



AUTODESK UNIVERSITY 2006

Realize Your Ideas

Nov 28 - Dec 1 The Venetian Hotel Las Vegas, USA



Autodesk

Designing a Website to Host AutoCAD® Content

David Cohn

CD25-1 If you want a highly practical introduction to web publishing that will focus on AutoCAD-based content, this class is for you. Learn all about the tools available to you for web-enabling AutoCAD drawings. You'll see how to add and manage hyperlinks in AutoCAD drawings, save drawings as design web format (DWF) files, create i-drop content, and incorporate it all into custom-designed web pages. This class includes actual HTML coding and practical real-world examples.

About the Speaker:

David has more than 20 years of hands-on experience with AutoCAD as a user, developer, author, and consultant. He is an application engineer with The PPI Group, a contributing editor to *Desktop Engineering* magazine, the former publisher and editor-in-chief of *CADCAMNet* and *Engineering Automation Report*, the former senior editor of *CADalyst* magazine, and the author of more than a dozen books on AutoCAD. A licensed architect, David was also one of the earliest AutoCAD third-party software developers, creating numerous AutoCAD add-on programs. As an industry consultant, David has worked with many companies including Autodesk. He teaches college-level AutoCAD courses and is always a popular presenter at both Autodesk University and AUGI CAD Camps.

david@dscohn.com

Introduction

There are many reasons why people want to make AutoCAD content available on the web. For example, you may want to show off your work, provide a website for collaborating with others, make drawings available as part of an online RFQ, or create an online catalog of standard components.

In order to create a website to host AutoCAD-based content, you need to understand how to prepare this content within AutoCAD and also how to create the code for the website so that the content displays and behaves properly.

In this class, we will look at:

- How AutoCAD interfaces with the Web (including how to create hyperlinks within AutoCAD drawings)
- How to create single- and multi-sheet DWF files
- How to create web pages that incorporate DWF files
- How to use i-drop

How AutoCAD Interfaces with the Web

The following Web-enabled capabilities are built directly into AutoCAD:

- Launching your web browser from within AutoCAD
- Opening and saving drawing files over the Internet
- Adding hyperlinks to objects in a drawing (and subsequently using those hyperlinks to open other documents)
- Inserting content (blocks, xrefs, etc.) from files located on the Internet
- Creating and publishing DWF files

In addition, Autodesk has developed several additional components and technologies, including:

- **Autodesk DWF™ Viewer** Enables viewing and printing of 2D and 3D models and drawings saved in DWF format, including multi-sheet DWF files. Price: FREE.
- **Autodesk® Design Review** Enables viewing, markup, measuring, printing, and plotting of DWG and DWF files, including 3D DWF. Can round-trip DWF markup files with AutoCAD 2005+. Price: \$199.
- **i-drop®** Enables web content creators to add the ability to drag-and-drop design content from a Web page directly into your designs. i-drop works with all versions of AutoCAD and AutoCAD LT beginning with 2000i and all applications based on those platforms (such as Architectural Desktop and Mechanical Desktop) as well as 3D Studio VIZ and Autodesk Inventor. For AutoCAD users, you can drag-and-drop drawing files as blocks into an open AutoCAD drawing. You cannot use i-drop to open a drawing file from a Web site nor can you insert a drawing file containing external references.

Opening and Saving Files from the Internet

You can use AutoCAD to open and save files across the Internet. All of AutoCAD's file commands—such as OPEN, SAVE, INSERT, and XREF—recognize any valid URL path to an AutoCAD file the same as if the file were located on your own computer or LAN.

When you open a drawing file across the Internet, the file is downloaded and then opened in AutoCAD. You can then edit the drawing and save it either locally or to any location on the Internet at which you have adequate permission to save files. If you know the URL of the file you want to open, you can type it in the File Name box in the Select File dialog box. If you've previously stored files on Buzzsaw®, Autodesk's online project management and collaboration service, you can select those locations directly in the Select File dialog box and then select the file you want to open.

If you don't know the URL, you can use the Search the Web button in the Select File dialog box to launch the Browse the Web dialog box. This dialog box, actually a mini-version of Microsoft Internet Explorer, enables you to navigate to a specific Internet location and then open the drawing file once you locate it on the Internet.

Tip: You can also use your web browser to locate the URL of a drawing that you want to open, and then use cut-and-paste to copy the URL from your browser's address bar into the dialog box.

When opening or saving a drawing file on the Internet, you must specify the transfer protocol (such as HTTP:// or FTP://) and the extension (such as .DWG or .DWT) of the file. To save a file, you must also have the necessary permission to write to the specific Internet location.

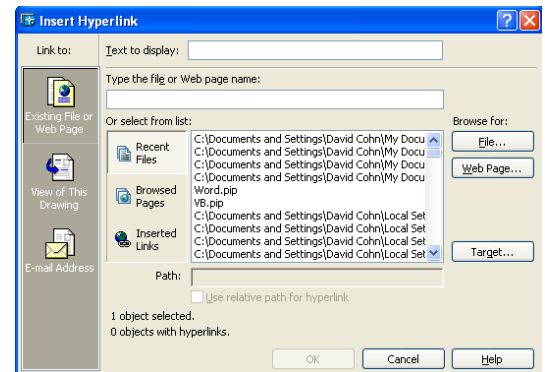
Working with Hyperlinks

A *hyperlink* is a pointer to another document. When you click a hyperlink, you jump to and display the linked document. You can attach a hyperlink to any object in your AutoCAD drawing. You can then use that hyperlink to jump to any associated file directly from within AutoCAD. For example, you could create a hyperlink to an Excel spreadsheet that opens Excel and loads the spreadsheet file. You can also create hyperlinks that open other AutoCAD drawings. When you create the hyperlink, in addition to specifying the URL of the file you want to open, you can specify a named location to display within the file when you jump to that file. When linking to an HTML file, the named location can be a bookmark within that file. When you create a hyperlink to an AutoCAD drawing, however, you can specify a particular named view within that drawing. The ability to insert hyperlinks into your drawings provides a powerful way to associate different types of documents—such as other drawings, bills of materials, and project manuals—with an AutoCAD drawing.

