

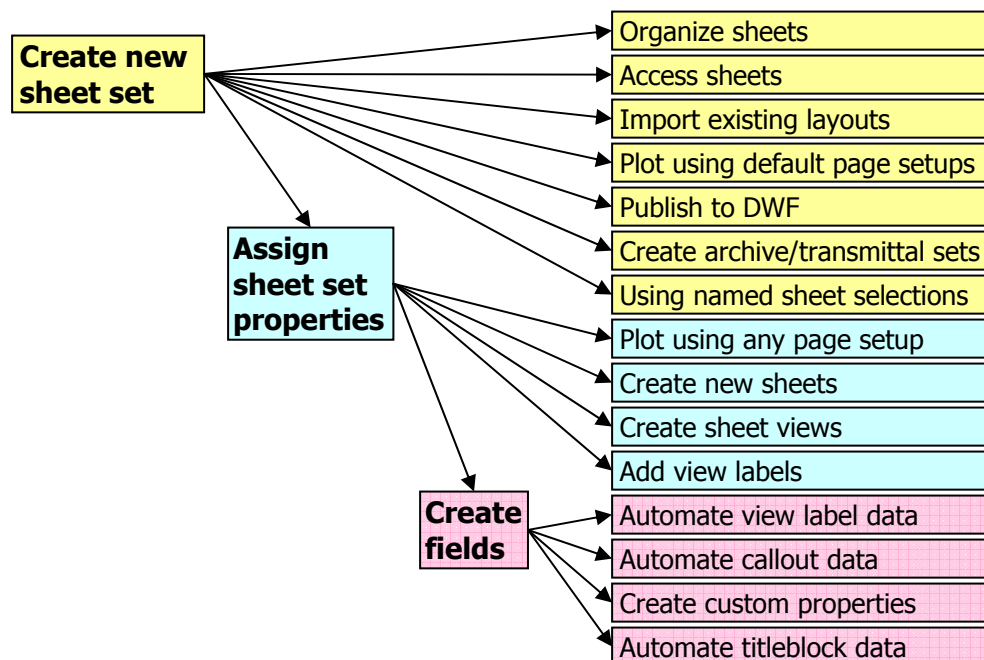
SHEETS HAPPEN!

Introduction to the Sheet Set Manager

Whether you design manufactured parts, maps, or buildings, sheets happen! The sheet set functionality in AutoCAD enables you to efficiently create, manage, and share your entire set of sheets from one convenient location. At first glance, the powerful functionality offered by the Sheet Set Manager may seem overwhelming but you don't have to learn and implement all of the functionality simultaneously.

Begin taking advantage of sheet set functionality for your current projects with minimal effort by importing your current drawing layouts into a sheet set. You can easily open drawings from a central location while you continue to edit them using traditional tools. Create new sheets using traditional tools and then import those sheets into your current sheet set. Easily plot, publish, archive or create an electronic transmittal of the entire set of drawings. When you feel comfortable using the most basic sheet set functionality, you can begin assigning sheet set properties. Using sheet set properties, you can easily plot to any named page setup, regardless of the page setup that is saved in each of the drawing layouts. You can also assign your drawing template file to the sheet set making it easy for you to create new sheets directly from the sheet set manager. Moving on to the most powerful sheet set functionality, using Fields, enables you to automate the sheet data that is stored in your drawings. You can create your own fields in the form of custom sheet set properties and then reference those, and other fields, in your plot stamps, callouts, view labels, and title blocks.

Over the next few months, I will post a series of articles that enable you to progress through these various levels of implementation from the simplest to the most complex. If you spend only a few minutes a week, you can create a fully functional sheet set with minimum disruption to your current workflow. The following diagram provides an overview of the topics I will be covering. If you haven't seen a demo of sheet sets, you might want to review the Sheet Set videos under the AutoCAD Awareness post. Those videos were created in AutoCAD 2005 but they apply to AutoCAD 2006 as well.



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Process Overview

I'm often asked about the difference between a "sheet" and a "drawing". Technically they are the same thing. The drawing file created by the SSM is just like any drawing you create using traditional methods. You can draw geometry in model space, create additional layout tabs, etc. The only technical limitation is that sheets in the SSM sheet list can only point to a layout in a drawing file. If you want more than one layout in your drawing, you would have to import those additional layouts into your sheet list. There is no technical reason why you shouldn't have multiple layouts in your drawing, however the new sheet set paradigm or "best practice" is to have one sheet drawing (DWG file) for each sheet in your set. The main benefit for this is to enable multiple users to work on different sheets at the same time. If you have two sheets that point to different layouts within the same drawing, the drawing file will be locked as soon as one person opens one of those sheets... which is how AutoCAD has always worked.

I wanted to provide a quick overview about how sheet sets are intended to work before we move on to more complex topics.

1. Create your model geometry in its own drawing file (DWG). Continue to create model geometry in modelspace... Continue to create xrefs, nested xrefs, etc. In that particular DWG file, focus on nothing but the model... try to forget that the layout tab even exists. From now on, let the "sheet" deal with the layout.
2. Create a new sheet. As you know by now, creating a new sheet will create a new drawing file (DWG) with an active layout tab. The sheet name in the sheet list is simply a shortcut to that layout in the DWG file.
3. Open the sheet, which is really opening the "sheet" drawing file with the layout active.
4. Add resource drawing views to the sheet layout. This is where you create layout viewports and attach the model drawings as xrefs. Using the sheet set paradigm as it was intended, you collect design information from other sources (external references attached in model space) and assemble them into a sheet layout (titleblock, viewports, notes, etc in paper space). The only objects that should exist in model space are attachments to external files.
5. Add sheet information to the sheet layout. You might add sheet notes or other sheet (paper space) information that is specific to the sheet. Although you can (technically) draw in model space, create more layouts, etc. The intention is for this particular DWG file to be a single sheet with external references to model drawings.

Does it sound like I'm repeating myself? I guess I am.. but I want to be sure you get the point :-). Aside from separating your Model and Layout into two different drawings, the general concepts (xrefs, model space, viewports, layouts) should be familiar to you. Although the process I described isn't strictly enforced with sheet sets, you should consider how you can transition to this process so that you can take full advantage of Sheet Set functionality.

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Implementing Sheet Sets with Minimal Effort

Even if you only have a few minutes every few days, weeks or months, you can begin taking advantage of sheet set functionality. This section shows you how!

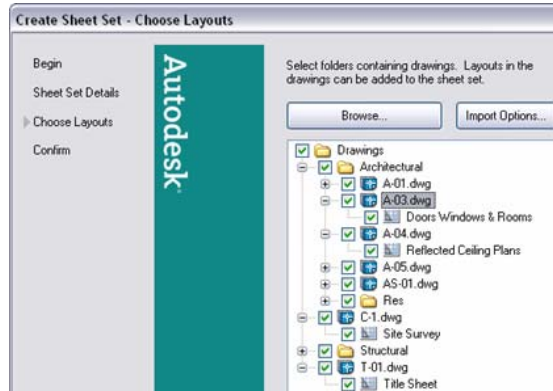
Step 1: Creating a new sheet set

The first step in implementing sheet set functionality is to create a sheet set. You can create a sheet set using an example sheet set or by importing existing drawing layouts as sheets. Although AutoCAD includes several example sheet sets, it is unlikely that they will meet your specific needs. I suggest that you create your first sheet set by importing drawings from one of your existing projects. After you configure your first sheet set to meet your needs, you can use it as an example to create future sheet sets.

In order for you to create a new sheet set based on existing drawings, those drawings must use layouts. Don't worry about "messing up" your drawings by creating a sheet set. A sheet set is simply an XML-based file with a DST extension, which has pointers to your drawing files.

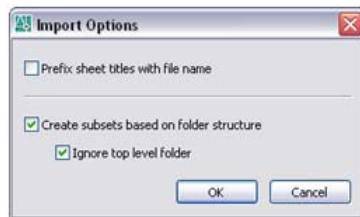
1. Begin the Create Sheet Set wizard.
 - From the File menu, choose New Sheet Set.
 - In the Create Sheet Set wizard, select Existing drawings.
2. Specify the name and location for the sheet set file. The sheet set file is an XML-based file, with a DST extension. You can think of it as your project file.
 - Enter a name for the sheet set. Typically, this would be the project name.
 - Provide a description for the sheet set. The description is optional.
 - Specify the location to store the sheet set data file. Typically, this would be the main folder for this particular project.
3. Select the appropriate layouts to import.
 - Choose Browse and navigate to the folder where your project drawings are located. Typically, this would be the main folder that includes project drawings and/or drawing subfolders.
 - Expand the folders and drawings so that you can see all the layouts that you want to include as sheets in the sheet set. If your drawings include multiple layouts, they will be displayed in the list.
 - Select all of the layouts to be included as sheets in the sheet set. Remember to select only the drawings/layouts that you want to be represented as sheets. For example, you wouldn't select drawings of model geometry that are used as xrefs.

