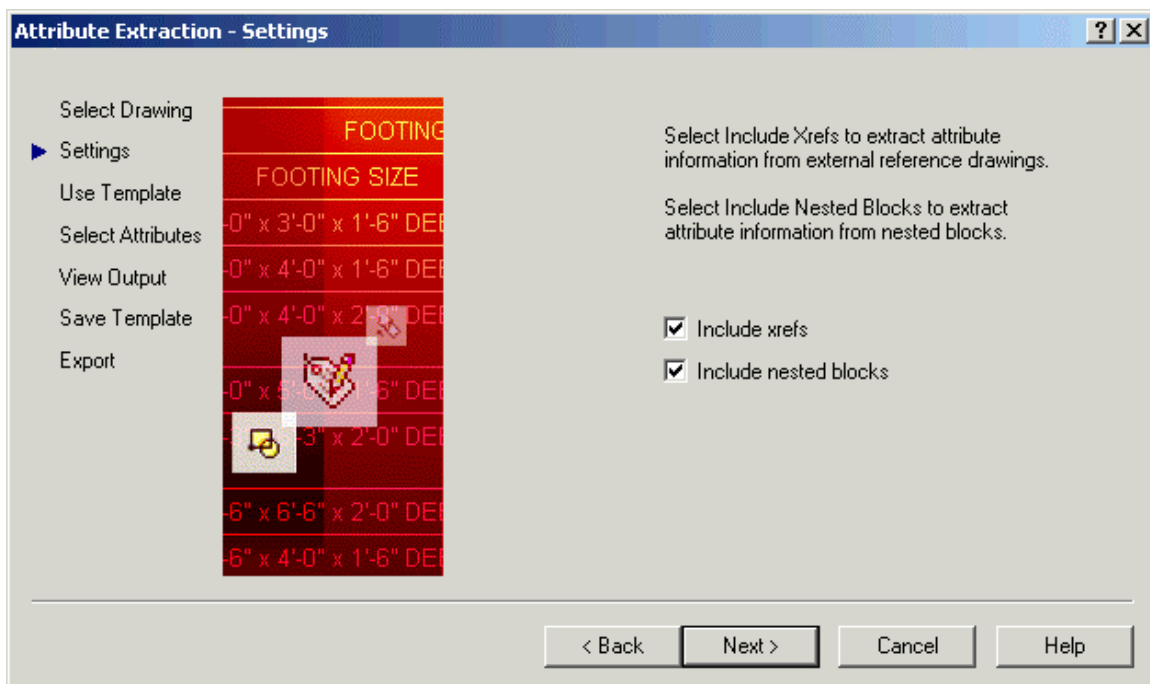
The **Enhanced Attribute Extract** tool allows the easy extraction of block attribute data to comma-separated text (CSV), Microsoft® Excel (XLS), and Microsoft Access (MDB) formats. You can attach alias names to blocks and attributes, publish data from multiple drawings and xref attachments, and save templates of selected blocks, attributes, and alias information for reuse against any drawing or set of drawings.

The Enhanced Attribute Extract tool is a wizard that guides you through the process of attribute extraction.

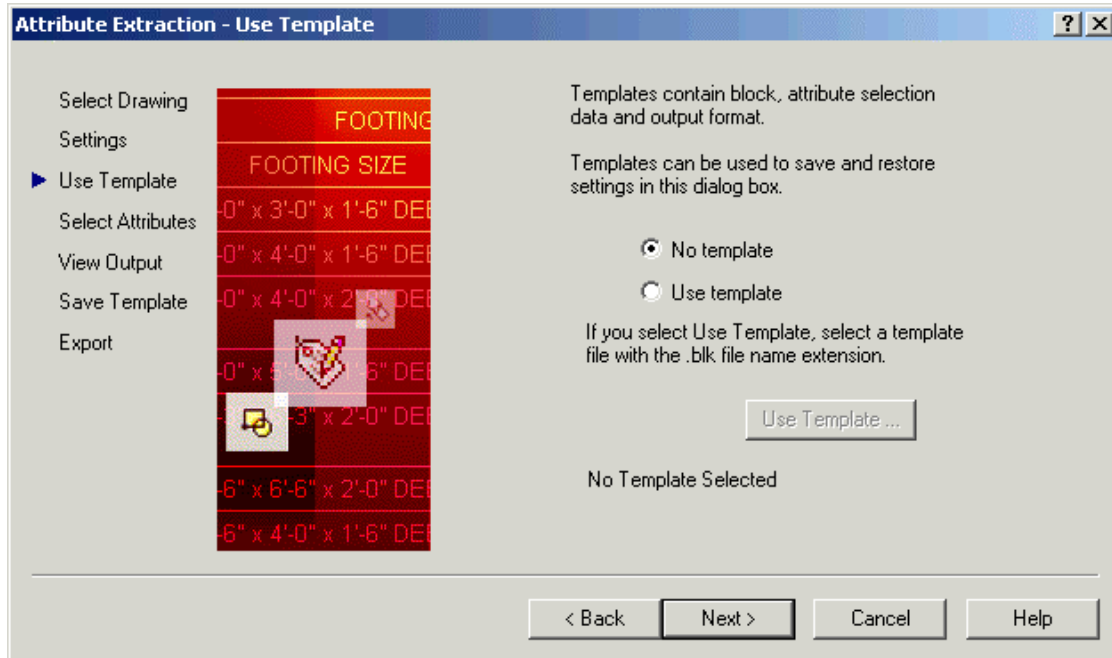
The **Select Drawing** dialog box determines the source the attribute data. It allows you to create a selection set of entities from the current drawing, select all blocks in the current drawing, or select multiple drawings.



The **Settings** dialog box allows you to include external reference files (xrefs) and nested blocks in your search.

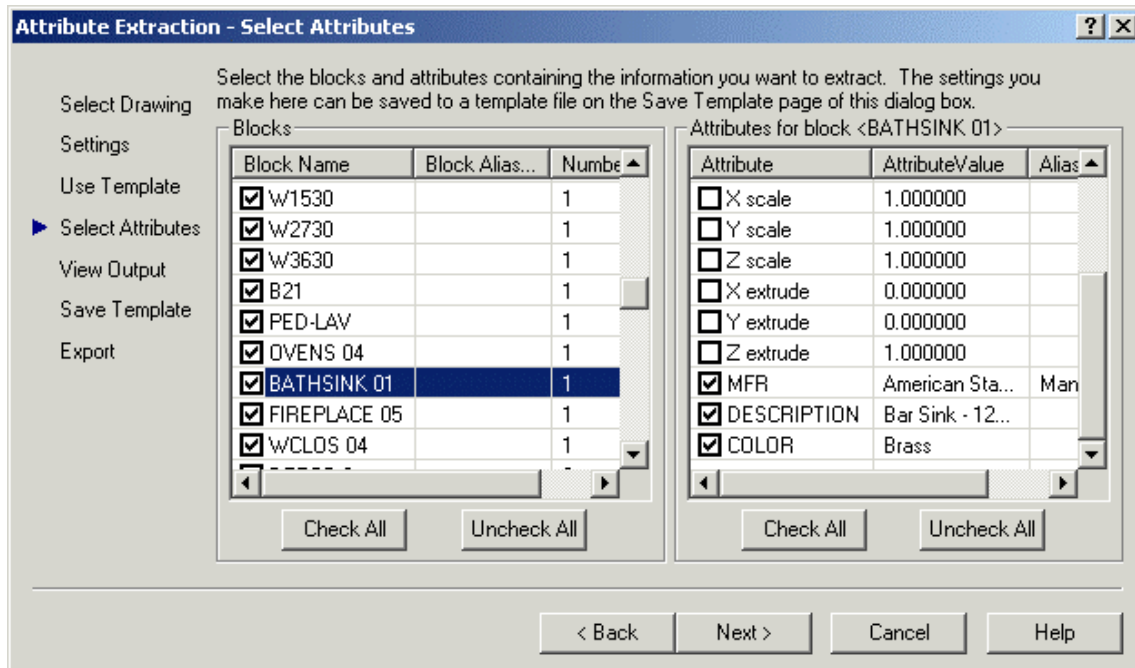


The **Use Template** dialog box allows selection of a template file. Template files store information regarding attributes and blocks included in the output.

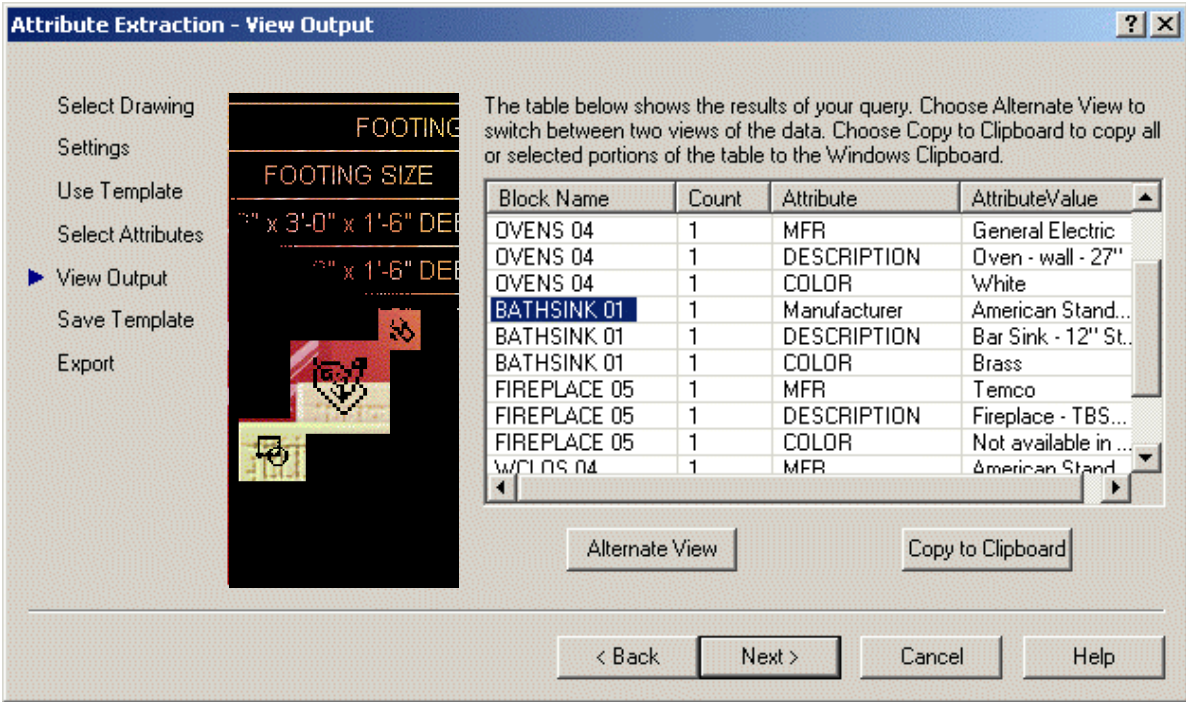


The **Select Attributes** dialog box consists of two sections:

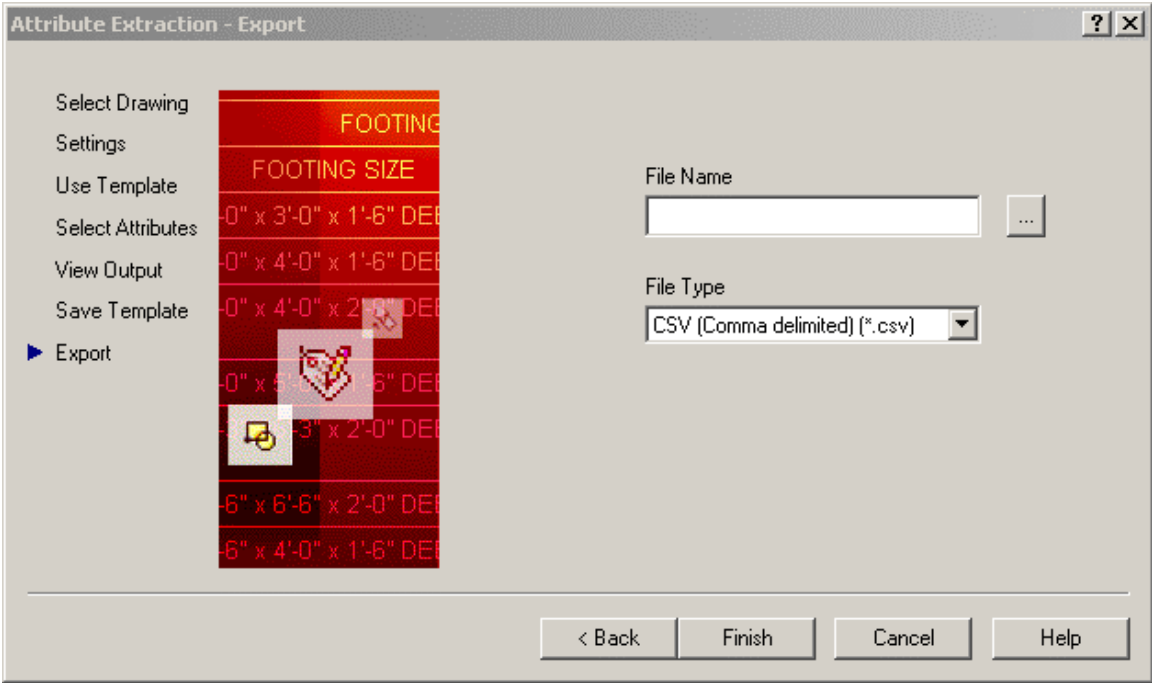
- The Blocks list shows the blocks in the selected drawing. The Alias column allows a name to be assigned to each block. The Number column shows the number of occurrences of each block.
- The Attributes list shows the attributes corresponding to the block selected, along with their values. The Alias column allows a name to be assigned to each attribute.



These selections can be saved to a template file.
The **View Output** dialog box displays the results of the extraction.



The **Export** dialog box allows you to export the extracted data set to a comma-separated text file (CSV). If you have Microsoft Excel or Microsoft Access installed on your computer, you can also export the extracted data set to XLS (Excel) or MDB (Access) formats.



Layer Tools

Two new tools for working with layers were added to AutoCAD in the XML/Data Extension.

The **Layer Translator** tool makes it easy to convert drawings from one layer standard to another using existing drawing or standards files as a reference. Layer Translator complements the CAD standards functionality, extending your ability to correct standards violations quickly and accurately.

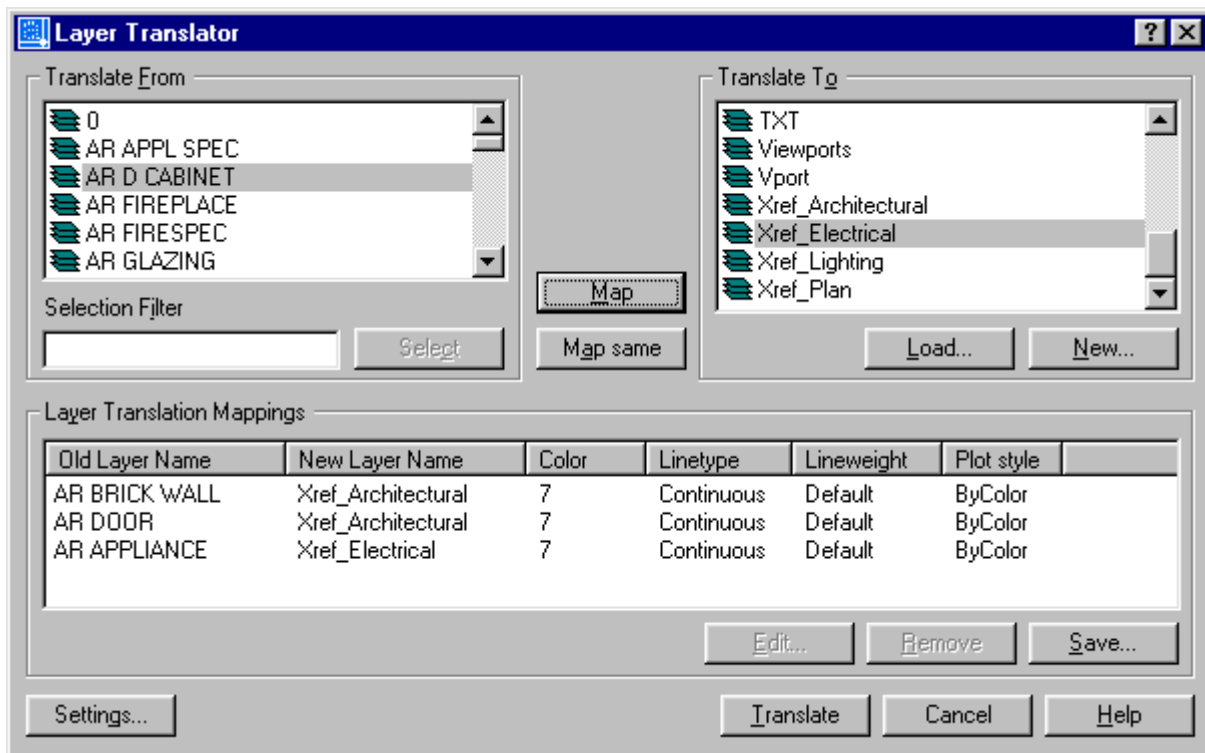
The **Layer Previous** tool improves the UNDO, ZOOM, and Layer operations.

Layer Translator

The Layer Translator tool helps manage the process of sharing data with others by providing tools to convert drawings from one layer standard or convention to another using an existing drawing, standards file, or drawing template as a reference.

Using Layer Translator you can

- Translate from one layering standard or convention to another
- Force entity color and linetypes to ByLayer
- Purge unreferenced layers on exit
- View only the entities that reside on selected layers
- Use DWG/DWT/DWS files for reference layers
- Create new reference layers on the fly
- Edit the layer properties for existing reference layers
- Save and reuse layer mappings

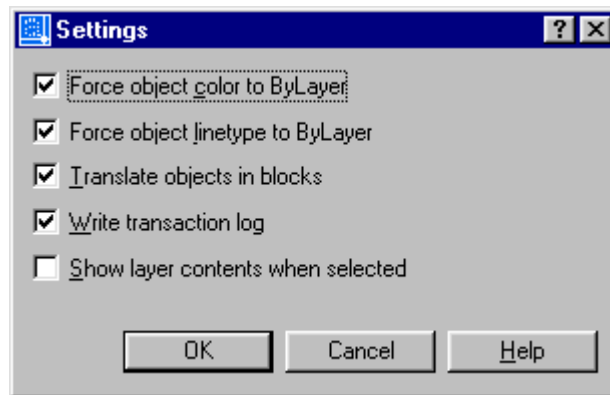


The **Translate From** list displays the names of all layers in the current drawing in alphabetical order. A dark layer icon indicates that the layer is referenced and cannot be purged. A white layer icon indicates that the layer is unreferenced and can be purged.

The **Translate To** list displays the layers being used as reference or target layers. Selected layers in the **Translate From** list can be mapped to layers in the **Translate To** list using the **Map** button.

Layer Translation Mappings can be saved to a selected file for later reuse. This is useful when you need to apply the same translation to other drawings from the same source, using the same layer scheme.

The **Settings** dialog box allows you to control translation behavior.



Layer Previous

The **Layer Previous** tool improves the user experience in UNDO, ZOOM, and Layer operations. It operates much like the Zoom Previous command, and restores the previously used layer state without undoing geometry edits or zoom operations.

The following layer properties are restored by Layer Previous:

- On/Off
- Freeze/Thaw
- Lock/Unlock
- Color
- Linetype
- LineWeight
- Plotstyle (if using named plotstyles)
- Freeze/Thaw in current viewport

Layer Previous has the following limitations:

- It won't rename a layer back to its original name if you have renamed it.
- It does not recreate a layer that has been purged, and does not delete a layer that has been added.

The Layer Previous command does not have a dialog box and does not request information at the command line. Once executed, it simply displays a message indicating the success or failure of the operation.

Examples:

```
Command: LAYERP
```

```
*No previous layer status*
```

```
Command: LAYERP
```

```
Restored previous layer status.
```

Spell Checking and Text Scaling

Enhancements to the spelling operation allow you to validate and correct the spelling of previously hidden objects (Block Definitions), reducing the number of potential errors in drawings.

Users are often forced to perform text-scaling operations, sometimes on large numbers of objects. Improved scaling and alignment control reduces the number of manual adjustments necessary and encourages usage of Layouts.

The use of unspecified units and infinite scaling in AutoCAD allows a wide range of designs to be modeled, and plotted in various configurations. However, the ability to specify fixed text sizes at various plot scales has been given only limited support.

Spell Checking—The **SPELL** command is enhanced to operate on more kinds of annotation present in drawings. When Block References are encountered, the command checks not only any associated Attribute values, but also the associated Block Definition for embedded text objects. Spell checks are done on any Text, MText, or Attribute Definition objects.

Text Scaling—The **SCALETEXT** command quickly resizes annotation objects, using either a relative scale factor or specific text height, by modifying the height property of text objects.

Text objects are individually scaled in relation to their insertion points or to a specified justification point. This differs from the **SCALE** command, which scales all selected objects in relation to a specified point and adjusts each object's insertion point. The **SCALETEXT** command may alter the insertion point if a different justification point is chosen.