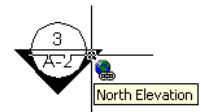
When you create hyperlinks, those links can be *absolute* or *relative* links. An absolute link specifies the complete URL path to a file location (such as D:\MYDRAWINGS\DRAWING1.DWG). A relative link, however, stores only a partial path to a file location, relative to the location of the current file or to the default base location (such as DRAWING1.DWG). Although absolute hyperlinks may work well, they present some significant limitations. Because the path to the linked file is absolutely defined, if you subsequently move the files referenced by the links, the links become broken and you will need to edit the links to reestablish the connections. If the drawing contains many links, this can be a time-consuming process. By creating relative hyperlinks, you can update the relative paths for all the hyperlinks in your drawing at one time.

You create and modify hyperlinks by using the Insert Hyperlink dialog box.

When you start the command, AutoCAD prompts you to select objects. Select the object or objects to which you want to attach the hyperlink, and then press ENTER. AutoCAD then displays the Insert Hyperlink dialog box. You can use the controls in this dialog box to create a link to a file, a web page, or a view of the drawing, or you can create a link that will send an email to a specified recipient. You can also specify a named location within the linked file, such as a bookmark in an HTML file, or a named view in an AutoCAD drawing. In the Text to Display box, you can type a description for the hyperlink. This field is useful when the URL isn't particularly helpful in identifying the linked file.



Hyperlinks can point to files located on your computer, on another computer on your local area network (LAN), or anywhere on the Internet. After you create a hyperlink, AutoCAD displays a special hyperlink icon adjacent to the crosshairs whenever you move the cursor over an object that has an attached hyperlink. If you included a description, the text you enter also appears in a ToolTip; otherwise, AutoCAD displays the actual URL in the ToolTip.



Whenever AutoCAD displays the hyperlink icon, you can click the object, right-click to display the shortcut menu, and choose Hyperlink. You can then use the Hyperlink shortcut menu to do any of the following:

- Open the hyperlink
- Copy the hyperlink to the Windows Clipboard
- Add the hyperlink to your Favorites folder
- Edit the hyperlink in the Insert Hyperlink dialog box

Note: The display of the hyperlink icon and ToolTip is controlled by the settings under Hyperlink on the User Preferences tab of the Options dialog box. In addition, the noun/verb selection mode must be enabled. If you turn off the hyperlink cursor, the Hyperlink shortcut menu becomes unavailable and you will be unable to open files associated with hyperlinks.

When you create a hyperlink to another AutoCAD drawing, jumping to that hyperlink automatically opens the linked drawing in AutoCAD. If the link includes a named view, AutoCAD opens the drawing and displays the named view. Views that were created in model space are restored in the Model tab; views that were created in paper space are restored in the last active layout tab.

Tip: *If you create a link to a drawing template (a DWT file) instead of an actual drawing file, when you jump to that link, AutoCAD creates a new drawing based on the template. This is a useful way to create a standard set of drawings based on a standardized drawing template.*

If you jump to a link to any other type of file, your computer will start the program associated with the file type and then load the linked file. For example, if you jump to a linked Word document, your computer will launch Microsoft Word and open the specified file.

To create a hyperlink to another file:

1. Start the HYPERLINK command.
2. Select one or more objects to which you want to attach the hyperlink, and then press ENTER.
3. In the Insert Hyperlink dialog box, do one of the following:
 - In the Type The File Or Web Page Name box, type the path and name of the file that you want to associate with the hyperlink.
 - Click File to display the Browse the Web – Select Hyperlink dialog box. Navigate to the file that you want to associate with the hyperlink, and then click Open.
4. If you are creating a link to an AutoCAD drawing, you can click Target to display the Select Place in Document dialog box in order to link to a named view in the drawing, if desired.
5. In the Text to display box, specify a description for the hyperlink, if desired.
6. Click OK.

Once you have attached a hyperlink to an object in a drawing, you can edit that link using the Edit Hyperlink dialog box, a dialog box virtually identical to the one you used to create the link. To edit a hyperlink:

1. Start the HYPERLINK command.
2. Select the object to which the hyperlink is attached, and then press ENTER.
3. In the Edit Hyperlink dialog box, make any desired changes to the hyperlink, and then click OK.

Tip: *Hyperlinks can also be saved with blocks and with objects nested within blocks. Relative hyperlinks within blocks assume the relative base path of the drawing in which they are inserted. If you insert a block containing objects that already have associated hyperlinks, and then attach a hyperlink to that block, when you select an object within the block, you can open, copy, add to favorites, or edit the hyperlink associated with the block and also open the hyperlink associated with the selected object within the block.*

AutoCAD also includes three Express Tools for working with URLs:

- **SHOWURLS** displays all URLs contained in a drawing
- **CHURLS** lets you easily change the address of a URL previously placed in a drawing
- **REPURLS** finds and replaces URL addresses with a new address

Creating DWF Files

After you complete the drawing and attach any hyperlinks that you want to include in the DWF file, you're ready to create the DWF file. There are three different methods for creating DWF files:

- **Using the PUBLISH command:** The PUBLISH command enables you to create an electronic drawing set consisting of one or more sheets saved in a single DWF file.
- **Using the PLOT command:** As in previous versions of AutoCAD, you can create a DWF file by plotting your drawing using a DWF plotter configuration. When you create a DWF file in this way, AutoCAD produces a DWF file containing a single sheet, even if you use a configuration based on the DWF6 plot driver.