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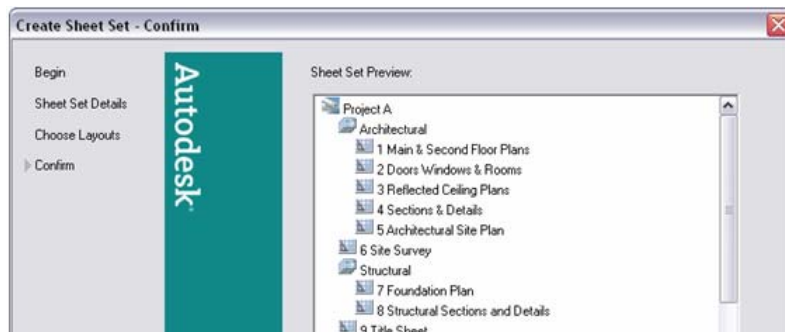
4. Specify the appropriate import options.

- Choose Import Options.
- Specify the options that fit your situation. If you want the drawing file name to be included as part of the sheet name, choose the option to prefix sheet titles with file name. If you want to create subsets in the sheet set file that match your folders, choose the option to create subsets based on folder structure. Subsets are like visual folders that enable you to organize your sheets in the sheet list. If you don't want to create a subset of the main folder from which you are importing your drawings, you can choose Ignore top level folder. Don't worry too much about these options because you can always reorganize your sheet set later.



5. Finalize the sheet set.

- Review the sheet set structure. You can preview your sheet set before completing the sheet set process. If the sheet set preview is missing sheets or has extra sheets that should not be included, you can use the back button so select different folders, drawings, layouts, or import options.
- Choose Finish. When you are satisfied with the sheet set preview, you can complete the sheet set creation process.



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After exiting the Create Sheet Set wizard, your sheet set data file will automatically open on the Sheet List tab of the Sheet Set Manager (SSM). The sheet names in the sheet list are like shortcuts or pointers to the layouts in your DWG files. The drawings have not changed and AutoCAD didn't create new drawings or folders. All it did was create a sheet set data file with a list of sheets that link to your existing drawings. Now you can use the SSM to organize and open your drawing sheets. Right-click on a sheet name and choose Rename and Renumber to enter a sheet number or change the sheet title. Drag and drop sheets to reorganize them in the sheet list. And, double-click on the sheet name to open the associated drawing in the drawing editor. Even if you only use the SSM as a tool for opening your drawings, you will save time and increase efficiency. You no longer have to navigate through complex folder structures or remember archaic file names. Just double click on the sheet name!

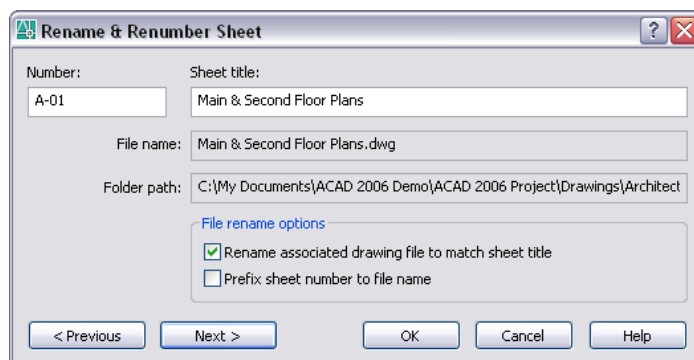
Are you worried about “messing up” your drawings as you experiment with the sheet set manager? Read on...

At this point, absolutely nothing in your drawings has changed. However, if the sheet set is open in the SSM and you open and save the drawings that are being pointed to by the sheet set, a small piece of data will be saved with the drawings. This data is called a “hint” and it tells the drawing (DWG) files which sheet set they belong to. Having the hint in a drawing enables AutoCAD to automatically open the appropriate sheet set even if you open the drawing using traditional methods. The “hint” is the only change that AutoCAD will make to your original drawing files. If, for some reason, you want to “undo” the sheet set, you can right-click on the sheet set name and choose Close Sheet Set and then delete the sheet set data file (DST). If you delete the DST file without first closing the sheet set, the DST file will be automatically recreated. After you successfully delete the DST file, you can open and save the associated drawings to remove the hints.

Step 2: Organizing your sheets

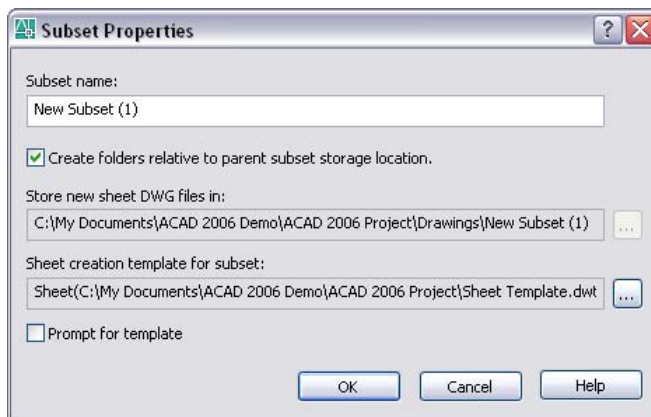
Have you successfully created a sheet set based on the information in the previous Sheets Happen post? If so, you're ready to move on to the next step and take advantage of more Sheet Set functionality. You will use the Sheet Set Manager to organize your sheets.

1. Edit sheet names and numbers.
 - Right-click on a sheet name and choose Rename and Renumber.
 - Enter the appropriate name and number. You can use the Next and Previous buttons in the dialog box to move up and down the sheet list. In AutoCAD 2006, you have the option to rename the associated drawing file to match the new sheet title.



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2. Remove a sheet from the sheet set.
 - Right-click on a sheet and choose Remove Sheet to remove it from the sheet set. When you remove a sheet from the sheet set, you are not deleting the drawing from the folder. You are simply removing the shortcut that points to the drawing.
3. Add subsets.
 - Right-click in the sheet set name or a subset and choose New Subset. You can create subsets and nested subsets to help organize your sheets on the sheet list.
 - Enter a name for the subset. A subset is like a visual folder in your sheet list. By default, adding a subset does not create a folder on your hard drive. In AutoCAD 2006, you have the option to create a corresponding folder on the hard drive.
4. Choose OK.



5. Remove subsets.
 - Right-click on a subset and choose Remove Subset. You can only remove subsets that do not contain sheets.
6. Rearrange sheets and subsets.
 - Drag and drop sheets and subsets to rearrange your sheet list.

As you renumber sheets or drag and drop them to new locations, you will probably notice that the sheet numbers do not automatically update to reflect their position in the sheet list. If you want the sheet numbers to correspond to their order in the sheet list, you must manually change the sheet number as described in the first step. You might wonder what is the purpose for the sheet number and name. At this point, the sheet name and number are doing nothing more than enabling you to view and access your drawing sheets by knowing their sheet numbers and/or names rather than knowing their file names and locations. As we continue to build on sheet set functionality, the value of the sheet names and numbers will become more obvious.

Step 3: Accessing your sheets

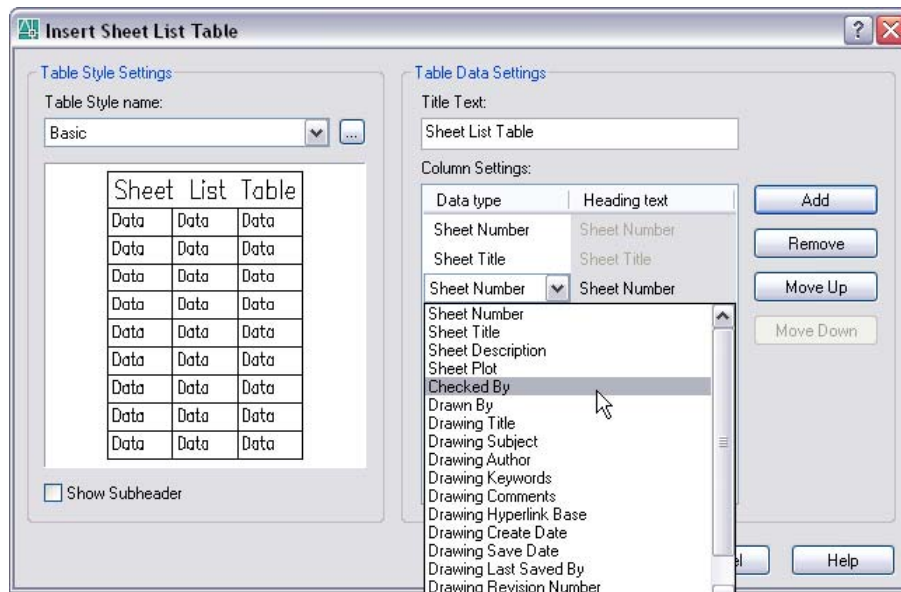
Are you ready for more Sheets Happen? I hope that you are enjoying the ability to easily view and open the sheets from the Sheet Set Manager (SSM).