AutoCAD supports multiple justification points (also known as attachment points). Some methods of changing a text object's justification point move the insertion point to preserve the text position, while other methods do not (causing the text to move). The **JUSTIFYTEXT** command changes text justification without moving the text position. Both the justification point and insertion point are relocated.

Modelspace viewports in layouts are often scaled at other than 1:1 ratios. This means that text objects in the viewport may appear at a different size than on the layout, even if they have the same height property. The **SPACETRANS** command converts distances (typically text heights) from either modelspace or paperspace to an equivalent distance in the other space. This command can be invoked transparently, to provide correct values when distances are requested by other commands. If used in standalone mode, this command merely displays the computed value on the command line.

Connected and Collaborative

Collaborative engineering begins with enabling engineer-to-engineer and engineer-to-data-consumer interaction using simple, low-administration tools right inside the engineering application. In the case of the AutoCAD platform, that collaboration is enabled through real-time design conferencing, data publishing, and data packaging and exchange services inherent to the applications. Here are a few examples that this document treats in detail.

AutoCAD Today/Bulletin Board—Critical data needs to be disseminated to an entire engineering team. The engineering manager might use e-mail, but the design files aren't applicable to everyone, or are very large. The manager would rather host them in one place and

have them accessible inside AutoCAD. The Bulletin Board feature inside AutoCAD Today lets engineering managers deploy critical information to an entire team, including posting necessary design data to be accessed and used in AutoCAD.

Meet Now—An engineer is in the midst of designing a part and needs collaborative assistance from an expert peer. However, that peer works across the country. The design could be plotted and sent via express delivery, or possibly e-mailed for a later discussion. The AutoCAD family of products allows these designers to share a design session in real time using simple conferencing technology to solve the problem immediately.

Publish To Web—Once the engineering documentation is done, it has to be reviewed by peers and an engineering manager. The designs could be individually e-mailed to these peers, or the original engineer could publish them to an internal URL so that all members of the design team, whether or not they use CAD software, can interactively review and comment on a single set of drawings. If external audiences have to share the information as well, the engineer can publish the data to a website.

Moreover, with i-drop enabled capabilities, companies can now publish interactive block, symbol, and drawing libraries to a corporate intranet, or perhaps a secure extranet. Autodesk's i-drop technology enhances the collaborative design process by allowing users to view and then drag relevant content directly into their drawings in real time.

eTransmit—Once reviewed, the engineering drawings may have to be sent to a third party for some additional work or sent to the manufacturer for an RFQ. Again, the drawings can be put on a ZIP disk, or e-mailed, but this doesn't easily take into consideration all xrefed drawings, fonts and shape files, plot styles, and so forth. The eTransmit function automatically assembles all necessary information into a single, comprehensive package of information that can be compressed and password-protected for distribution.

In AutoCAD 2002, eTransmit is also standards-aware, dramatically increasing the value of this collaboration tool. Now eTransmit automatically includes the DWS standards file associated with the drawing if one has been created. With this capability, everyone on the entire design team can operate using a single standard.

File Navigation—One of the simplest and most frequently used functions of any application is the open/save dialog box. AutoCAD has taken this basic file-access utility and created a facility for managing data spanning local drives, local networks, and the Internet. From the File Navigation dialog box, you can use standard Office 2000-style capabilities to access content. But its key strength is the ability to manage data.

In a production situation, many internal and external users access and create design content, which is tracked and controlled by the design company. With AutoCAD 2002 and AutoCAD 2002-based products, all members of the internal and external design teams can use the File Navigation dialog box to collaborate and share data via the Web using The ProjectPoint™ collaboration service from Buzzsaw.com. Moreover, if you're looking for simple web storage for design files, the My Files on Point A service is also directly available through File Navigation.

Finally, many companies already implement their own web storage mechanism, or have partnered with a third party to provide it. AutoCAD 2002 allows users to continue to use those storage facilities via the My Web Places component and FTP component inside File Navigation.

DWF—Another major concern of design companies is the ability to protect intellectual property and mitigate liability. One area where this is evident is in transmitting drawings to third parties for hardcopy output, or simply for viewing and markup. But sending native DWG has significant pitfalls in that the data can be changed by an unscrupulous recipient.

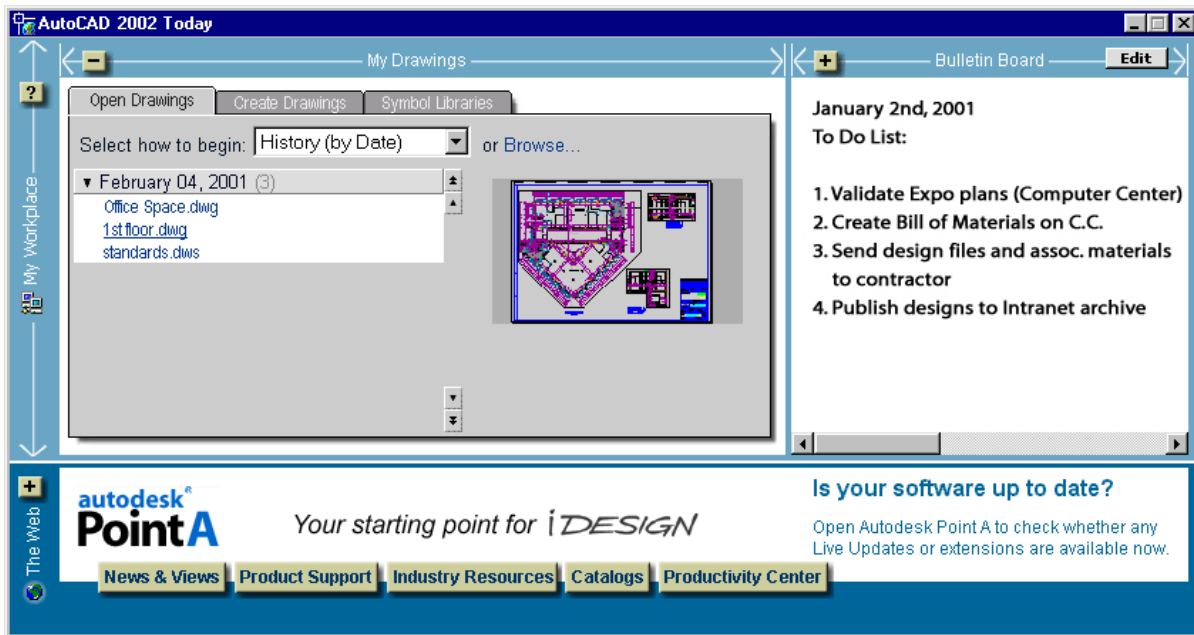
With the new high-resolution DWF format, you not only get higher visual fidelity, but also can plot DWF files with the same quality as native DWG. So now, when sending files to a municipality for

permit approval, transmitting documents to a job site for change orders, or simply uploading files to the local reprographer, the new high-resolution DWF protects you while delivering the fidelity you need.

AutoCAD Today

The Bulletin Board inside the AutoCAD Today window has been updated to expand to an 800x400 optimized website. By selecting the "+" symbol in the Bulletin Board, you can now maximize the display.

Before:



After:



Meet Now

The Meet Now feature uses Microsoft NetMeeting technology for hosting meetings on intranets and the Internet. Meet Now provides a way to collaborate on design in consultation with other colleagues and partners. This also allows CAD managers to teach new functionality in the product to a wide number of users from their desktop. The CAD manager can also verify designs online and explain design changes to designers no matter where they are physically located.



Here are some individual features of Meet Now.

Meet Now inside AutoCAD—Meet Now automatically starts the NetMeeting program from inside AutoCAD and establishes a meeting.

Automatic Application sharing—Once a meeting is established, Meet Now automatically enables the AutoCAD session to be shared with other designers, so that when another guest establishes a connection, the AutoCAD session appears on the guest's monitor. Whether your team is working together to solve design challenges or educating one another on new features, sharing the application makes interaction much more powerful.

Autodesk ILS server—This server registers the AutoCAD user's presence and adds the user's name to the list of people already connected to it. The Autodesk ILS server helps AutoCAD users find and connect to one another easily.

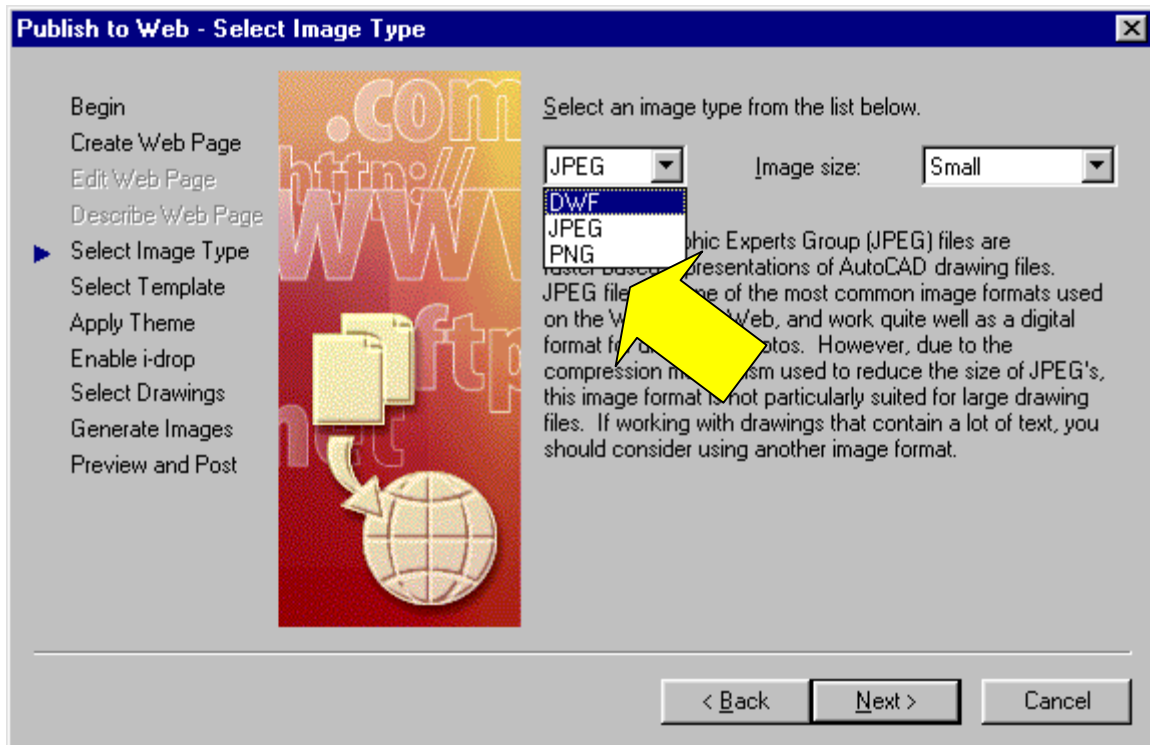
Publish to Web

Publish to Web was introduced in the first AutoCAD Extension as a mechanism to easily create web pages that contain images of AutoCAD drawing files. Publish to Web handles all details of generating the HTML code and outputting the images, so people with little or no prior web development knowledge could readily use the feature.