- **Using the EXPORT command:** The EXPORT command in AutoCAD 2007 enables you to create a 3D DWF file. (In AutoCAD 2006, you can use the 3DPUBLISH command to create a 3D DWF file.)

To publish a electronic drawing set:

1. Start the PUBLISH command.
2. In the Publish dialog box, adjust the Sheets to Publish list as necessary to add, remove, or reorder the sheets to be plotted.
3. Under Publish to, select DWF File
4. Click Publish Options and use the controls in this dialog box to specify where to save the DWF file, whether the file is to be a single-sheet or multi-sheet DWF file, whether to prompt for the name of the DWF file, whether to password protect the DWF file, and whether layer and block information should be included. Click OK when finished. (Note that if you password protect the DWF file, the recipient will need to enter this password in order to be able to open the DWF file. Passwords are case-sensitive and can consist of letters, numbers, punctuation, and non-ASCII characters. If you lose or forget the password, it cannot be recovered.)
5. Click Publish to start the electronic drawing set creation. When the DWF file has been created, AutoCAD informs you using the Plot and Publish status bar icon and alert balloon.

Note: *If you added sheets to the list of drawing sheets and have not yet saved the list, AutoCAD asks if you want to save the current list of sheets. If you save the list (as a DSD—Drawing Set Description—file), you can easily republish the same collection of sheets again later after the drawings have been updated.*

Understanding What Gets Written to a DWF File

A DWF file is truly an electronic version of a plot file. When you plot the DWF file, you specify settings such as paper size, rotation, scale, and pen assignments, just as you do when plotting to any other device. Only those layers that are visible, actually contain data, and set to plot are written to the DWF file. In addition, the DWF file contains all the linetype, lineweight, and color settings in effect when you plot the drawing to create the DWF file. Once the DWF file is created, you can use the tools contained in any of Autodesk's DWF viewers to display a particular sheet, turn selected layers on and off, and pan and zoom to limit what is displayed, just as with an AutoCAD drawing. You can also snap to geometry in the DWF file just as you can in AutoCAD and take accurate measurements. Any hyperlinks contained in the original drawing are retained and active in the resulting DWF file. External references are also preserved.

Including Raster Images in DWF Files

Raster images are stored in the DWF file.

Including Named Views in DWF Files

Any named views that are saved in the DWG file when the DWF file is created are saved to the resulting DWF file and can be restored using any of Autodesk's DWF viewers. For convenience, a view named INITIAL, if not already defined in the drawing file, is also saved as part of the DWF file. The INITIAL view corresponds to the current view of the drawing at the time the DWF file was created.

Including Layers and Blocks in DWF Files

Any layers that are visible in the DWG file when the DWF file is created, except those marked as not to be plotted, can be saved to the resulting DWF file. The DWF file also contains the colors, linetypes, and lineweights as determined by the plot settings when you create the DWF file. You can then use any of Autodesk's DWF viewers to turn these layers on and off individually. Any layers that are not visible in the DWG file when the DWF file is created, however, are not included. Beginning with AutoCAD 2006, individual blocks can also be saved to the resulting DWF file. But even if blocks are not included, all the visible geometry associated with a particular block is saved in the DWF file with the layer on which the block was inserted in the original drawing file. You can, therefore, turn blocks on and off in the DWF file by turning their layer on and off.

Including Fonts in DWF Files

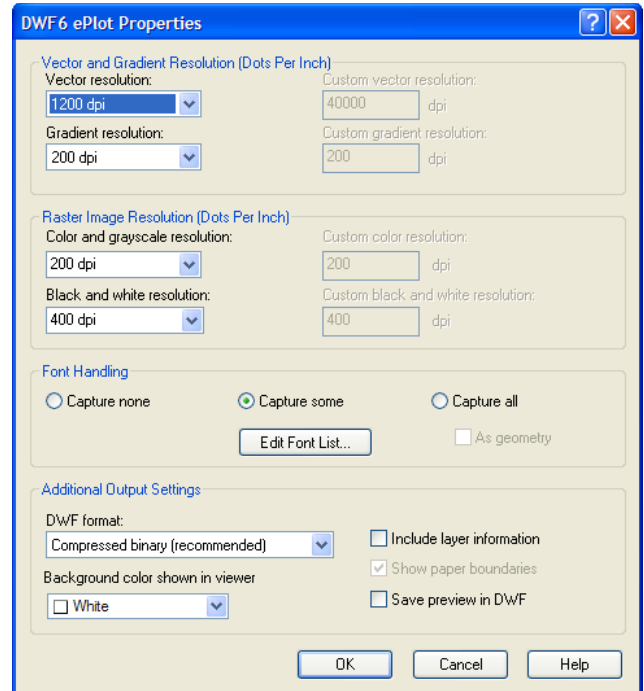
When a drawing file contains text created by using AutoCAD SHX fonts, the font geometry is converted into simple vectors that mimic the appearance of the text in the resulting DWF file. In this way, the user who is viewing the DWF file does not need to have the SHX fonts loaded on their system. When a drawing contains text that is created by using a Windows TrueType font, however, the text and the actual font are recorded to the resulting DWF file. You can then configure the DWF6 ePlot driver to control whether these fonts are included in the resulting DWF file. If not included in the DWF file, then the TrueType font must be available on the system of the user who is viewing the DWF file or else the text may not appear properly.

Controlling DWF Properties

You can control many of the properties of DWF files—such as the resolution, format, background color, and inclusion of layer information—by changing the DWF plotter configuration.