The SSM is a great way to organize your sheets and access them from a central location. But what if you want to include this sheet list as textual information in a drawing? Using the SSM,

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you can easily add a sheet list table to one of the sheets in the sheet set. You can even use the sheet list table to quickly open any of the sheets in the list.

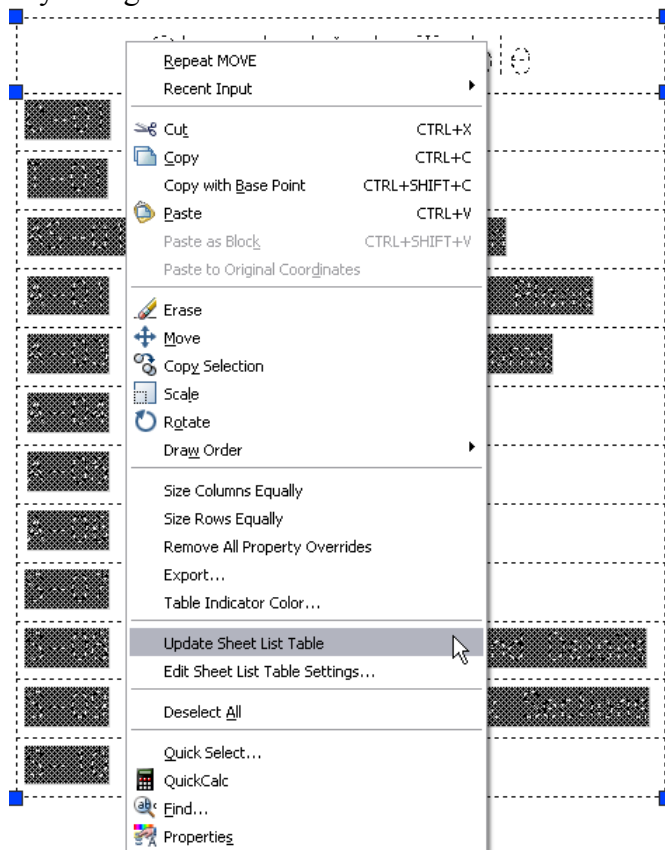
1. Open a sheet in the AutoCAD window..
 - Double-click on the sheet in which you want to add a sheet list table. Typically this would be a cover sheet or title sheet.
2. Insert a sheet list table.
 - In the SSM, right-click on the sheet set title and choose Insert Sheet List Table.
 - In the Insert Sheet List Table dialog box, select a table style. If you don't have an appropriate table style, you can create one. Creating and using table styles is similar to creating and using text or dimension styles. For example, create a table style called Sheet List, which uses the appropriate font size, color, etc. Then use that table style every time you need to create a sheet list. Using table styles will save you time and ensure consistency from project to project.
 - Specify the Table Data Settings that you want to include in the Sheet List Table. By default, Sheet Number and Sheet title are included in the list. You can select Add or Remove to change how many columns are included in the sheet list table and you can click on the items in the Data Types list to change their content. Use the Move Up and Move Down buttons to change the order in which the data will be displayed.



- Choose OK.
- Place the table on the sheet. The sheet list table is an AutoCAD table object that contains fields for the sheet set data such as sheet number and sheet name. Since this is a table object, you can use typical table editing commands to change its appearance. **However**, any edits you make will be lost the next time you update the sheet list. For this reason, you should not make any edits directly to the sheet list table. If you want to change its appearance, you should edit its table style and/or edit the sheet list table settings.

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3. Edit the Sheet List Table settings. After you insert a sheet list table, you can edit its settings.
 - Select the sheet list table in the drawing.
 - Right-click and choose Edit Sheet List Table Settings.
 - Change the table style, title, or column settings as necessary. Any changes that you make using this method will be retained even when you refresh the table data.
4. Change the contents of the sheet list in the SSM
 - Add, remove, rename, or renumber the sheets in the SSM. Notice that the data in the drawing's sheet list table, does not change dynamically. You must force the table to update.
5. Update the sheet list table.
 - Select the sheet list table in the drawing.
 - Right-click and choose Update Sheet List Table. The sheet list table updates to reflect any changes to the sheet list in the SSM.



6. Access sheets from the sheet list table. You can easily open any of the drawing sheets from the sheet list table by pressing the CTRL key and picking on the sheet name or number.

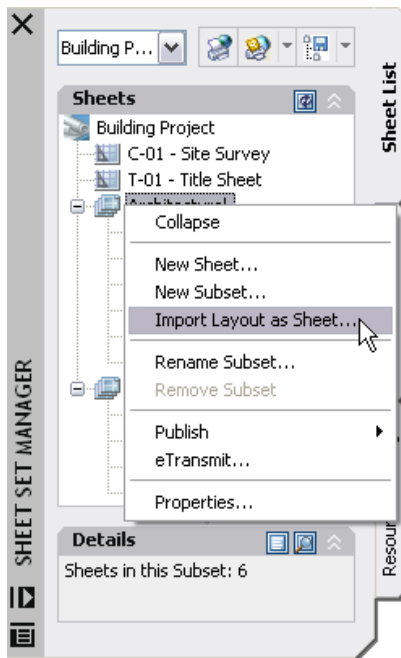
With sheet list tables, you can begin to appreciate how the sheet names, numbers and other data in the SSM can be used to create meaningful and automated textual data in your drawings.

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Step 4: Importing existing layouts

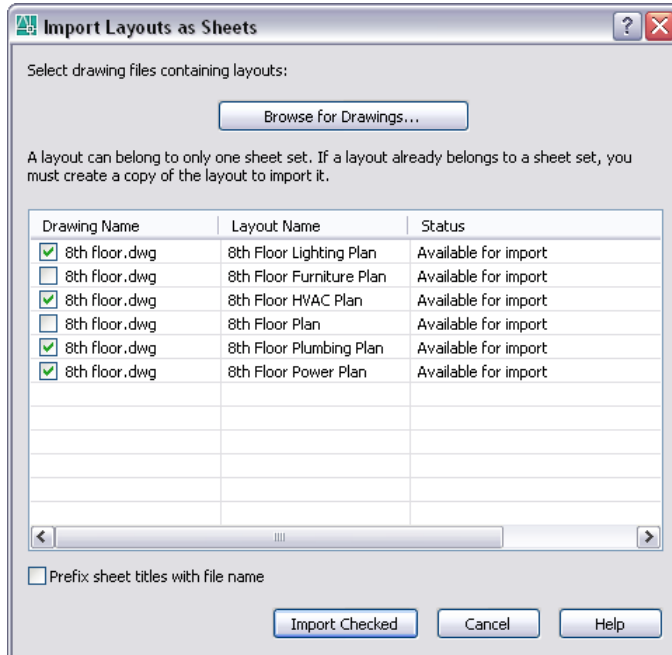
If you've been following along with this Sheets Happen series, you created your sheet set using existing drawings. This method enabled you to quickly create a new sheet set with pointers to the layouts in those drawings. But what if you have other drawings that you want to include in the sheet set? For example, maybe a consultant emailed you a new drawing or maybe you forgot to include a few drawings when you first created the sheet set. You can “import” additional drawing layouts into your sheet set using the SSM. Actually, I don't care for the term “import” because, as you learned in my first Sheets Happen post, the sheets in the SSM sheet list are nothing more than shortcuts or pointers to layouts in drawings. So, when we say “import” what we really mean is that you can create a new pointer to an existing drawing.

1. Right-click on the sheet list and choose Import Layout as Sheet. Where you right-click determines where the new sheet will be added to the sheet list. If you right-click on the sheet set name, the new sheet will be added to the end of the sheet list. If you right-click on a subset, the new sheet will be added to the end of the subset. If you right-click on a sheet, the new sheet will be added below that sheet. Regardless of where you right-click, you can always drag and drop the new sheet to a proper location.



2. Choose Browse for Drawings and select the drawing that contains the layout you want to add. After you select a drawing, all of that drawing's layouts are listed in the Import Layouts as Sheets dialog box. You can select the layouts that you want to import. You have the option to prefix the sheet title with the file name.