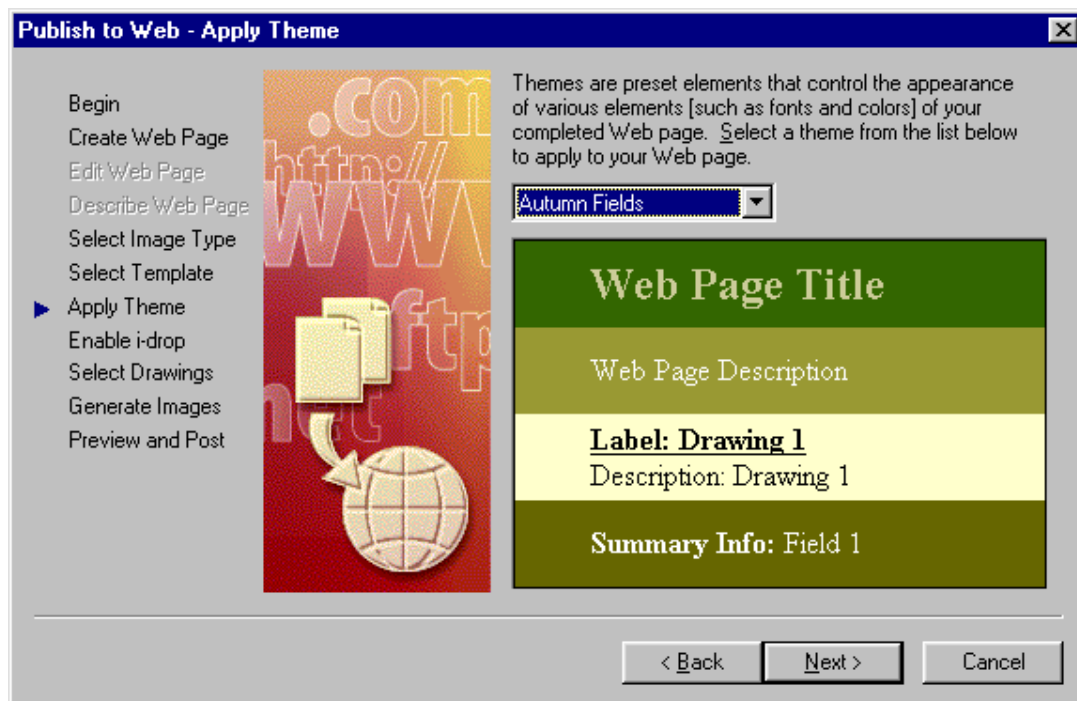
AutoCAD 2002 builds upon that feature set by offering key enhancements. Additional templates and the introduction of themes offer you greater control over the formatting of your generated web pages.

Furthermore, templates are now extensible so that additional ones can be integrated after AutoCAD 2002 ships. These improvements offer you more control over your Publish to Web projects while maintaining the feature's ease-of-use.

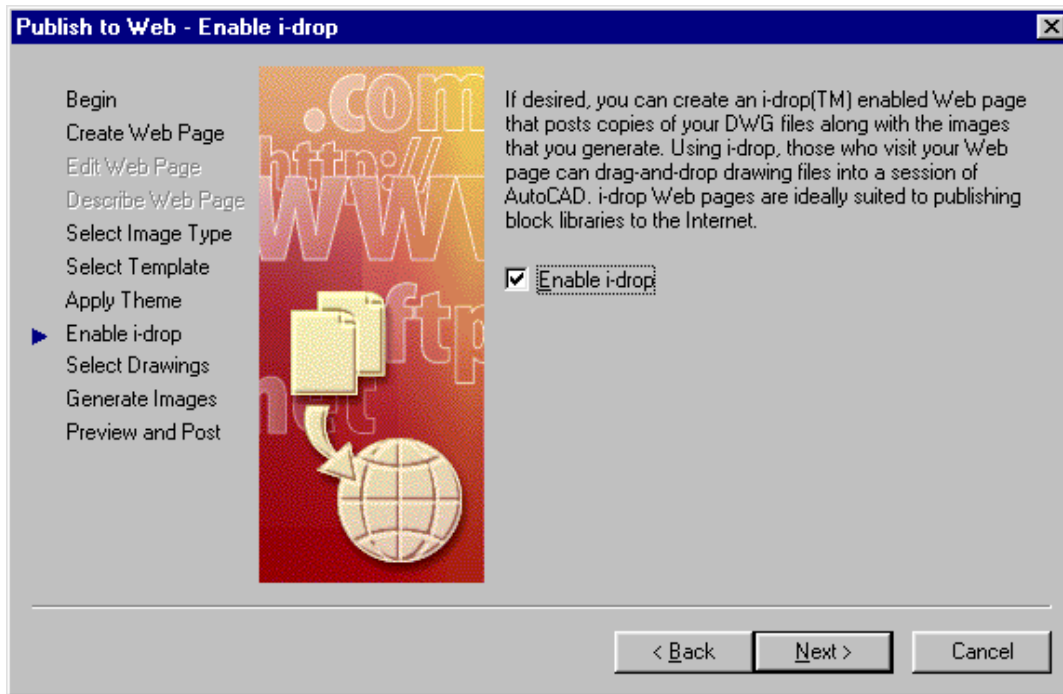
Several of the updates to this feature include the ability to select different publishing sizes for each of three file types (DWF, JPG, and PNG). You now have more control over the size of the images that get posted to your website.



Another update includes the use of themes—color and font templates that can be applied to your website.



You also have the capability to publish your design data with i-drop technology, which enables websites to let anyone drag content directly from your site to their design file.



i-drop

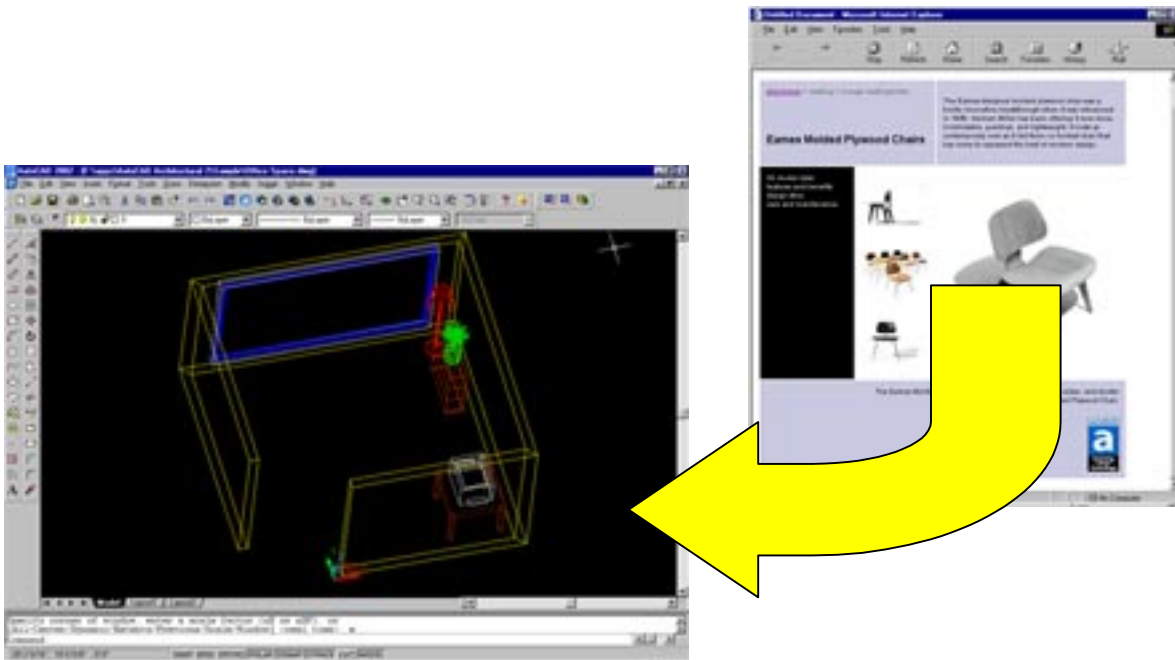
i-drop is a new Autodesk technology enabling designers and developers to create web content that gives you the ability to drag design content from a web page directly into your design products.

For example, imagine that you are a lighting designer and require a specific fixture to embed within your AutoCAD or 3D Studio VIZ[®] session. Now imagine that a lighting company's website contains a library of its fixtures from which you can browse, then drag the appropriate fixture into your design session. Forget about the days of downloading, then inserting it. Now you can drag any DWG or VIZ file from an i-drop enabled website and drop its geometry directly into your Autodesk product.

Let's take it a step further. Besides geometry, what else would you like to see from a manufacturer? How about photometric data, cost information, or materials? With i-drop, all of this is now possible.

i-drop is an XML-based technology which makes its potential limitless as to what data it can carry besides the object's geometry. It is completely up to you, the designer.

Within the AutoCAD 2002 Publish to Web feature, you can publish i-drop enabled websites from your block libraries or design files.