Note: *If you make changes while the PLOT command is active, you can apply those changes to the current plot only or save the changes to the DWF plotter configuration file. The PUBLISH command uses a specific plotter configuration—DWG6 ePlot.pc3. Although you can save DWF6 plotter configuration files under other names for use with the PLOT command, no other name will work with the PUBLISH command. Any changes you make to DWG6 ePlot.pc3 will be used whenever you use the PUBLISH command until you change the configuration again.*

All changes to DWF properties are made from the DWF6 ePlot Properties dialog box, which in turn is accessed from the Plotter Configuration Editor. You can display the Plotter Configuration editor for the DWF6 ePlot.pc3 file by either selecting the DWF plotter configuration in the Page Setup or Plot dialog box and then clicking the Properties button, or by opening the plotter configuration using the Plotter Manager.



Controlling the Resolution

You can specify the resolution for vector and raster graphics in the DWF file. Higher resolutions produce more precise DWF files, but at the expense of larger file sizes. The default value for vectors is 1200dpi. You can set separate settings for color and black and white raster images. If you're creating DWF files intended for plotting, select a resolution to match the output of your plotter or printer. High resolutions (over 2400dpi) are for viewing. If you're creating a DWF file of a drawing with a lot of detail, such as a large topographic map, using a higher resolution will enable you to zoom in to view finer detail. Resolutions over 40,000 dpi may produce very large files. As you increase the resolution setting, the speed of printing decreases and memory requirements increase.

Controlling Font Handling

You can control the inclusion and handling of TrueType fonts in DWF files:

- **Capture None** – No fonts are included in the DWF file. In order for fonts to be visible in the resulting DWF file, the fonts must be present on the system on which the DWF file is being viewed. If a particular font used in the DWF file isn't present, another font will be substituted (which can sometimes produce undesired results).
- **Capture Some** – The fonts used in the source drawing for the DWF file that are specified in the Available True Type Fonts dialog box (displayed by clicking the Edit List button) will be included in the DWF and therefore don't need to be available on the DWF viewer's system in order for them to appear in the DWF file.
- **Capture All** – Specifies that all fonts used in the drawing will be included in the DWF file. (Note that if you select this option and also select All as Geometry, the fonts used in the drawing will be included as vector geometry rather than as text.)

Controlling Additional Output Settings

The controls in the lower portion of the DWF Properties dialog box enable you to control the following other DWF properties:

- **DWF Format** DWF files can be saved in one of two possible formats:
 - **Compressed Binary** Produces a compressed binary DWF file, resulting in the smallest DWF file size. This is the default format.
 - **Zipped ASCII encoded 2D stream (advanced)** Produces DWF files in zipped ASCII Encoded 2D Stream (plain text) format. You can use WinZip to unzip the files.
- **Background Color Shown in Viewer** Determines the background color that is applied to the DWF files when they are viewed in the DWF viewer. (Note that DWF files intended for plotting should be configured with a white background color.)
- **Include Layer Information** Determines whether layer information is included in the DWF file. DWF files include all objects on layers that are visible and plotted. If layer information is included, when viewing the resulting DWF file users will be able to turn layers on and off. By default, the DWF6 ePlot.pc3 configuration does **not** include layer information, so that anyone viewing the DWF file will not be able to turn layers on and off.
- **Show Paper Boundaries** Determines whether the paper boundary is visible in DWF files plotted from a layout tab. (Note that for DWF6, this option is always selected.)
- **Save Preview in DWF** Specifies that a preview of the DWF file is saved in the DWF file. (Note that a small thumbnail is always saved and you should only select this option if the recipient of the DWF file will use Buzzsaw.com to access the preview.)

Creating a Website

Now that you understand how to convert the AutoCAD content into the most useful formats for inclusion on your web pages, it's time to look at some of the general issues of web design and then the specifics of creating the HTML codes required to place that AutoCAD content on your website.

Understanding Web Addresses and Protocols

In order to understand how data gets presented on a website, let's first review the parts of a URL. A typical URL might look like the following:

```
http://www.company.com/pages/myfile.dwf?option=value
```

The URL consists of a protocol, a network location, a path, a filename, and perhaps a bookmark and/or one or more options.

HTTP, which stands for HyperText Transfer Protocol, is the most common protocol. If you omit the protocol, your browser assumes HTTP by default.

The network location provides the address of the server. This is a unique name, divided into two or more parts, separated by periods. The network location is often referred to as the *domain name*. Common domain names often, but not always, begin with www. The last part of the domain name identifies the type of server. The domain name is actually an alias for a unique IP address. Every computer on the Internet has its own unique IP address, a code consisting of four groups of numbers separated by periods (such as 27.0.0.1). A special class of servers on the Internet called Domain Name Servers intercept the domain name and convert it into the actual IP address. If you knew the actual IP address for the domain name, you could enter it instead of the domain name.

The path portion of the URL defines the location of the folder or directory on the server that contains the file being requested. The filename identifies the actual name of the file being requested.

The URL can include additional information. For example, in the case of a DWF file, the options can be used to tell the browser how to display the DWF file.

Creating a Successful Website

The key to successful web publishing is paying careful attention to details. Regardless of the type of site you're creating, your goal should be to attract visitors and provide them with useful information. Attention to detail simply means providing good content in a logical, well-organized format, regardless of whether your site has 1 page or 1,000 pages. Each page should have a clean, well-ordered appearance that readily makes sense to the visitor.

There are many excellent books on web design, all of which stress some basic points:

Your website should be designed to achieve some clear purpose. Ask yourself why you want to publish a website. Who is your audience? What should the site accomplish? How should your site be structured? How can the design of your site aid visitors to navigate the site so that the site best achieves its purpose?

In developing your site, make use of the excellent tools that are available for web design, such as Microsoft FrontPage, Allaire Homesite, Adobe GoLive, Macromedia Dreamweaver, and others. Use these tools to design, proof, test, publish, and manage your site.