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3. Choose Import Checked. The newly added sheet is just like any other sheet in the sheet list. You can rename, renumber and reorganize your sheets as necessary.

As you implement sheet set functionality one step at a time, you and other members of the project team can continue to create new drawings using traditional methods and then import them into the sheet set using this method.

Step 5: Plotting using default page setups

In the previous Sheets Happen posts, you learned everything you need to know in order to use the Sheet Set Manager (SSM) as your primary tool for accessing drawings. You created a new sheet set using existing drawing layouts and you learned how to import additional sheets into that sheet set. Combine that with the ability to plot your sheets using their default page setups and you can save a huge amount of time over the life of your project. Even if only take advantage of sheet set functionality for these few tasks, it will have been worth your effort.

Think about how you plot your sheets without using the SSM. Imagine that you're working on Project B when someone sends you an urgent request asking you to plot all of the sheets for Project A. You stop what you are doing and begin opening the drawings for Project A, one at a time. Of course, that is after you navigate to the Project A folder and locate the correct subfolders and drawing files. Project A includes several versions of subfolders and drawing files and you have to be careful to find the correct ones. Each time you find an appropriate drawing; you open it, select the appropriate layout, and plot. While you are busy opening and plotting drawings, your coworkers are frustrated. They are trying to edit these Project A drawings but they can't because you have the drawings locked.

Using the SSM for plotting can significantly reduce the amount of time you spend plotting your drawings. Even if you are unfamiliar with a project, you can quickly plot the entire sheet set without having to open and view each drawing file. Your coworkers can continue editing the drawings while you use the SSM to send the entire set of sheets to their default plot device. Keep in mind, however, that this method assumes each sheet has been saved with the proper plot

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information. Using this method is the same as opening the drawing, selecting the layout and choosing Plot, without making any changes to the page setup. In a later post, I'll describe how you can override the default page setups on the fly!

1. Select sheets to plot. In the SSM, select the sheets you want to plot. You can use the Shift and CTRL keys to specify a range or specific sheets. You can also select subsets or the entire sheet set.
2. Right-click and choose Publish>Publish to Plotter.

Step 6: Publishing to DWF

So... how are your sheet sets coming along? I hope you have been enjoying the easy access and quick plotting capabilities of the Sheet Set Manager. One of the attendees in my SSM class at AU told me that his department has only implemented enough sheet set functionality to plot from the SSM but that capability alone makes the SSM worth while! I'm happy to hear that but don't stop now! There is so much more!

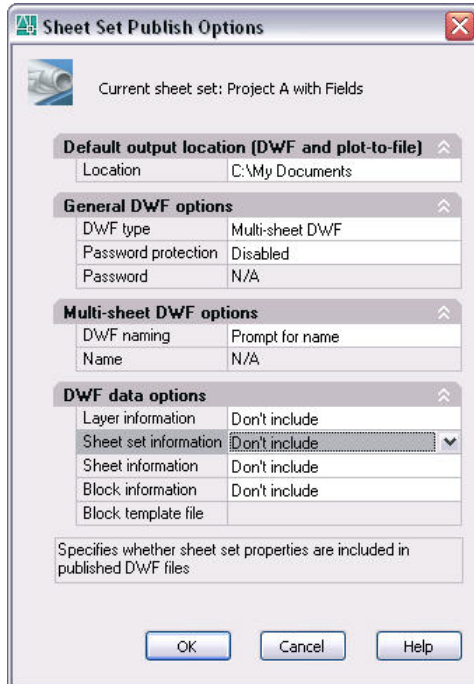
You can continue to take advantage of sheet set functionality by publishing your sheets to a DWF file. If you are not familiar with DWF, just try it and see what happens! DWF (Design Web Format) enables you to share your design data with other people in a secure and lightweight format. It is like plotting to PDF but better. Unlike PDF, DWF files are vector based so you get better quality with smaller file sizes. You can post the DWF to a project site or send it via email. The recipient can then view and plot it to scale using the free DWF viewer.

Prior to publishing your sheets to a DWF file, you can set various options.

1. Set DWF publishing options.
 - Right-click in the sheet list and choose Publish>Sheet Set Publish Options.
 - Set various options. You can specify the location where the DWF file will be created and you can specify either a single-sheet or multi-sheet DWF. If you select single-sheet DWF, a separate DWF file will be created for each of the sheets that you select from the sheet set and the DWF file names will correspond to the sheet names. If you select multi-sheet DWF, all of the sheets that you select will be sent to a single DWF file. By default, the DWF file name corresponds to the sheet set name. You can enter an alternate name in the sheet set publish options or you can ask AutoCAD to prompt you for a name during the publish operation. Regardless of whether you publish to a single- or multi-sheet DWF, you have the option of including a password with the DWF file. If you include a password, the recipient of the DWF file will be prompted to enter the password before viewing the DWF in the viewer.

One of the many advantages of using DWF over PDF is that you can include intelligent data with you files including layers, sheet and sheet set information, and block information. You can even specify a block template file that defines which properties and attributes to publish from selected blocks. The block template is similar to using a data extraction template to create a table with block data. The more information you include with your DWF file, the more flexibility the recipient will have when viewing it.

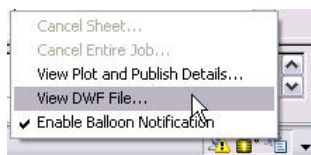
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2. Choose OK.
3. Select sheets to publish. In the SSM, select the sheets you want to publish. You can use the Shift and CTRL keys to specify a range or specific sheets. You can also select subsets or the entire sheet set.
4. Publish selected sheets.
 - Right-click and choose Publish>Publish to DWF. You can also select the Publish to DWF button in the upper right corner of the SSM. The DWF file(s) will be created using the current sheet set publish options. By default, the DWF file is published in the background, similar to plotting. You will be notified when the publish operation is complete.

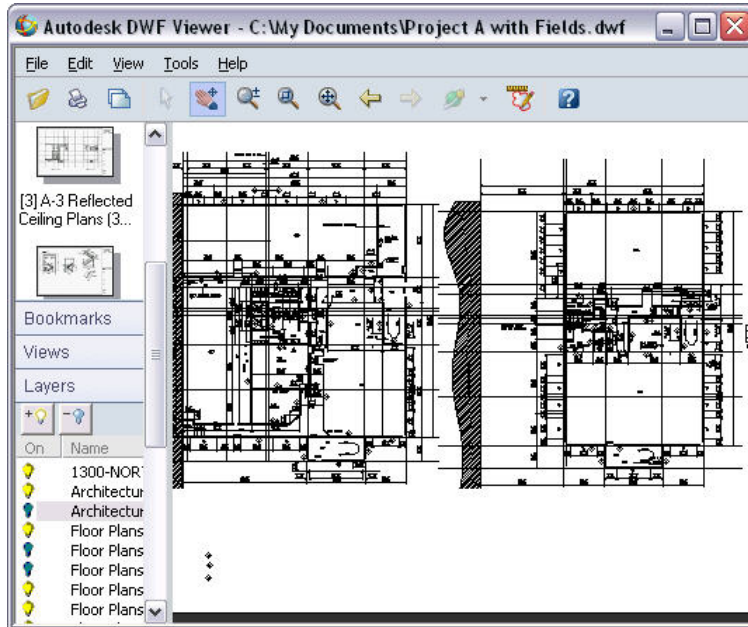


- Close the Plot and Publish balloon notification.
5. View the DWF file. The DWF viewer is automatically installed with AutoCAD enabling you to view the DWF file before posting or emailing it.
 - Right-click on the Plot/Publish icon and select View DWF File.



- In the DWF viewer, select different sheets to view and try viewing some of the data such as layers, blocks, etc.

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Publishing to DWF is just that easy! The recipients of your DWF file can view and plot the sheets while you rest assured that the design data remains unchanged. If the recipients of your DWF files are using DWF Composer, a more advanced DWF viewing tool, they can measure and markup the DWF file and then return it to you. For more information about working with DWF files visit www.autodesk.com/viewers. You can also check out the [Viewer](#) and [Markup](#) videos in my October “AutoCAD Awareness” post.