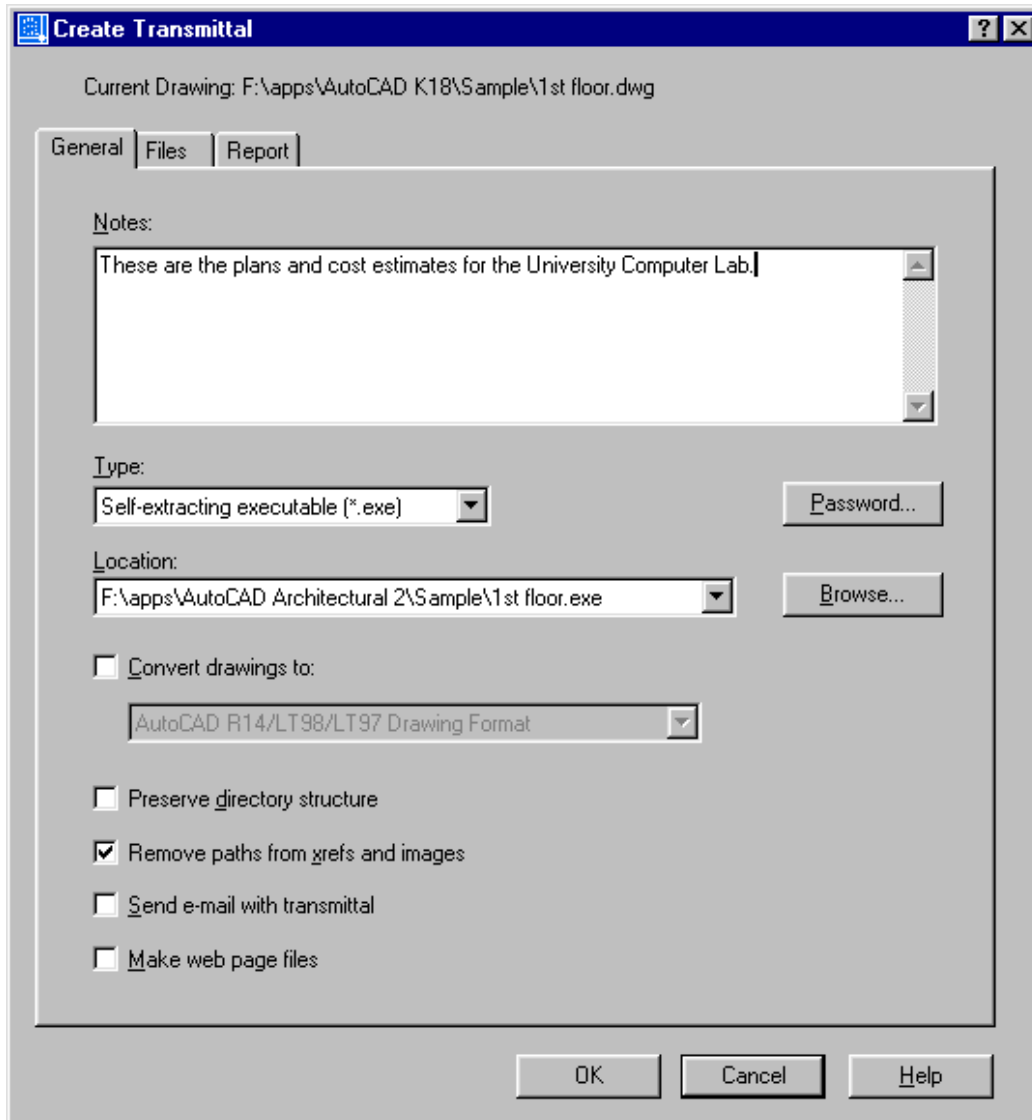


Look for the Autodesk i-drop logo on the Web for manufacturers providing i-drop content. You can find a directory for all participating content providers at the i-drop website at <http://idrop.autodesk.com>.

eTransmit

eTransmit packs currently open drawings with all associated files and xrefs into a single transmittal set so that you can send it to your extended design team. By ensuring that all design files are packed up for sending, eTransmit reduces confusion, turnaround time in design review, and inefficiencies in communication.

eTransmit makes sharing of design files a breeze. You can share design files both internally and externally, with members of extended design teams and with suppliers and customers.



Here are some individual features of eTransmit.

Compression—You can create a compressed self-extracting executable or ZIP file while creating the transmittal set. The set can be delivered electronically with less overhead.

Security—You can protect the compressed file with a password. Password protection helps in preventing unwanted parties from viewing your design data.

E-mail Notification—You can automatically send an e-mail notification to the receiving party about the transmittal set. This is an easy way of sending information about the transmittal set, like location and password, to the receiving party.

Web Posting—The Web Posting tool facilitates posting the transmittal set to an Internet or intranet location. This helps global enterprises communicate and exchange design data without burdening the e-mail system.

AutoCAD 2000 and Release 14 DWG file format support—This feature allows you to create transmittal sets in AutoCAD 14 or AutoCAD 2000 file format. This helps in communicating with

partners who are not yet moved to AutoCAD 2002, and preserves the behavior of the current Pack and Go express tool.

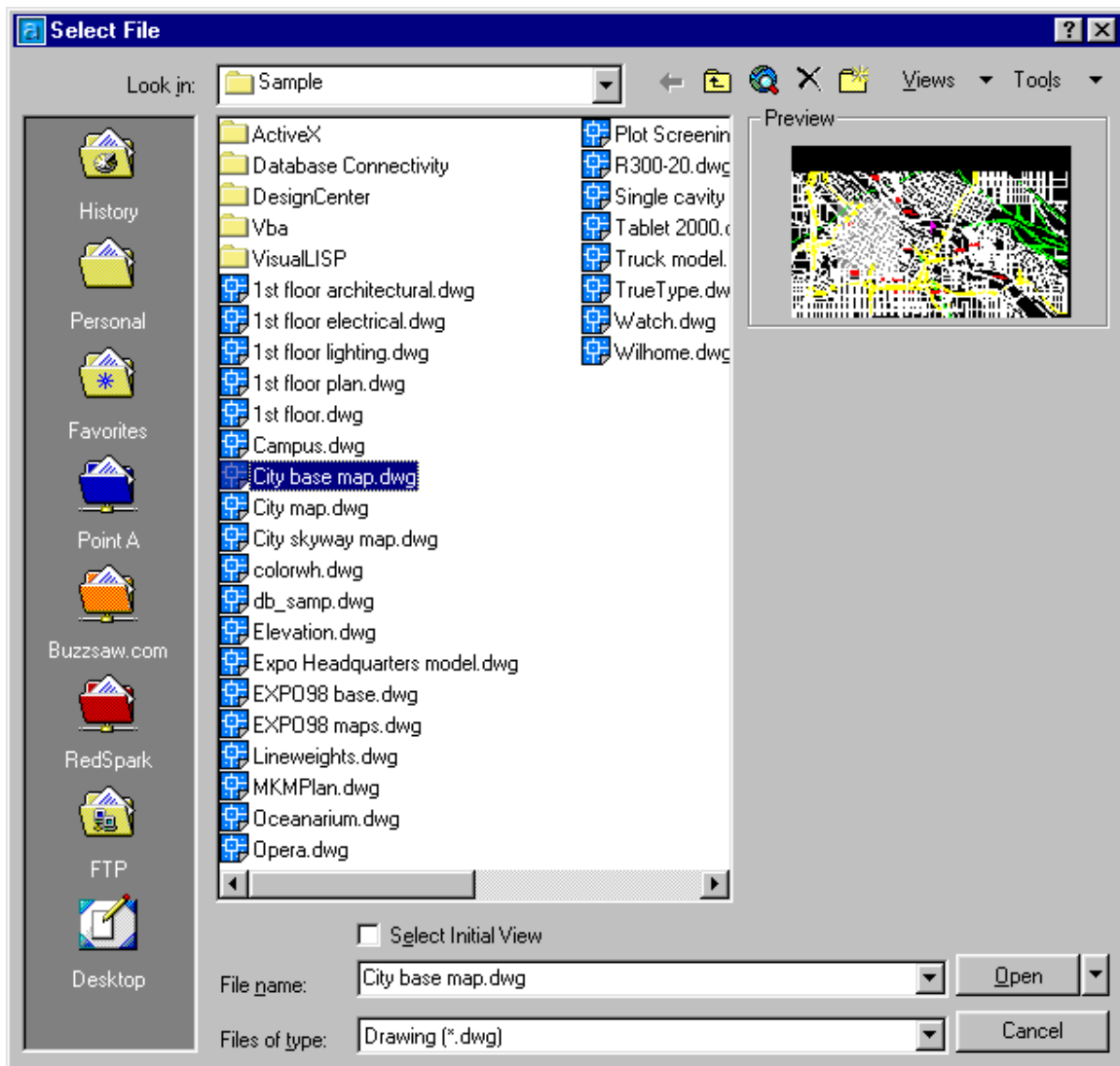
Report Generation—Reports include complete log information about the transmittal set: packed files, any deviations encountered, and more. A single transmittal set report is available to all users to track transmittal activities, manage problems, and determine which files have been sent and which need to be sent.

Standards—eTransmit is also standards-aware, dramatically increasing the value of this collaboration tool. Now, every time a file is packaged for distribution, eTransmit automatically includes the DWS standards file associated with the drawing. With this capability, everyone on the entire design team can operate using a single standard.

File Navigation

File navigation is enhanced with each new release of AutoCAD. AutoCAD 2002 adds the capability to add your own folders to the Standard Folders side bar. Simply drag your most commonly used folders to this bar for added ease of use.

Note that the Internet-integrated features of AutoCAD, including Autodesk® Point A, Buzzsaw.com™, and RedSpark™, can be placed on this bar as well. These are described further below.



Updated DWF Format

The concept of an ePlot, a plot-ready large-format document, was introduced with AutoCAD 2000 to establish a standard in the design and engineering markets that is analogous to PDF in document publishing. ePlot provides a mechanism by which design information can be exchanged in a lightweight web-friendly, portable, secure, precise format. ePlots are created through the AutoCAD hardcopy pipeline and are stored in a DWF (drawing web format) file. The DWF file is then reviewable and printable through Autodesk's Volo™ viewing products. DWF is the best format for exchange of design information among team members via the Internet. It makes work easier for each person that currently reviews, marks up, or queries design information.