Publishing DWF on the Internet

When you are ready to publish your DWF files on the Internet, you need to copy them to a web server and then create links so that others will be able to view your work.

You can make the DWF files available in either of two ways:

- Create a link to the DWF file from an HTML document
- Embed the DWF file in the HTML document

You can also embed DWF files in other Microsoft Office applications.

Linking DWF Files to an HTML Document

Linking a DWF file to an HTML document causes the DWF file to appear in the document as a link. When you click the link, the DWF file fills the entire browser window. To add a link to a DWF file, first create the content of your HTML document (as you do normally), and then add the link.

The link to the DWF file is created in the HTML document by using an HREF tag, which is the primary method for specifying any type of file that is not directly viewable by a web browser on a web page.

The HREF tag uses the HTML <A> tag. To link to a DWF file, you add the following tag in your HTML document:

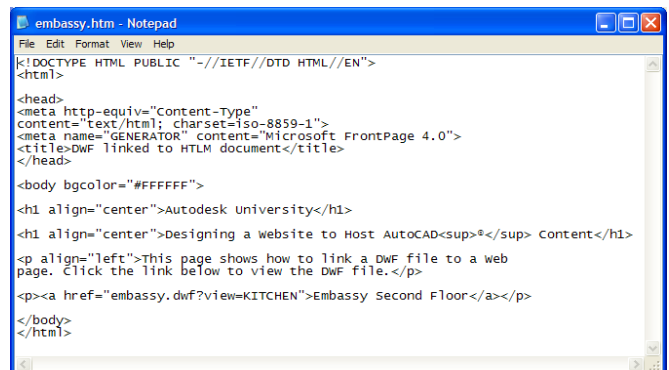
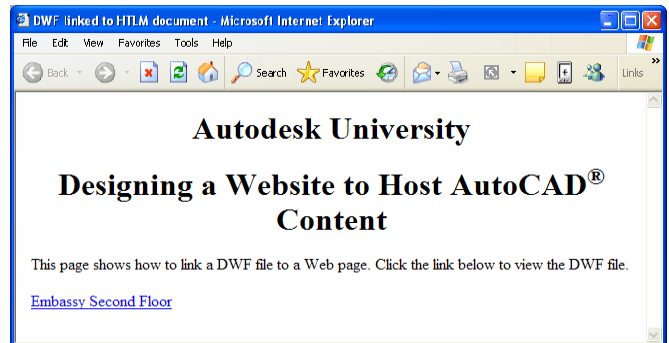
```
<A HREF="DWF-URL" >text</A>
```

where *DWF-URL* is the URL of the DWF file, and *text* is the text that actually appears as the link in the HTML document. For example, to provide a link to a DWF file located at <http://www.myserver.com/embassy.dwf>, with the text Embassy Second Floor Plan displayed as the link in the HTML document, you would use the following HREF tag:

```
<A
```

```
HREF="http://www.myserver.com/embassy.dwf">Embassy Second Floor Plan</A>
```

When you view the resulting HTML document, the words Embassy Second Floor Plan appear as a hyperlink. Clicking that link causes the browser to display the DWF file.



Using URL Options

A URL can include additional information. In the case of DWF files, the options can be used to tell the browser how to display the DWF file. The URL and options take the format

```
http://www.company.com/path/file.dwf?option=value&option=value
```

There are a number of options that can be passed as part of the URL. The ones that are specific to the DWF Viewer are identical to the parameters that can be passed when you embed a DWF file in the HTML document, which we'll discuss shortly. One of the tags that is not unique to the viewer that you may want to consider is the Target option:

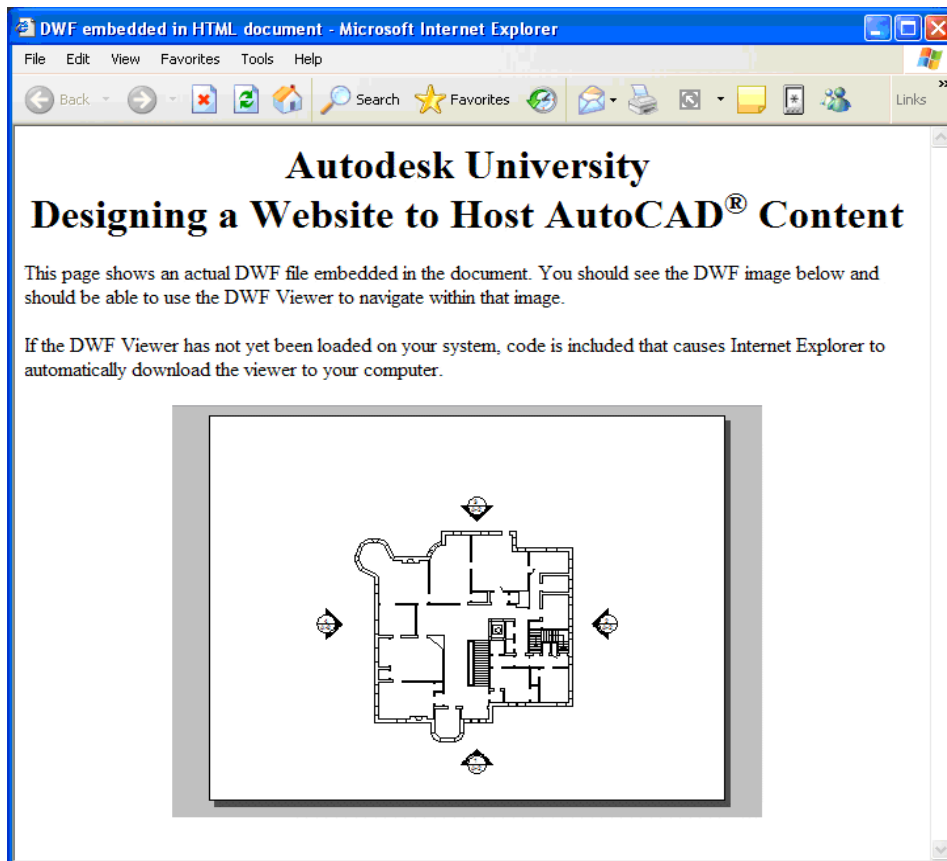
- **Target** Tells the browser to load the link into a specified frame window. Frames are sometimes used on web pages to separate a page into separate HTML documents, each contained in its own subwindow or frame. The frame name must begin with an alphanumeric character. Four reserved frame names have special meaning, which are listed and described in the following table.