Step 7: Creating Archive/Transmittal Sets

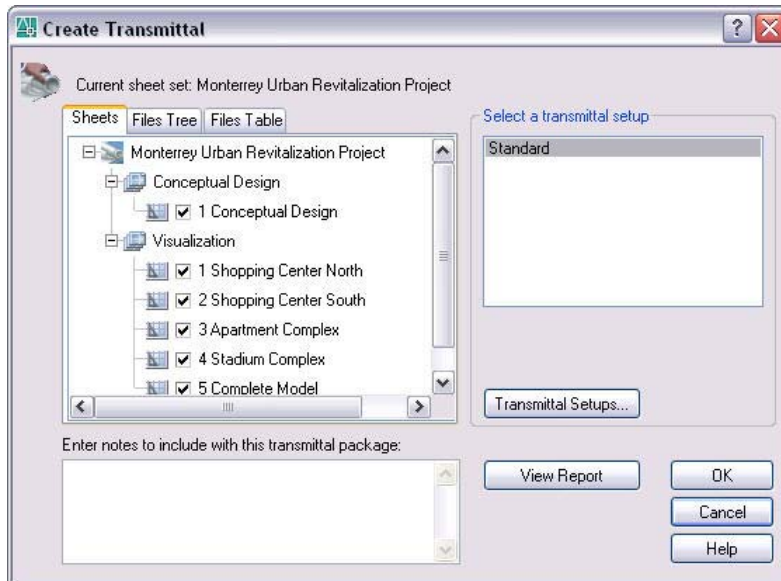
Did you ever send someone a drawing file only to have them respond with an urgent request to “SEND THE XREFS!” You can avoid those urgent requests with eTransmit because it automatically packages the drawing and its associated files, such as xrefs, images, and fonts, into a single folder, zip or self-extracting executable. When you send the transmittal set rather than just the drawing, you help ensure that the recipient has all of the necessary files. You can use eTransmit without using sheet sets. However, when you use eTransmit in the current drawing, it only packages the files associated with that particular drawing. You can manually add other drawings to the transmittal set, but that process can be time-consuming for many drawings.

Using eTransmit with a sheet set enables you to package multiple drawings and all of their associated files with minimal effort.

1. Close or save drawings. You must close or save any open sheet set drawings that have been edited. However, if you close all of the drawings, AutoCAD will be in a zero-document state and most of the right-click options will be grayed out. If that happens, just use File>New to create a new blank drawing.
2. Select sheets to include in the transmittal set. In the SSM, you can use the Shift and Ctrl keys to select a range or specific sheets. You can also select subsets or the entire sheet set.
3. Create a transmittal set.
 - Right-click and choose eTransmit.

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- In the Create Transmittal dialog box, select Transmittal Setups.
- In the Transmittal Setups dialog box, create or modify a transmittal setup. By default, AutoCAD includes a Standard transmittal setup. You can modify the Standard transmittal setup or create any number of new ones. For example, you might create a transmittal setup to save all the drawings to a zip file in AutoCAD 2000 file format while another one saves all the drawings to a self-extracting executable with all of the reference paths removed. The transmittal setups you create for a sheet set are saved in the sheet set data file. However, you can import transmittal setups from another sheet set using the Import option in the Transmittal Setups dialog box. When you create transmittal setups in a drawing without using sheet set functionality, they are saved in the registry under the current user.

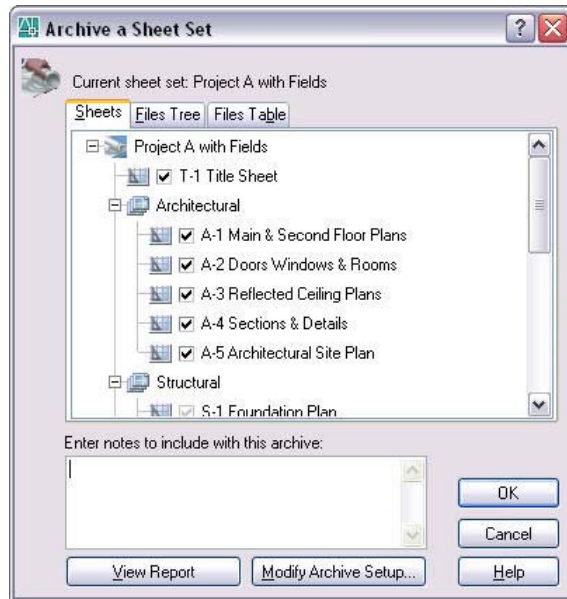


- In the Create Transmittal dialog box, you can use the Sheets, Files Tree, or Files Table tabs to add and remove files from the transmittal set. When you use eTransmit in a drawing without a sheet set, the Sheets tab is not displayed.
 - Choose View Report if you want to see a comprehensive list of all the files and sheet set information included with the transmittal set.
 - Choose OK to close the Create Transmittal dialog box and create the transmittal set.
4. Create an Archive set. Creating an archive set is very similar to creating a transmittal set. They use the same underlying technology but Archive has been simplified for the single purpose of archiving the sheet set. You might create an archive set only one time, at the end of a project. Or you might create them at key milestones throughout the project.
- On the Sheet List tab of the SSM, right-click on the sheet set name and choose Archive. Unlike eTransmit, Archive is only available for a sheet set. Similar to eTransmit, you must close or save any open drawings that have been edited. But remember, you can't be in zero-doc state.
 - In the Archive a Sheet Set dialog box, you can modify Archive Setup options similar to eTransmit. Like eTransmit, the Archive setup is saved with the sheet set data file.

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However, unlike eTransmit, you can only have one Archive Setup and you cannot import it from another sheet set.

- You can use the Sheets, Files Tree, or Files Table tabs to add and remove files from the archive set.

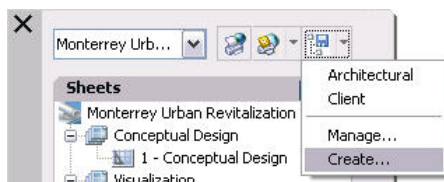


Whether you create a transmittal set or an archive set, the original files are not modified. AutoCAD makes a copy of the files using the criteria you specified in the transmittal or archive setup.

Step 8: Using named sheet selections

As you continue to use more sheet set functionality, you might want to have different sheet selections. For example, you might want to plot the entire sheet set for a design review and create a transmittal set of just the floor plan and lighting drawings for the lighting vendor. You may find yourself wanting to access these various selections of sheets many times throughout the project. Rather than having to scroll through and select the appropriate sheets each time, you can create named sheet selections.

1. Create Named sheet selections. You will repeat this process for each named sheet selection you want to create.
 - Select several sheets and/or subsets using the Shift or Ctrl keys. These are the sheets that you want to include in the named sheet selection.
 - From the Sheet Selections drop-down list, choose Create. If you have multiple sheets selected, you can also right-click and choose Save Sheet Selection.



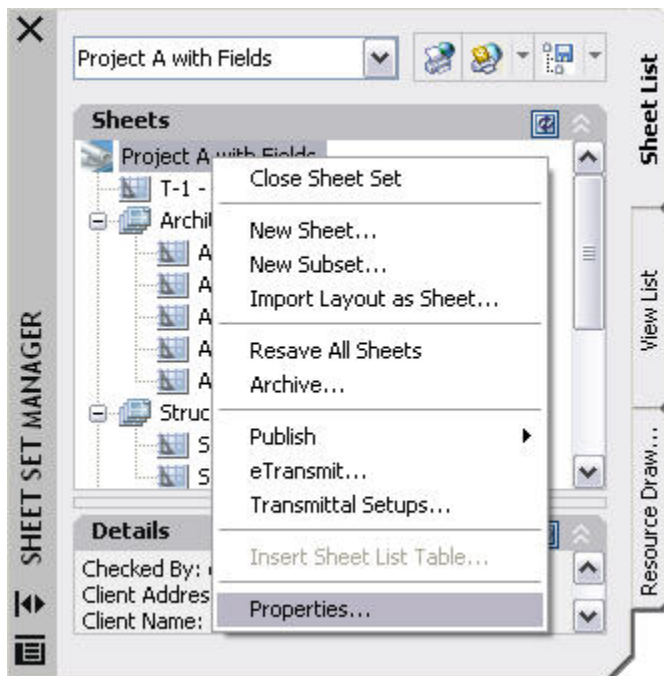
SHEETS HAPPEN!

- Enter a name for the sheet selection. You might create named sheet selections such as Client set, Design review, Architectural sheets, and Landscape sheets.
 - Choose OK.
2. Restore different named sheet selections.
 - From the Sheet Selections drop-down list, choose one of your named sheet selections. The sheets that you had selected when you created the named sheet selection are highlighted and ready for you to plot, publish to DWF, or etransmit.
 3. Manage named sheet selections.
 - From the Sheet Selections drop-down list, select Manage.
 - Choose Rename or Delete.