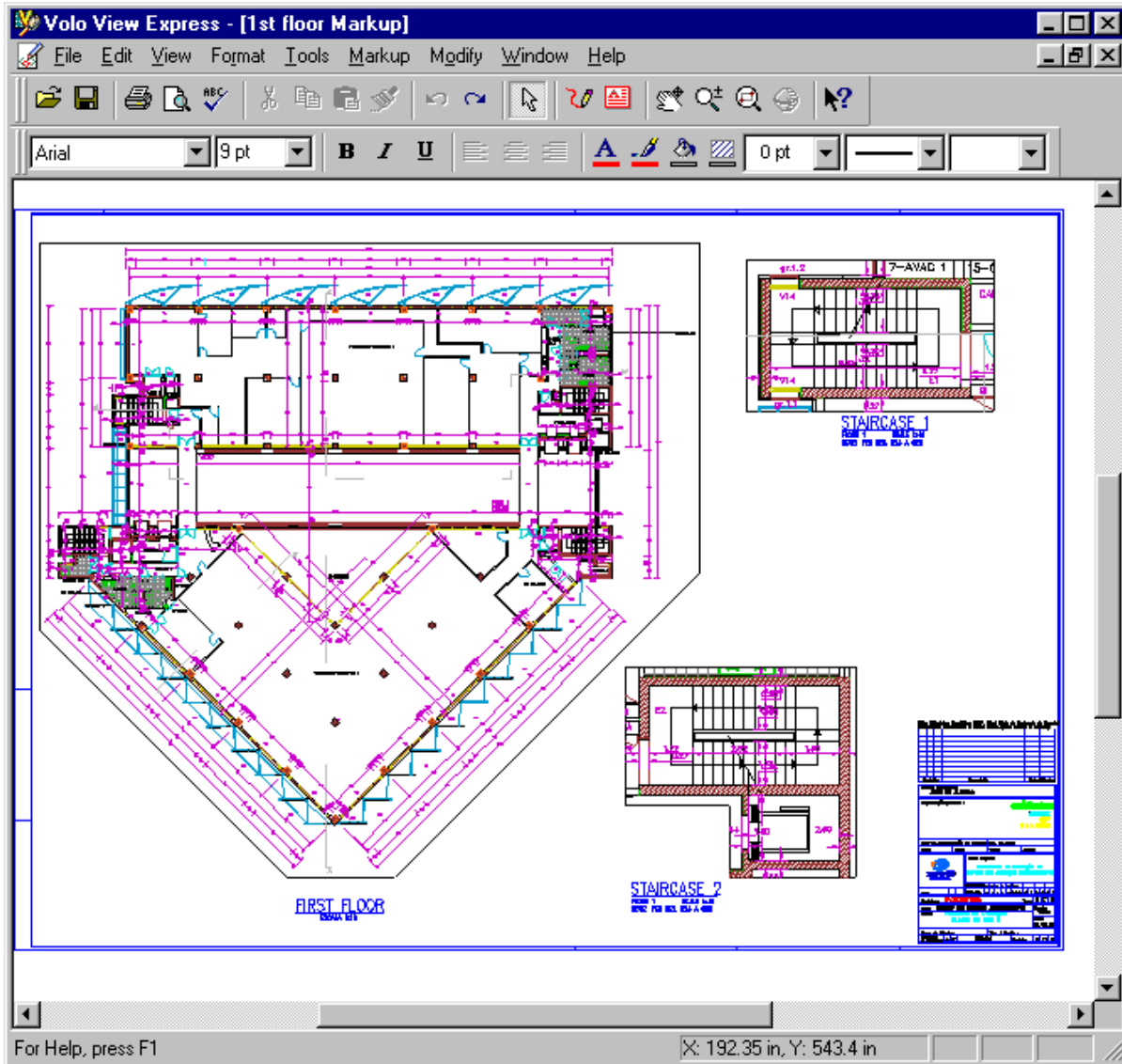
In AutoCAD 2002, the ePlot driver has been updated to create DWF files with a higher level of detail. Using the Volo products, these new DWF files can be printed with the same level of visual resolution as an AutoCAD 2002 plot of the original DWG file. These improvements include

- Optimized for plotting ePlot driver model
- Optimized for viewing eView driver model
- Support of merge control, iso linetypes, and fill patterns
- Control over color depth of DWF output
- Support of true color plot styles
- Greater control over raster output
- More efficient storage of raster data (PNG and Group 4 TIFF)
- File size and tessellation optimization improvements

Volo View and Volo View Express

With the Autodesk companion product Volo™ View, you can open, view, mark up, print, and plot AutoCAD drawings. Whether your data is on a network or on the Web, you can use Volo View without installing AutoCAD. You can also view Autodesk Inventor™, Mechanical Desktop 4, and AutoCAD Architectural Desktop™ files with the help of object enablers downloaded from the Autodesk website. By making drawings available to all members of the design team, Volo View improves communication, streamlines the design process, and shortens the project cycle.

The free viewer Volo™ View Express is included in AutoCAD 2002 to allow for viewing of the new DWF formats produced by the Publish to Web feature and through ePlot.



DesignXML

DesignXML delivers on the first phase of Autodesk's comprehensive strategy for representing DWG drawing data in XML channels. XML is the lingua franca of data communication on the Internet, and DesignXML provides the ability to fully represent both graphical and nongraphical data in an open, published XML schema. The first DesignXML channel, AcDbXML fully describes DWG file content and supports complete roundtripping of DWG data with no degradation.

To touch on a few of the benefits of XML:

- XML is a meta-markup language specifically designed for the Internet, allowing authors to define markup languages for particular languages or domains, in our case design. Unlike HTML which has a fixed set of defined tags, XML allows for new tag definitions.
- XML is a human-readable hierarchical format and is supported (and is to be supported) by a number of editors, parsers, browsers, and other applications.
- XML leverages many of the benefits of its predecessors (HTML) including cascading style sheets and URLs.

- XML has been described as “portable data” in the same way Java can be considered “portable code.”

DesignXML is also the name of the schema for representing AutoCAD data in XML. A schema can be thought of as a publicly available dictionary—any application that queries or consumes data contained in a DesignXML document would simply visit the repository site to obtain the definition of the tags contained in the designXML document.

DesignXML is useful in a number of ways. It can be considered as a “web aware” replacement for DXF. Probably the biggest benefits that an XML schema such as DesignXML has over a niche format such as DXF are openness and widespread support. The definition of DesignXML (how lines, arcs, text, and other DWG entities are represented in XML) is published on the Web, accessible to anyone. XML is easily parseable and searchable, allowing an application to quickly go to and extract the specific piece of information that it needs, without having necessarily to push the entire file around the network.

There are many tools that work with XML, and many more programmers are familiar with XML than are familiar with DXF. Even hardware vendors are developing XML-specific products. Intel, for example, has developed a series of XML accelerators that intelligently classify, route, and cache XML data streams.

The DesignXML feature in AutoCAD does not have a graphical user interface. The feature is accessed via two command-line options:

- Wblock exports entire drawings or selected objects to DesignXML files.
- Insert imports DesignXML files into current DWG drawings.

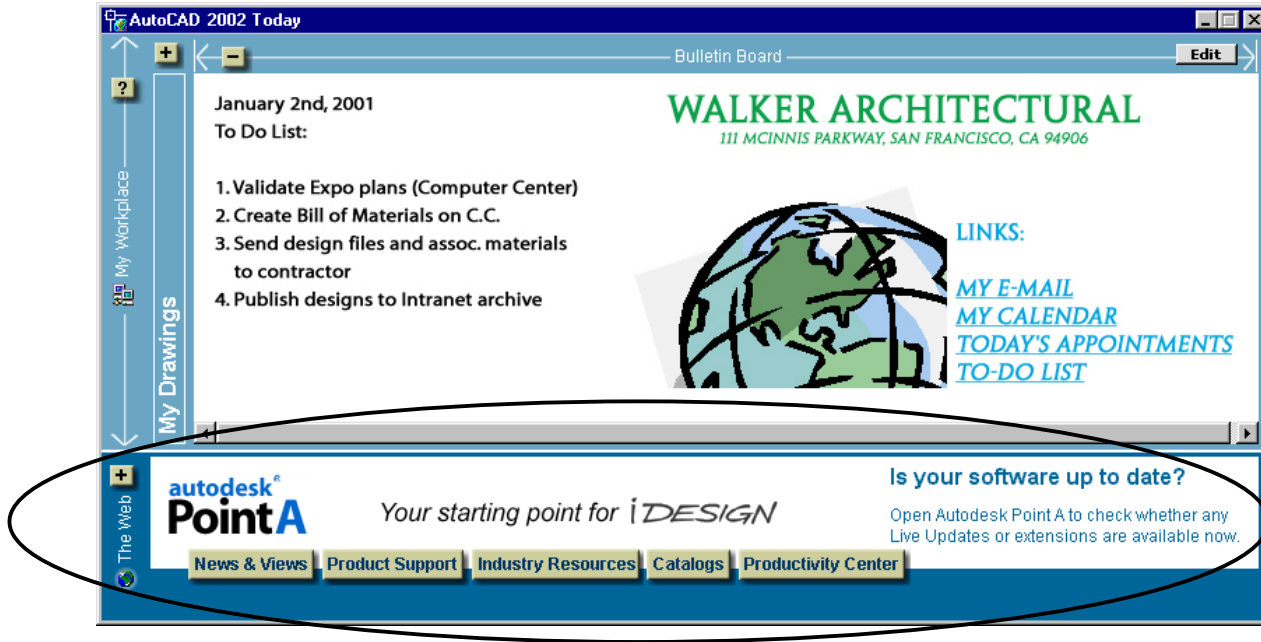
Autodesk Point A

Autodesk® Point A is an industry-focused portal that saves you time locating design resources and helps you stay connected with your professional colleagues. Point A is your starting point on the Internet for

- Industry news, links, and resources
- Searchable databases of parts, materials, and symbols
- Project-hosting services that help design teams to collaborate more efficiently
- Hosted software applications
- Support documents, product tips, discussion groups, online training, books, and other resources to help you get the most out of your Autodesk software



You can access these resources directly from within the AutoCAD Today window and an Internet connection. Research design issues, examine standards, ask questions, and get training—all without ever leaving AutoCAD.



Autodesk Point A also offers simple Internet storage services for a low monthly fee. Through the AutoCAD file navigation dialog box, you can open, save, and share files with your team members in a secure manner, no matter where they are in the world.

Buzzsaw.com

When you are ready to move beyond simple storage to full project hosting, Buzzsaw.com is your one-stop shop. Buzzsaw.com (an Autodesk Venture) is a secure, centralized online workspace for everyone in the building design and construction industry. AutoCAD 2002 allows integration with Buzzsaw.com's online project collaboration and print management services. For example, you can directly access, open, and save files and data that are hosted on Buzzsaw.com from within the File Navigation dialog. And you can publish print-ready documents directly to your local reprographer using AutoCAD 2002 and the Publish to Plans & Specs™ application included on the AutoCAD 2002 CD.



ProjectPoint is an online application that allows you to send, share, update, track, and archive project drawings and documents, all in one secure location. Its features include

- Xref management
- Version control
- Full history of revisions by author
- Advanced permissions at project, folder, and document level
- User control/self administration
- Security using SSL and data backups
- Easy to learn and use
- Flexibility—works within existing business processes

Use ProjectPoint to connect your entire project team throughout the design, construction, and property management process. ProjectPoint streamlines workflow and improves team communication, enabling members to save time, work smarter, and increase profitability. To access your drawings in ProjectPoint, just use the File Open and Save commands in AutoCAD.

The Plans & Specs™ system is a digital plan room for managing print-ready construction documents. It saves you time by improving workflow from your desktop to the print room, maintaining high print fidelity through the life of the document. You can easily transmit, arrange, and order your print sets all online. The system consists of two parts:

- Plans & Specs Server is a software application used by reprographers to manage print-ready files locally for their customers in individual secure “vaults.”
- Plans & Specs is an online application that allows you to access, view, and manage documents as well as order prints online.

Ask if your reprographer is using Plans & Specs. The system works in a very simple way:

- Publish drawings to a Plans & Specs vault from AutoCAD.
- View and manage print-ready files using your browser.
- Place online print orders to be delivered by your reprographer.

Send print-ready documents directly to your local reprographer from AutoCAD 2002 using the Publish to Plans & Specs feature.