Name	Description
Target="_blank"	Loads the target of the hyperlink into a new window in the web browser
Target="_self"	Loads the target of the hyperlink into the same frame as the page containing the hyperlink
Target="_parent"	Loads the target of the hyperlink into the parent frame of the current frame (which defaults to "_self" if the document has no parent frame)
Target="_top"	Specifies that the web browser should first remove all framesets already loaded, so that the target hyperlink appears in the full window of the web browser

Tip: You should always use the target="_top" option when linking to a URL on a site other than your own, or open the target in a new browser window (by specifying a target other than one of the four reserved names), because not doing so prevents the user from bookmarking the new URL. The failure to use this target has caused many users to dislike frame-based web sites.

Embedding DWF Files into an HTML Document

Embedding a DWF file into an HTML document takes just a bit more effort than simply including a link, but the results usually are much more appealing. When the resulting HTML page is displayed in a browser, the DWF file appears as part of the page, occupying the space that you specify.



A typical snippet of HTML used to embed a DWF file might look like the following:

```
<object
  id="viewer"
  classid="clsid:A662DA7E-CCB7-4743-B71A-D817F6D575DF"
  codebase="http://www.autodesk.com/global/dwfviewer/installer/DwfViewerSetup.cab"
  width="800"
  height="600"
  border="2"
  bordercolor="#ff0000">
  <param name="src" value="embassy.dwf">
  <param name="LayersOff" value="E-DEVC-TEXT,E-TEXT">
  <param name="LayersOn" value="DIMENSIONS">
  <param name="NamedView" value="KITCHEN">
  <param name="Page" value="8th Floor Power Plan">
  <param name="BackColor" value="12632256">
  <param name="PaperColor" value="14474460">
  <param name="PaperVisible" value="true">
  <param name="ToolbarVisible" value="true">
  <param name="UserInterfaceEnabled" value="true">
</object>
```

The DWF file is not actually embedded in the HTML document. Rather, you place a reference to the DWF file, similar to the one that simply links to the DWF file, within the HTML file. Instead of an HREF <A> tag, however, this method uses the HTML <object> tag. Notice that the listing begins and ends with the <object> tag. After describing the nature of the object being embedded in the HTML code, the rest of the snippet consists of a series of parameters that control aspects of the DWF viewer. These parameters act the same as the options that can be passed as part of the URL string when linking to a DWF file, and in fact they are identical.

Tip: Save the preceding HTML code snippet to a separate HTML file. Then, whenever you want to embed a DWF file in an HTML document, you can copy this code into that document, and then modify the tags as needed.

Caution: In order to view embedded DWF files using the DWF Viewer, you must use Microsoft Internet Explorer version 5.01 or later as your web browser.

Note: In Windows XP SP2, a security alert is displayed each time you view an embedded DWF file using the DWF Viewer or Autodesk Design Review. To eliminate this alert, download and install the latest build of the Autodesk DWF Viewer and add the following HTML tag as the first line of any local HTML page that hosts DWF files:

```
<!-- saved from url=(0014)about:internet -->
```

Understanding the Tags

The following parameters can be used (and are indicated as required or optional):

- **id** (required) A unique identifier that you assign, which can be referenced by JScript or VBScript. Don't confuse this tag with the classid tag.
- **classid** (required) This identifier is specific to the DWF Viewer and should not be changed. The value specified is used to distinguish the viewer from other ActiveX controls.
- **codebase** (optional, but recommended) This is the path (relative or absolute) to the Cab install file. It can also be used to ensure that the proper version of the DWF Viewer is available on the user's computer. If a user viewing your web page does not have the DWF Viewer (or the version, if specified), they will automatically be prompted to install it. To download the viewer from Autodesk, specify the codebase as:
codebase=<http://www.autodesk.com/global/dwfviewer/installer/DwfViewerSetup.cab>
- **width** and **height** (optional) These two values specify the width and height of the area within the HTML page that is used to display the viewer and the DWF file. As presented here, these values are specified in pixels, but they can also be represented as a percentage of the available browser window. You can change these values as needed.
- **border** (optional) Specifies the size of a border around the viewer, measured in pixels. To display without a border, specify a value of 0.
- **Border color** (optional) Specifies the color of the border around the viewer, as an HTML color code.