Step 9: Assigning sheet set properties

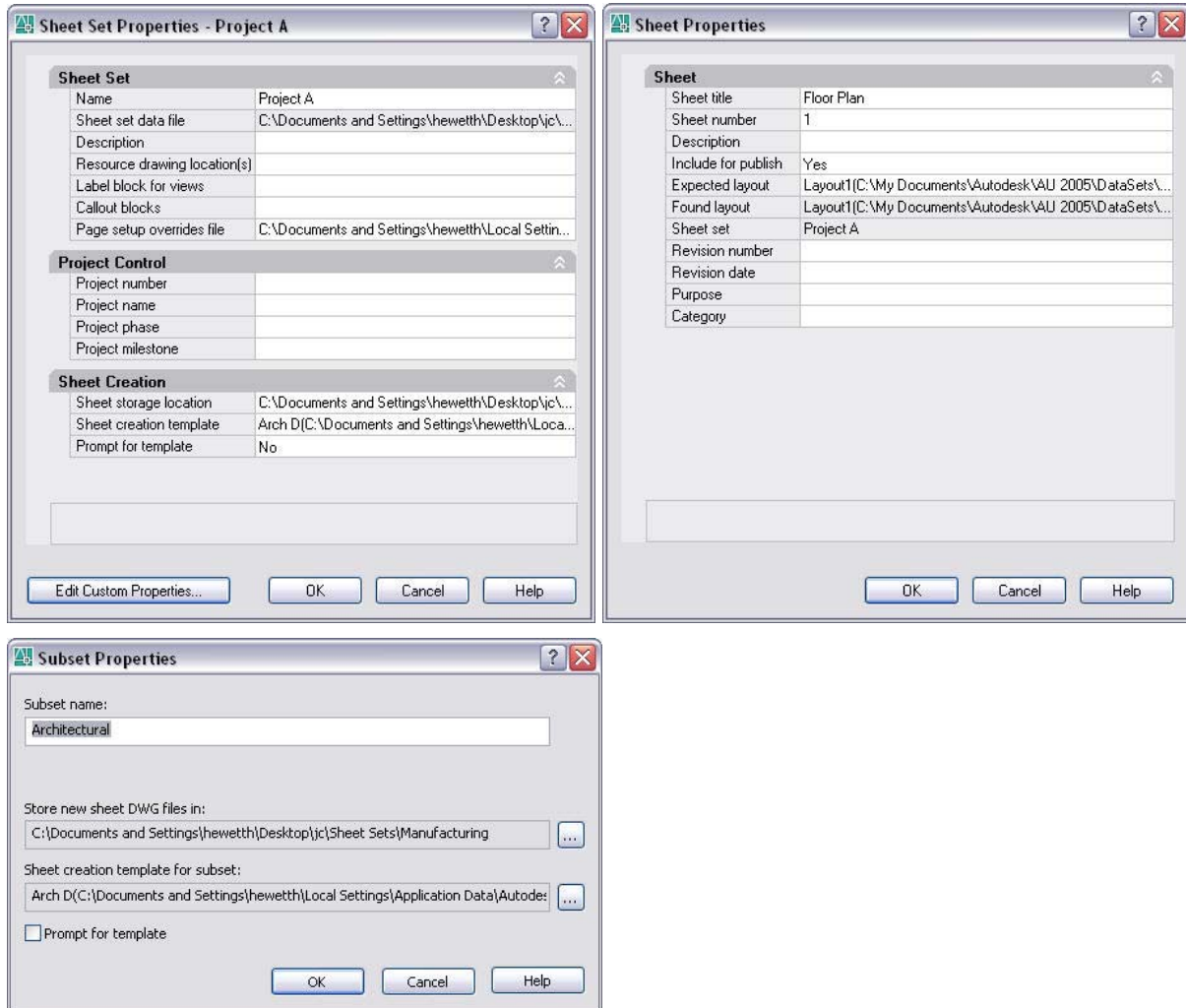
If you have been following along with the Sheets Happen series, you've been able to take advantage of sheet set functionality with minimal effort. However, if you want to fully implement sheet sets for maximum productivity, you will need to assign various sheet set properties.

You will find the sheet set properties by right-clicking on the sheet set title in the Sheet List tab of the Sheet Set Manager and selecting Properties.



Note that you will also find a Properties option in the right-click menu for subsets and sheets. Depending on which item you right-click, selecting Properties will display different dialog boxes (Sheet Set Properties, Subset Properties, Sheet Properties) enabling you to view and change the relevant properties for that particular item. I'm going to focus on the Sheet Set Properties.

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By default (in AutoCAD 2006), the Sheet Set Properties dialog includes three sections: Sheet Set, Project Control, and Creation. The Sheet Set section includes properties for the Name, Sheet set data file, Description, Resource drawing locations, Label block for views, Callout blocks, and Page setup overrides files. The Name property is for the name of the sheet set. It uses the name you provided when you created the sheet set with the Create Sheet Set Wizard (see Sheets Happen! Step 1: Creating a new sheet set). That name was also used for the name of the sheet set data file (DST) as you can see by viewing the Sheet set data file property. You can change the name of the sheet set using the Sheet Set Properties dialog box. However, the name of the sheet set data file will not change. If you want to change the name of the sheet set data file, you must close the sheet set in the Sheet Set Manager and then use Windows Explorer to rename the DST file. The Description property may be blank depending if you entered a description when you first created the sheet set. You can create or edit the description in the Sheet Set Properties if you wish. The Project Control section is not available in AutoCAD 2005. However you can create custom sheet set properties to accomplish the same thing. I'll discuss custom sheet set properties and all of the remaining sheet set properties in future posts as they become relevant.

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Step 10: Plotting using any page setup

Note: I added the December 30, 2005 posting, “Resolve to save your page setups”, to this section.

Named page setups were introduced in AutoCAD 2000 but they were somewhat hidden and relatively unused. In AutoCAD 2005, with the introduction of sheet sets, named page setups were slightly redesigned and made more visible. However, I’m still surprised at how many people don’t use (or even know about) named page setups. Regardless of your version of AutoCAD (2000 – 2006), if you plot (and who doesn’t?!?), you will find value in named page setups!

You can create any number of named page setups and easily restore them for any layout. For example, you might create one named page setup called Final Plot that plots the layout to your HP DesignJet on an E-size sheet at a scale of 1:1, and a second one called Test Plot that plots the extents to your LaserJet on a letter-size sheet, scaled to fit.

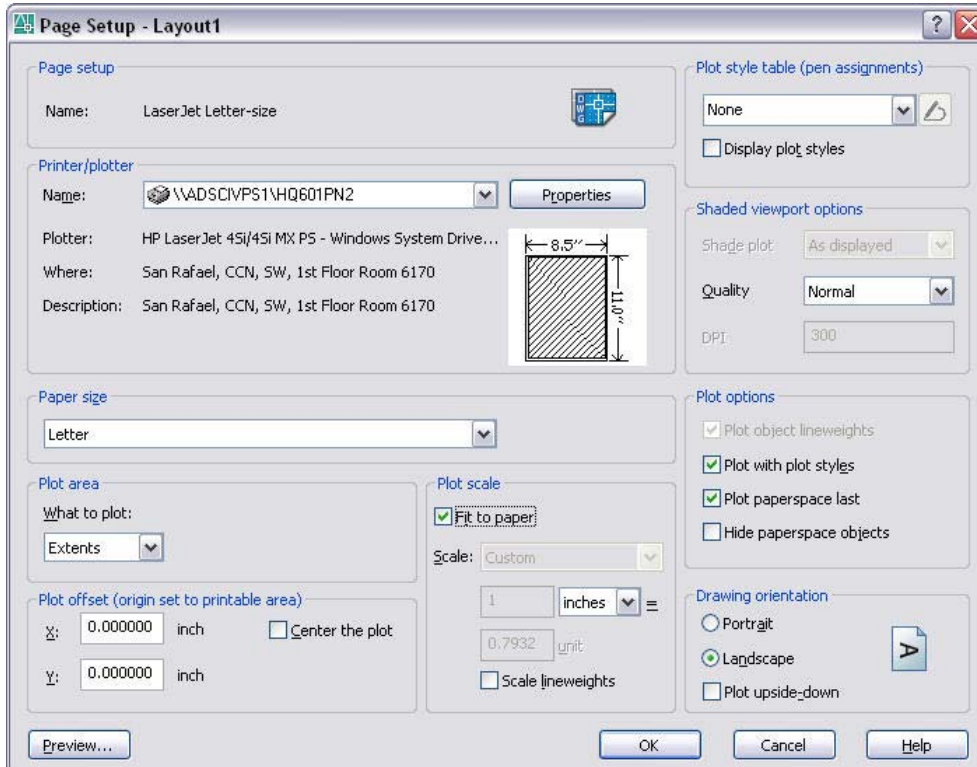
If you have AutoCAD 2005 or 2006, you are probably familiar with the Page Setup Manager but you may not have used it to save a named page setup. The Page Setup Manager automatically displays when you try to access the page setup for a model or layout tab. By default, AutoCAD creates an unnamed page setup for the current tab. If you select the Modify button, you can change the page setup options for that particular layout (or model). However, without using named page setups, you have to repeat the process for every layout. Using named page setups, you can set the options one time and then easily apply them to any layout. The process for creating named page setups is simple. Once they are created, named page setups will save you clicks and time!