Buzzsaw.com offers a full suite of services to meet the needs of your whole project team. In addition to ProjectPoint and Plans & Specs, Buzzsaw.com offers solutions to manage your construction documents, your material quotes, and your bidding process online.

It's easy to use and all you need is a PC with an Internet connection to get started. Go to www.buzzsaw.com for more information.

RedSpark

AutoCAD 2002 is designed to work in conjunction with RedSpark. Serving as a platform technology, AutoCAD and all AutoCAD-based products act as a gateway to the RedSpark design and marketplace. You can access the RedSpark website directly from the AutoCAD environment.



RedSpark's suite of applications and e-commerce services help accelerate direct materials sourcing and collaborative engineering for manufacturers and significantly speed up time-to-market. RedSpark enables design engineers and purchasing and supply chain managers to work closely with their manufacturing partners, improving efficiency at every stage of new product development.

The Problem—Trends such as mass customization and global competitiveness are radically reshaping the manufacturing industry. Manufacturers are increasingly focusing on their strengths and relying on a network of manufacturing and sourcing partners to speed up their product development cycles.

The manufacturing process is plagued with inefficient communications. Current practices in the procurement of direct materials rely on a combination of phone, fax, postal, and electronic mail communications in a very linear fashion to consummate a transaction.

Due to the highly iterative nature of the design process between manufacturer and supplier, cycle times suffer from the lack of collaboration tools. This iterative process leads to an enormous waste of time, money, and effort for buyers and suppliers.

Autodesk's manufacturing customers estimate that they spend 23.5 hours per week at their design (CAD) application. The rest of the time is spent on the laborious task of finding suppliers, sourcing products, and ongoing collaboration. Manufacturers admit that sourcing is a hit-or-miss process and finding suppliers is generally coincidental.

RedSpark's Solution—The Internet provides a perfect platform for a fresh approach to this problem, one that is inclusive of all of the internal (design and purchasing) and external (fabricators and suppliers) members of the supply chain.

RedSpark serves as a Vertical Service Provider (VSP) for manufacturing companies of all sizes on both sides of the supply chain—the buy and the supply sides. RedSpark uses a new model, one based on collaboration, integration, and open access, fully integrated with desktop design products.

RedSpark focuses on helping companies accelerate direct material sourcing and engineering collaboration for both custom and catalog components. Its comprehensive web-based suite of applications enables manufacturers to deeply integrate their direct material suppliers as well as their customers in the early engineering and sourcing process to speed up time to market for new products. RedSpark provides hosted applications that are secure, scalable, and available around the clock.

RedSpark offers you solutions to enable fast communication and real-time collaboration between engineering, supplier management, and direct material suppliers worldwide. Streamlining these processes gives manufacturers a tremendous competitive edge by accelerating time to market for new products. RedSpark has set out to help companies source, refine, and prototype the product under development, thereby accelerating the transition from engineering to volume production.

Managing Your Corporate Drawing Standards

As design professionals, you live in a world where project collaboration and data sharing is increasing dramatically. Driven by the globalization of business, the requirements of fast-track projects dictate that data is shared between individuals and offices within an organization, and between organizations themselves. Without the implementation of standards, this round-tripping of design data can result in errors that are costly and time-consuming to fix.

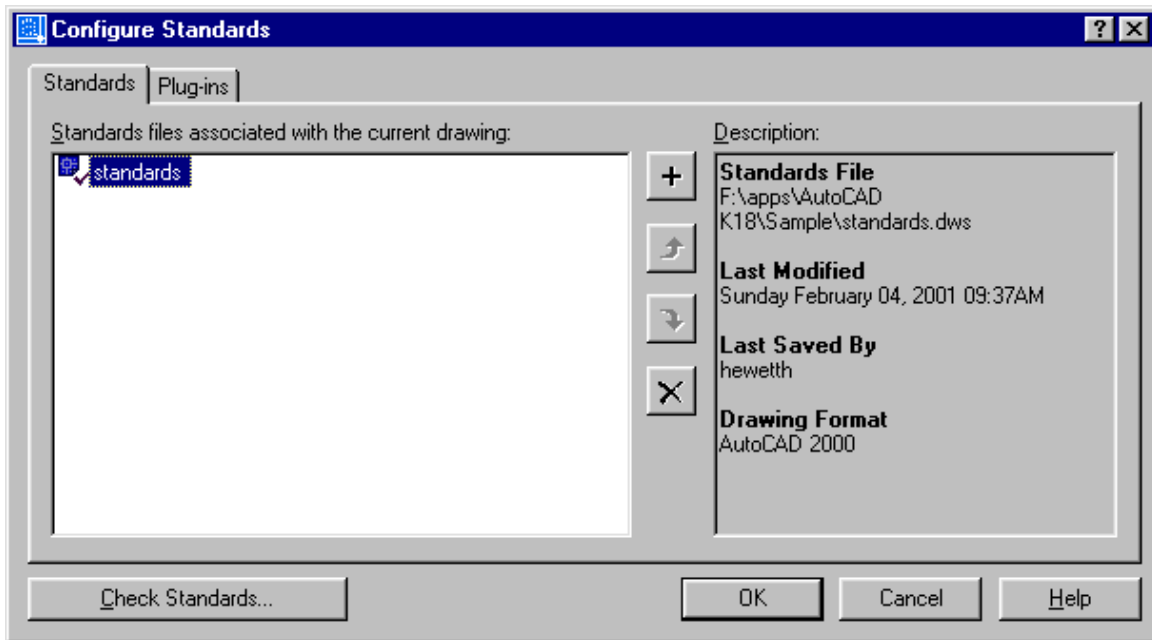
One of the primary tasks of CAD managers is to set up standards and administer them. Our survey of over 300 CAD managers revealed that more than 90 percent of them use standards and 80 percent consider standards to be important or very important. Most of those who use standards indicated that administration was laborious, either because of a lack of tools or because of the difficulty in maintaining tools developed in-house.

The CAD Standards feature gives CAD managers a robust set of tools to check and enforce standards compliance, resulting in better coordinated teams, a more efficient and effective design process, and a higher return-on-investment in design tools. It provides a way to associate standards (DWS) files with AutoCAD drawings, and perform interactive and batch audits to ensure that any discrepancies between a drawing file and its associated standards can be resolved.

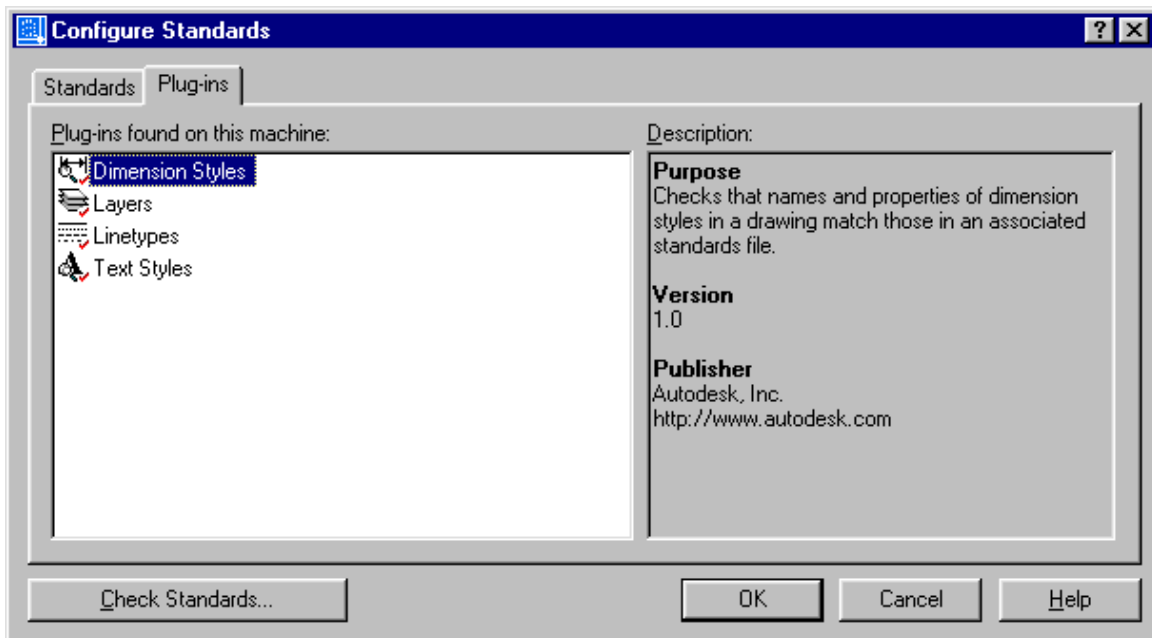
The Standards Manager

The Standards Manager is used to associate standards with the current AutoCAD drawing, as well as administer plug-ins.

The Standards tab displays all standards files that are associated with the current drawing. As individual standards are selected from the list control, the Description is refreshed with summary information that is pertinent to the selected standard. Standards can be added, removed, and reprioritized.



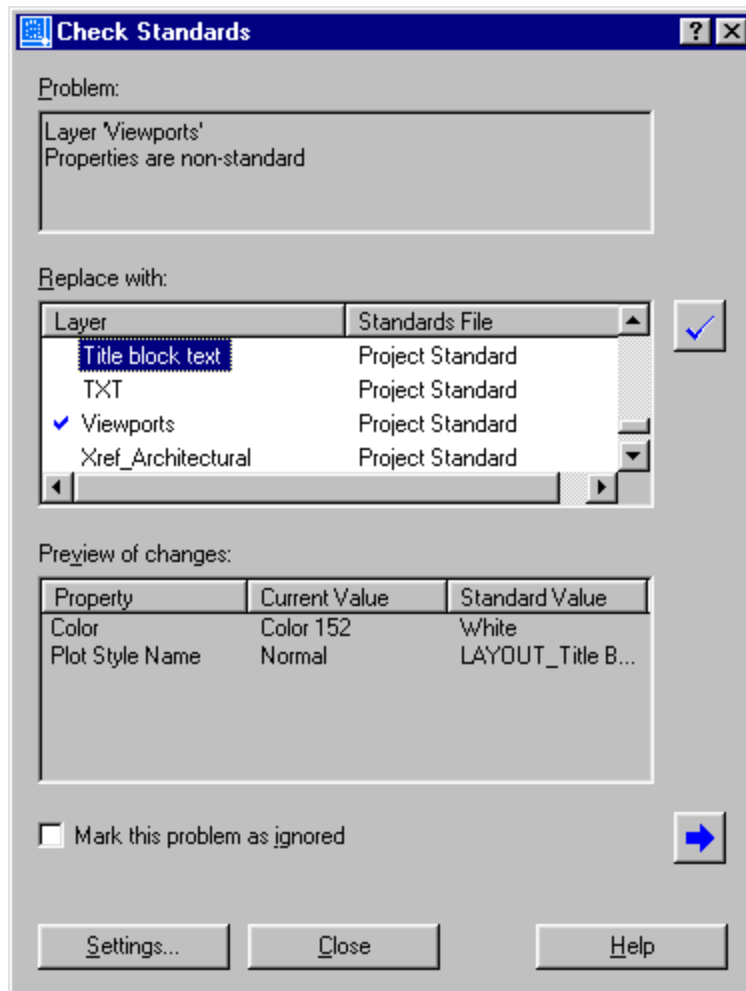
The Plug-ins tab lists all the standards plug-ins that are present on the current system, and provides summary information about individual plug-ins.