The following parameters are specific to the DWF Viewer. When included, you must specify param name= and the name of the parameter, and then value= and the value for the parameter. For example:

```
<param name="PaperVisible" value="true">
```

With the exception of the `src` parameter, which specifies the URL of the DWF file to be displayed, all of the other parameters are optional:

- **src** The path (relative or absolute) to the DWF file to be displayed on the page.
- **LayersOff** Specifies the names of layers you want set to Off (hidden), separated by commas. If the layer does not exist, the option is ignored. Layer names must be all uppercase.
- **LayersOn** Specifies the names of layers that you want set to On (shown), separated by commands. If the layer does not exist, the option is ignored. Layer names must be all uppercase.
- **View** Specifies an initial view to be displayed, either as a named view or as DWF coordinates (top, bottom, left, right). If using a name, you must specify the name in uppercase. If the named view does not exist, the option is ignored. Note that you can use either a named view or a coordinate-defined view to specify the initial view, but not both. (Note: The parameter `NamedView` also still works to specify an initial named view.)
- **MarkupsVisible** Specifies whether markups are visible (true) or not (false).
- **NotifyMissingFonts** Specifies whether a Missing Fonts dialog box displays to warn the user that fonts are missing (true) or not (false).
- **ObjectHighlightColor** Specifies the dynamic highlight (mouseover) color (only valid for objects that have metadata attached). The color is specified using a calculated RGB value using the following formula:

$$\text{Color} = (\text{B} * 65536 + \text{G} * 256 + \text{R})$$
- **ObjectSelectedColor** Specifies the object highlight color (only valid for objects that have metadata attached). Specified using a calculated RGB value.
- **ZoomIncrement** Specifies the zoom increment in percent for shortcut and wheel mouse.
- **Page** Specifies the page (sheet) that should display first. You can specify a sheet name or a sheet number.
- **BackColor** Specifies the background color for the viewer, as a calculated RGB value.
- **PaperColor** Specifies the paper color for the DWF, as a calculated RGB value.
- **PaperVisible** Specifies whether the virtual paper is visible (true) or hidden (false).
- **SingleClickHyperLink** Specifies whether you jump to hyperlinks in the DWF file by using a single mouse click or by pressing `Ctrl+click`.
- **ToolbarVisible** Specifies whether the viewer toolbar is visible (true) or hidden (false).
- **UserInterfaceEnabled** Specifies whether the right-click menu displays the view user interface (true) or does nothing (false).
- **HighlightHyperlinks** Specifies whether hyperlinks highlighting is turned on (true) or off (false).
- **HyperlinksEnabled** Specifies whether hyperlinks are enabled (true) or disabled (false).
- **HyperlinkColor** Specifies the hyperlink highlight color, as a calculated RGB value.
- **HyperlinkTooltipVisible** Specifies whether hyperlink tooltips are visible (true) or disabled (false).

Note that it is also possible to control the DWF Viewer using `Vbscript`, `Javascript`, and `C++`. This requires a more in-depth understanding of the viewer API and requires programming in Visual Basic, `C++`, or some other language, as well as incorporating that programming into your web page in the form of scripts. You can find more information about this by downloading the DWF Viewer API Developer's Kit from the Autodesk website.

i-drop

Autodesk's i-drop technology enables web developers to add drag-and-drop capabilities to their web sites. i-drop works with all versions of AutoCAD and AutoCAD LT beginning with 2000i, and all applications based on those platforms (such as Architectural Desktop and Mechanical Desktop) as well as Autodesk VIZ and Autodesk Inventor. AutoCAD users can drag-and-drop drawing files as blocks into any open AutoCAD drawing.

Autodesk VIZ users can drag-and-drop MAX files into their models. And Inventor users can drag-and-drop parts, assemblies, and drawings into open Inventor files.

Caution: *In order to use i-drop, you must use Microsoft Internet Explorer as your web browser. i-drop does not work with Netscape Navigator.*

When you visit a web page that incorporates i-drop, you can insert a DWG file as a block into an AutoCAD drawing by doing the following:

1. Open the AutoCAD drawing into which you want to insert the block.
2. In your Web browser, go to the Web page containing the content you want to insert. Notice that when your cursor hovers over i-drop-enabled content, a special i-drop cursor appears.
3. Left-click and drag the content into the open AutoCAD drawing.
4. Complete the block insertion as you normally would.

In step 3 above, if you right-click and drag the content instead of left-click and drag, and then release, AutoCAD displays a shortcut menu. On the shortcut menu, if you click Insert As > Block, AutoCAD displays an i-drop Options dialog box. The list in this dialog box shows the associated files that can be transferred with your i-drop insert. Only the files shown as selected will be transferred, and you can specify the location to which the files will be transferred.

Integrating i-drop into your website requires just a bit more coding than embedding a drawing in an HTML document, but not much. The main difference is the inclusion of an XML (eXtensible Markup Language) object file. For each (DWG) object you intend to publish on an HTML page, you must have the following:

- The file or files you want to have transferred (such as a DWG file)
- An image that serves as the trigger for transfer (such as a JPG or GIF image)
- The XML object file describing the embedded object

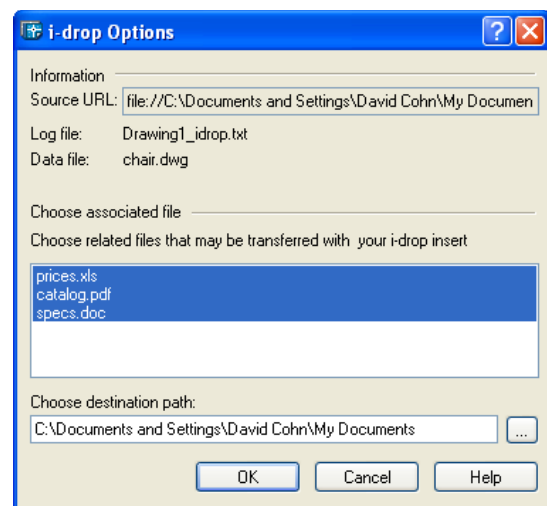
The information and how it is presented is defined in the i-drop package file. The i-drop package file is a simple XML file (an ASCII text file) that does two things:

- It describes what you see—the graphic representation to be displayed on the web page to represent the source or trigger of the i-drop operation (the proxy element)
- It describes what you get—the data files that are to be downloaded to the application once the i-drop operation is performed

A typical i-drop package file might look like the following:

```
<?xml version="1.0"?>
  <package xmlns="x-schema:idrop-schema.xml">
    <proxy defaultsrc="chair.gif"></proxy>
    <dataset defaultsrc="chair.dwg"></dataset>
  </package>
```

In the listing above, the first line tells the browser what version of XML you are coding with. The second line defines the legend or key that describes the tags you are using in XML (the XML schema). The third line specifies the proxy object, in this case a GIF image file. On the resulting webpage, placing the cursor anywhere within the image would initiate the i-drop operation. The proxy image can be any of a growing number of file types including bitmaps, DWF, and even animation files such as Shockwave or Metastream. The fourth line, the dataset, links to the object that will be downloaded, in this case a DWG file. The final line closes the package file.