1. From the File menu, choose Page Setup Manager. You can also right-click on the model or layout tab to find the Page Setup Manager.
2. Choose New.
3. In the New Page Setup dialog box, enter the name of the page setup. Possible names might include: Test Plot, Final Plot, LaserJet Letter-size, DesignJet E-size, E-size Monochrome, etc.

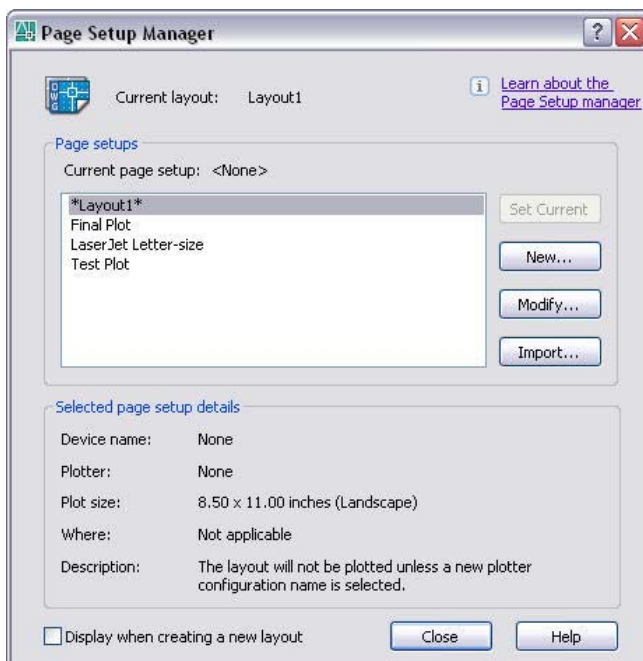


4. In the Page Setup dialog box, specify the device and other page setup options and then choose OK.

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5. Continue to create new page setups for the various page setup configurations you might need.
6. In the Page Setup Manager, select the named page setup you want to use for the current layout (or model) and choose Set Current.



All of the named page setups are saved in the current drawing but you can use the Import option to access named page setups from other drawings. Ideally, you would create all your named page setups in a template file so that they are automatically included in new drawings and easily accessible from a central location to import into existing drawings.

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I think once you start using named page setups, you'll wonder what took you so long. The concept is no different than using dimension styles or text styles. You (hopefully) would never set all the dimension or text options each time you need them. So, why set each of the page setup options each time you need them???

If you've been following along with the sheet set series, I'll show you how to integrate your page setups with sheet sets.... but that post will have to wait until next year! :-)

Imagine that a design partner sent you a set of drawing files with 100 sheets. You want to plot all of the sheets to fit on a letter-size paper using your LaserJet. Unfortunately, each of those 100 layouts has been saved to plot to E-size paper on a DesignJet. Has this ever happened to you? What do you do? Using traditional methods, you probably open a drawing, select the layout, choose Plot, set the device, set the paper size, set the plot area, set the scale, and send it to the plotter. And then, repeat the same process 99 more times! If you are a full-time plotter, you might think of it as job security! Otherwise, you probably consider it an incredible waste of your valuable time!

In AutoCAD 2005 and 2006, the sheet set manager enables you to use named page setups to quickly plot an entire sheet set (or any selected sheets within it) to any page setup configuration. If you are not familiar with named page setups, now is the time to learn! In this post, I'll show you how to create a named page setup from your sheet set. However, for more general information about named page setups, I suggest you first read my previous post (Resolve to save your page setups).

When you create a new sheet set, AutoCAD uses a default template file for the named page setups. Since it is unlikely that those default named page setups will meet your needs, I suggest you start by creating your own template file. If you already have a template file for creating new drawings, you can use that same template file to store your named page setups or you can use a completely different file. I prefer to store the page setups in the same template file that I use for creating new drawings so that I have fewer files to manage... but it really doesn't matter to AutoCAD.

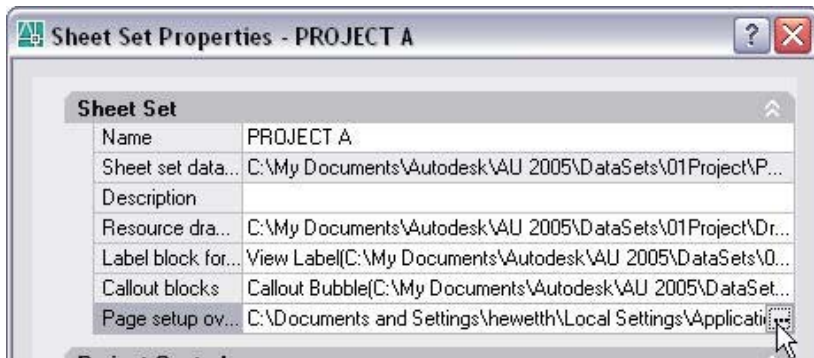
First, you need a custom template file (DWT). If you already have a custom template file, you can skip this procedure. However, you might want to read the information regarding template file location in step 3.

1. In AutoCAD, begin a new drawing using whatever AutoCAD template you typically use.
2. From the file menu, select Saveas.
3. In the Save Drawing As dialog box:
 - Change the Files of Type to AutoCAD Drawing Template.
 - Navigate to the folder where you want to store your template file. By default, AutoCAD will save it in the local user's Template folder. This location will work fine for your sheet set; however, I suggest you place it somewhere more obvious and accessible. You will probably want to reuse this template file for other sheet sets so place it in a location that make sense for all of your projects. For example, if you have a Projects folder (locally or on a network), you might create a Templates folder within or next to the Projects folder.
 - Enter a name for your template file.
 - Choose Save.

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Next, you need to assign your sheet set to use your template file for page setups. It doesn't matter if your template file doesn't yet contain named page setups.

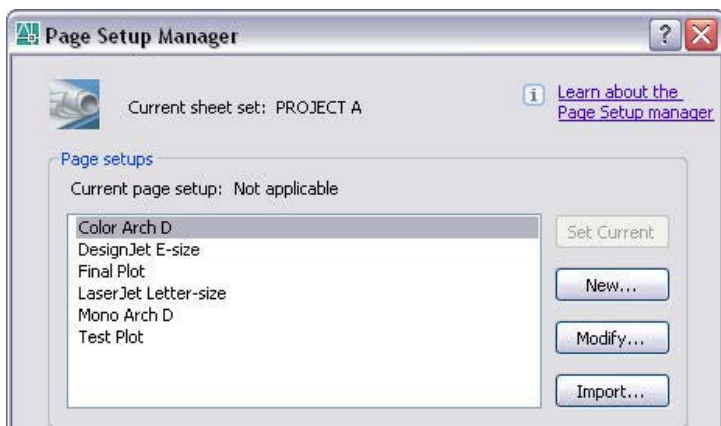
1. In the Sheet Set Manager, right-click on the sheet set title and choose Properties.
2. Click on the Page Setup Overrides File. The browse button will display within the field.



3. Select the browse button and navigate to the template file you want to use for named page setups.
4. Select the template file and choose Open. If the template file you selected does not contain page setups a warning dialog box will display. Select OK to dismiss the warning dialog.
5. In the Sheet Set Properties dialog box, choose OK.

Finally, you need to create named page setups. If your template file already contains named page setups, you can create additional ones or modify the existing ones.

1. Right-click anywhere in the sheet list and choose Publish>Manage Page Setups. If your template file already includes some page setups, they will be displayed in the Page Setup Manager.
2. In the Page Setup Manager, choose New.
3. In the New Page Setup dialog box, enter a name for the page setup. Possible names might include: Test Plot, Final Plot, LaserJet Letter-size, DesignJet E-size, E-size Monochrome, etc.