Interactive Auditing

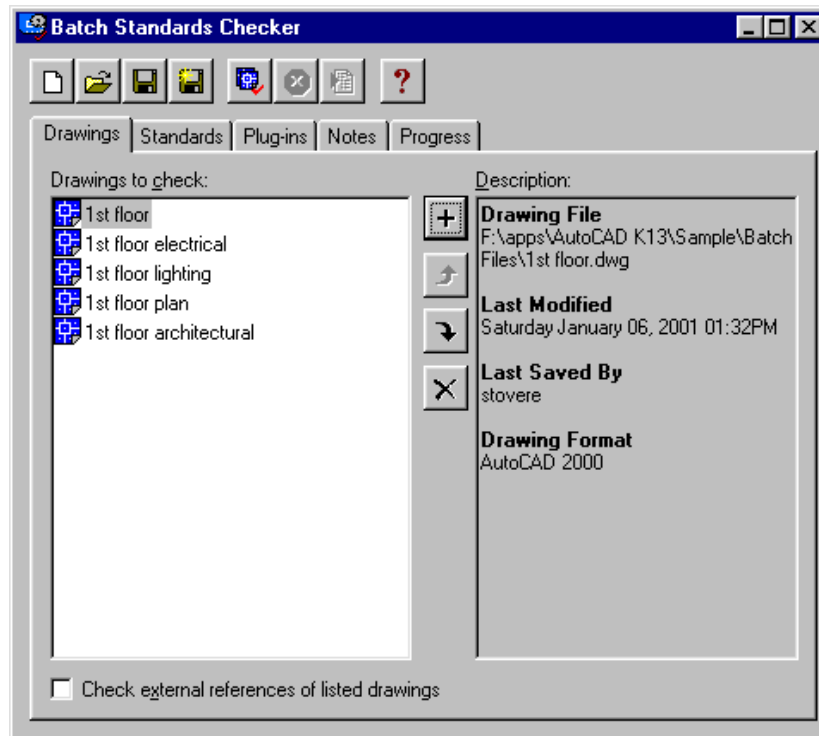
Analogous to a spell checker in a word processor, the standards interactive audit checks the active drawing against the associated standards, reports on any discrepancies, and suggests appropriate resolutions.

You can either accept the proposed resolution or manually fix the problem in AutoCAD, without interrupting the audit process. Problems can also be ignored (appropriate in the case of construction geometry, for instance). Previously ignored problems may be reported in subsequent audits, depending on a user setting.

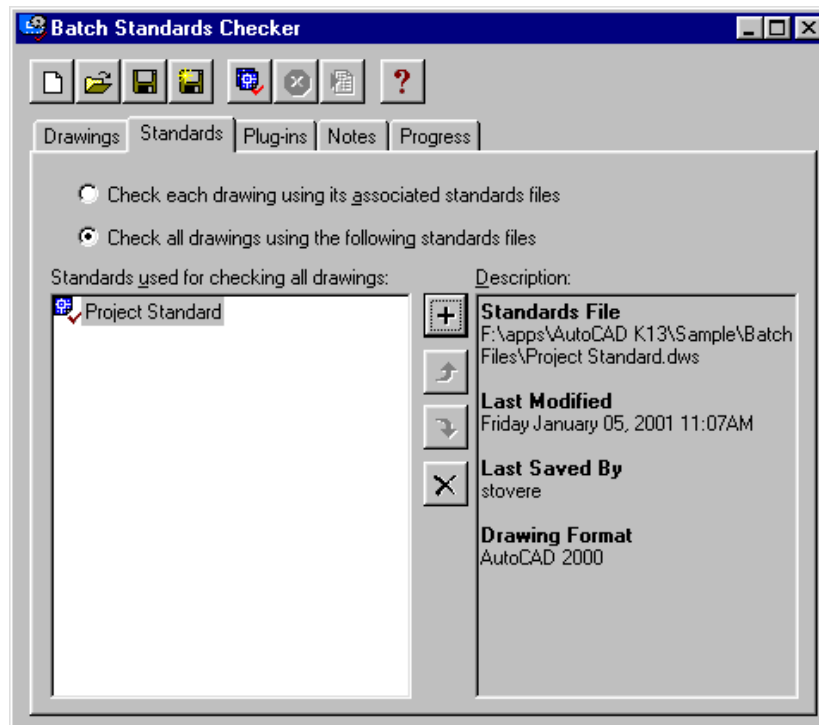


Batch Auditing

The Batch Standards Checker performs batch audits on multiple drawings and generates an XML-based, browser-viewable report of standards violations.



Individual drawings can be checked against their associated standards files, or a set of drawings can be checked against a set of global standards. Multiple batch audit configurations can be saved in an external configuration file, and reused later.



An operating system command-line version of this tool can be used for scheduling batch standards checks or used in server environments.

Summary Report Information

The report file is automatically displayed as soon as the batch standards checker completes a batch audit, or by choosing the View Report button from the batch standards checker after running a batch audit during an AutoCAD session. The report file is also viewable by double-clicking it from the Windows Explorer.

STANDARDS AUDIT REPORT											
Overview											
<p>Created by: jbeltran</p> <p>Created on: 06/30/2000 11:21:49 AM</p>											
<p>Show:</p> <p><input checked="" type="radio"/> Overview</p> <p><input type="radio"/> Plug-ins</p> <p><input type="radio"/> Standards</p> <p><input type="radio"/> Problems</p> <p><input type="radio"/> Ignored Problems</p> <p>For:</p> <p><input checked="" type="checkbox"/> auditme.dwg</p>	<p>Summary:</p> <table border="1"> <thead> <tr> <th>Drawing</th> <th>Problems</th> <th>Ignored problems</th> </tr> </thead> <tbody> <tr> <td>auditme.dwg</td> <td>3</td> <td>2</td> </tr> <tr> <td>Totals</td> <td>3</td> <td>2</td> </tr> </tbody> </table> <p>Drawings audited:</p>		Drawing	Problems	Ignored problems	auditme.dwg	3	2	Totals	3	2
Drawing	Problems	Ignored problems									
auditme.dwg	3	2									
Totals	3	2									

Selecting the Ignored Problems button filters the report so that it displays a summary of the standards violations found for each drawing.

Problems

auditme.dwg

The following problems were encountered in this drawing file:

DimStyle plugin			
Bob	Non-standard name		
Layer plugin			
Bob	Non-standard name		
CheckMe	Property	Currently Is	Should Be
	Layer color	7	1
	Layer Linetypes	Continuous	Continuous
	Layer PlotStyleName	Color_7	Color_1

Licensing

Globetrotter FLEXlm Network License Support

Over 500 large software customer sites (sites buying over \$500,000 a year in third-party software) have licensed SAMSuite™, GLOBEtrotter's software asset management product.

Over \$40 billion of installed third-party software uses GLOBEtrotter's NLM technology FLEXlm™. This is by far the most widely used technology for electronic licensing and electronic software distribution.

Over 2000 software publishers use FLEXlm, far more than any other license manager. FLEXlm has been integrated into over 20,000 products, far more than any other license manager.

Flexible License Models

A 10-person architecture shop bids on and wins a contract to do design work on a project basis from a large architectural firm. As part of this project, the smaller shop must hire five drafters on a six-month basis to complete the work. Not surprisingly, the shop does not have five additional licenses of AutoCAD on hand to equip the drafters with the necessary software tools.

This business is faced with a tough choice. It may either make an up-front capital investment in five seats of AutoCAD (for accounting and tax purposes, this creates a great deal more administrative effort for the small organization)—an investment that may or may not be covered by revenues from the project—or it can pirate five seats of AutoCAD and no one is the wiser.

The objective here is twofold: provide an easier way to acquire AutoCAD on a term basis and simultaneously address "soft piracy," the illegal use of software by those who would rather be legal if the purchasing model and pricing schedule supported it.

In a term-based licensing scenario, the small firm would rent five seats of AutoCAD for the necessary amount of time at a cost less than buying five seats outright. Because these licenses are a rental and not a purchase, they are not considered a capital investment, but revenue expenditure. Also, because these licenses are associated with a specific project, the firm can bill these seats to the project—and as any smart service organization would—mark them up 10–15 percent.

Rental products could be ordered, shipped, inventoried, and resold in the same way that current, boxed products are distributed. In this system, each rental product would have a serial number assigned at the time of production which would be linked in the registration database to its proper rental period—30, 60, or 90 days. Upon purchase of a rental product, you simply install the software, follow the normal registration procedure, and receive an authorization code for the proper rental period. The rental period begins at the date of registration.

Deployment and Integration

The Windows Environment—AutoCAD 2002 is built for the Microsoft® Windows® desktop environment, including Windows 98, Windows NT® 4.0, Windows 2000, and Windows ME. Windows 95 is no longer supported with the release of AutoCAD 2002.

The DWG File Format—The AutoCAD DWG format remains unchanged from AutoCAD 2000 and AutoCAD 2000i. By not changing the DWG format, Autodesk guarantees 100 percent file compatibility and protects your investment in AutoCAD files already in production.

Compatibility with Scripts and Custom Applications—AutoCAD 2002 is backward-compatible with applications and scripts written for AutoCAD 2000/2000i. All ARX and LISP routines currently running on AutoCAD 2000/2000i will continue to run on AutoCAD 2002, preserving your existing application and configuration investments.

Elimination of the Hardware Lock—C'Dilla Soft Locking technology will be used in localities and applications where a hardware lock had been used in the past. This substantially increases reliability, portability, and flexibility compared to the use of hardware locks.

autodesk®

Autodesk, Inc.
111 McInnis Parkway
San Rafael, CA 94903
USA

Autodesk, AutoCAD, AutoCAD Map, ObjectARX, Heidi, and 3D Studio VIZ are registered trademarks, and i-drop, Visual LISP, AutoCAD DesignCenter, AutoSnap, AutoTrack, ObjectDBX, DXF, AutoCAD Learning Assistance, Volo, and AutoCAD Architectural Desktop are trademarks, of Autodesk, Inc., in the USA and other countries. All other brand names, product names, or trademarks belong to their respective holders.

© Copyright 2001 Autodesk, Inc. All rights reserved.