The listing can actually be simplified, as follows:

```
<?xml version="1.0"?>
  <package>
    <proxy defaultsrc="chair.gif"/>
    <dataset defaultsrc="chair.dwg"/>
  </package>
```

Notice that when the `xmlns="x-schema:idrop-schema.xml"` string is used as part of the package value, the XML parser is required to validate the package XML file. Evaluating the XML file affects the overall performance, but is helpful as a debugging tool when you are developing your site. As a rule, you should use the x-schema specification when the package files are being developed and then remove it when your files are published.

Also notice that since there is only one proxy and only one dataset, you can eliminate the `</proxy>` and `</dataset>` tags and just put a forward slash (/) after the filename. This is the most basic form of package file. It contains just two things, the proxy (what you see) and the dataset (what you get).

Adding Secondary Files to the i-drop Object

The previous example showed the simplest form, used when you only have one object file to be downloaded. But you can also construct the package file so that different types of files download depending on the client application into which the i-drop content is dragged. In addition, each datafile can have additional information, for example an Excel spreadsheet containing pricing information or a Word document containing specifications, which can be downloaded as well. These variations are shown in the following code example:

```
<?xml version="1.0"?>
  <package>
    <proxy defaultsrc="chair.gif"/>
    <dataset>
      <datasrc clipformat="CF_IDROP.dwg">
        <datafile src="chair.dwg"/>
        <xreffile src="prices.xls"/>
        <xreffile src="catalog.pdf"/>
        <xreffile src="specs.doc"/>
      </datasrc>
      <datasrc clipformat="CF_IDROP.max">
        <datafile src="chair.max"/>
        <xreffile src="material.bmp"/>
      </datasrc>
    </dataset>
  </package>
```

This listing includes two different clipformats, one for AutoCAD and one for VIZ. In addition, notice that the AutoCAD dataset includes an AutoCAD DWG file as well as a PDF file, a Word document, and an Excel spreadsheet and the VIZ dataset includes both a MAX file and a bitmap used to define a material in that model. You should note that any number of files can be listed. There can be only one datafile per clipformat, but any number of xreffiles. Thus, the same proxy on a website could be used to download two different types of data: a 2D or 3D block for AutoCAD, and a fully textured 3D model for VIZ.

The Schema

In addition to the XML object file and the various related files for each object you want to publish, you will also need an XML schema, which is a set of constraints that define the XML tags in the i-drop package file. The schema is like a legend that tells the browser what to do with your object file. You only need one schema file for your website, and its contents are always the same. You can download a copy of the schema from

<http://www.autodesk.com/schema/idrop-schema.xml>.

The HTML Code

Once you've got all of these building blocks, the last step is to create the HTML file that gets placed on your web server. In the following example, we've placed four files—chair.dwg, chair.gif, chair.xml, and idrop-schema.xml—plus the HTML file we will create, in the same directory.

Below is a typical HTML snippet to include the i-drop content on a web page:

```
<object
  name="idrop"
  classid="clsid:21E0CB95-1198-4945-A3D2-4BF804295F78"
  width="240"
  height="236">
  <param name="background" value="background.jpg">
  <param name="proxyrect" value="0,0, 240,236">
  <param name="griprect" value="0, 0, 240, 236">
  <param name="package" value="data/chair/chair.xml">
  <param name="validate" value="1">
</object>
```

Notice that this snippet of code looks somewhat similar to the code we used to embed a DWF file on a web page. It includes an <object> tag and parameters for Microsoft Internet Explorer.

Also notice the inclusion of a file named background.jpg. This is a transparent image file that is used as a skin or frame around the chair.gif file. For simplicity, we've saved this file in the same directory as the other files.

The following list describes the parameters present in this code snippet:

- **Package** Required. Specifies the XML i-drop package file URL that in turn describes the display and contents for this instance of the i-drop control.
- **Background** Optional. Specifies a background “skin” displayed by the i-drop control. This can be used to frame the proxy display, so that it is obvious to the user that this is an i-drop object.
- **ProxyRect** Optional. Specifies a rectangular area in which to display the proxy image. When using a background, you may want to limit the display area of the proxy image or hosted control. This rectangle defines the area where the user can interact with the hosted control.
- **GripRect** Optional. Specifies the area between the i-drop control limits and the ProxyRect, which should be smaller.
- **ValidateXml** Optional. Specifies whether the i-drop control performs validation. If 1 (on), the control will validate the XML package file, alerting you to possible errors in its structure. If 0 (off, default), no validation is performed.

To insert i-drop content, you hover over the trigger (for example, the image file) on the website. The cursor changes to an i-drop cursor. You click and drag the i-drop cursor into an open AutoCAD drawing. This transfers the XML package file to the application. The application parses the package file looking for its clipboard format and any files that are referenced. The application then goes back to the server to the referenced data and those data files are downloaded.

Those visitors who do not yet have i-drop technology installed on their systems can download the i-drop indicator from the Autodesk website at www.autodesk.com/idrop. You can also find additional information about using i-drop by visiting the Developer Center on the Autodesk website (www.autodesk.com/developer).