4. In the Page Setup dialog box, specify the device and other page setup options and then choose OK. The named page setup is automatically written to the template file. This is one of the few sheet set functions that might write information to an existing file without you

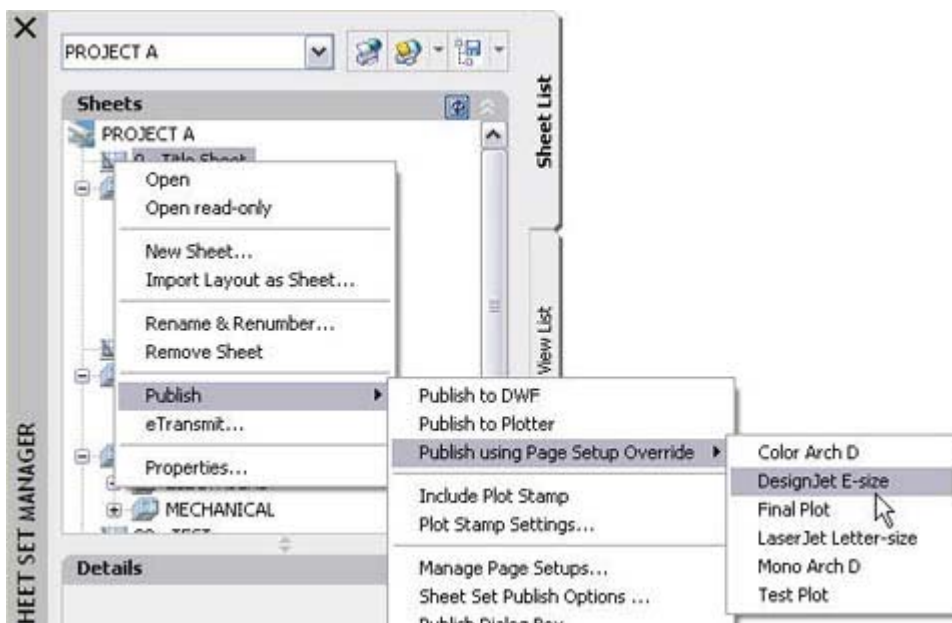
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knowing it. The only other ones are the “hints” that I described at the end of my November 7th Sheets Happen post.

5. Continue to create new page setups, modify existing ones, or import named page setups from other files. All of the page setups in the template file will be available for you to use when plotting from the Sheet Set Manager.
6. Close the Page Setup Manager

Now that your template file includes named page setups, you can easily plot your sheet set to any configuration that is stored in the named page setups.

1. Right-click on the sheet set title or any combination of sheets that you want to plot.
2. Choose Publish>Publish Using Page Setup Override. Notice the page setup options that you created.



3. Select the named page setup that meets your need for the current plot.

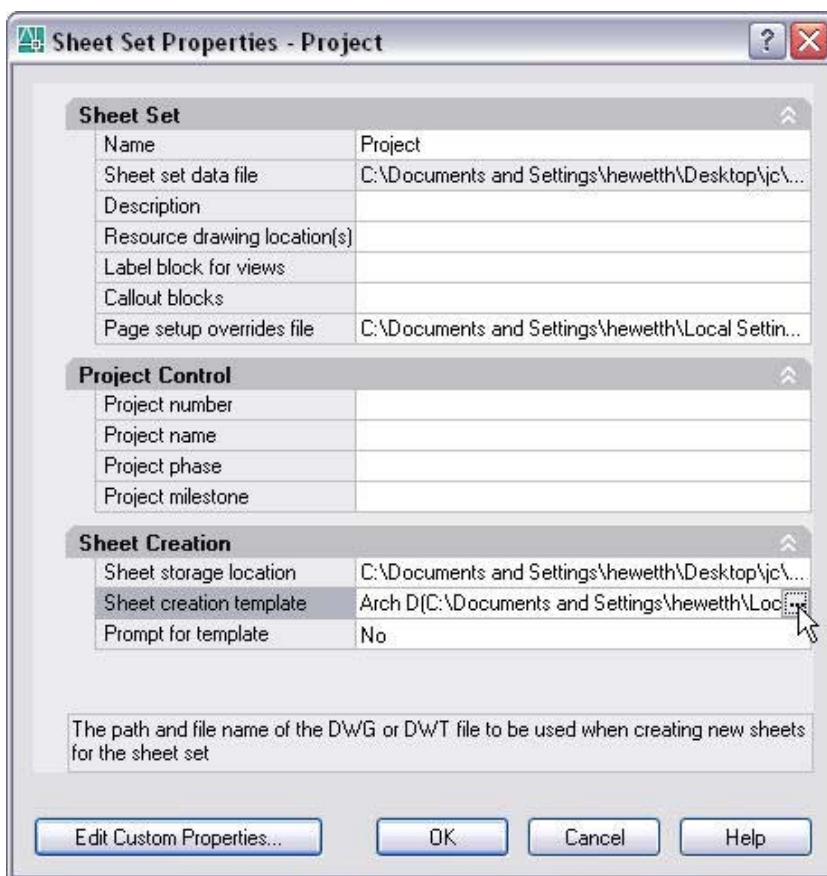
Think of how much time you will save by not having to open and reconfigure every layout each time you want to plot to a different device, scale, etc. And, since these name page setups are saved in a template file, the next time you create a sheet set, the process will be even easier! Just use the same template file!

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Step 11: Creating new sheets

When you create a new drawing using traditional methods (ie the NEW command), you must use an existing drawing file as a template. The existing drawing could be a DWG (drawing), DWT (template), or DWS (standards) file. It might be one of the default AutoCAD drawing files or, more likely, it is your own customized drawing that contains layers, title block, and other information specific to your project or company. Up until now (assuming you are following along with this Sheets Happen series) you have been creating new drawings using traditional methods and then importing the layouts into the Sheet Set Manager (SSM). To create new drawings (sheets) more efficiently, you can set the sheet creation properties in the sheet set to use your template file and then create your new sheets directly from the SSM.

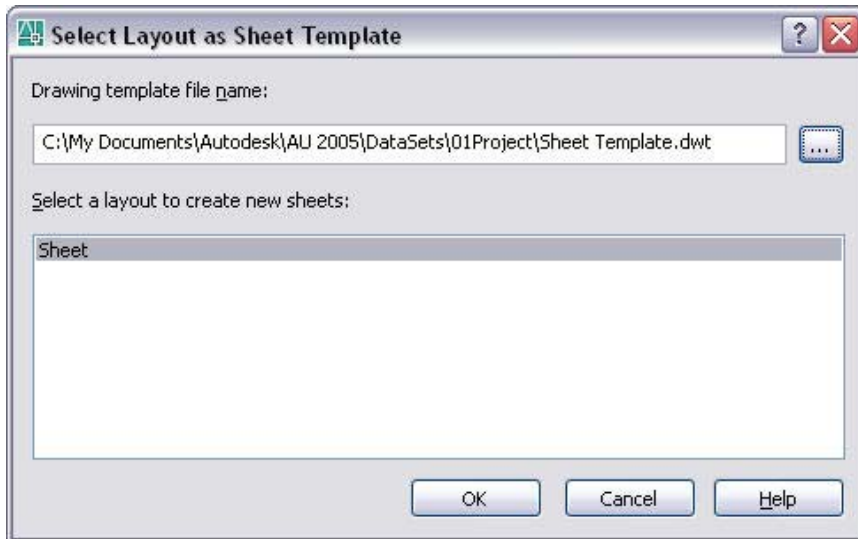
1. In the Sheet Set Manager, right-click on the sheet set title and choose Properties.
2. In the Sheet Set Properties dialog box, select the Sheet Creation Template and choose the button to access the Select Template dialog box. By default, the sheet creation template uses a template (DWT) file that is installed with AutoCAD. You want to change this property so that it uses your own template file.



3. In the Select Template dialog box, navigate to your template file and choose Open. The Select Layout as Sheet Template dialog box will display. It list all of the layouts that are included in the template file.

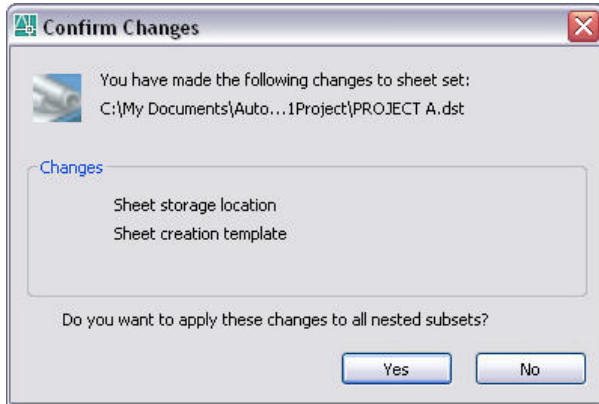
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4. Select a layout and choose OK. If you have multiple layouts, select the one that you use most frequently.



5. In the Sheet Set Properties dialog box, set the Prompt for Template property to Yes or No as appropriate. By default, this property is set to No. This means that every time you create a new sheet in the sheet set, AutoCAD will automatically use the template file which is assigned to the Sheet Creation Template property. If you always (or almost always) use the same template file, you should select No. If you frequently need different template files, you can set this property to Yes so that AutoCAD will prompt you to select a template file and layout each time you create a new sheet in the sheet set. You can also assign different sheet creation templates based on the subset in which you are creating the new sheet.
6. In the Sheet Set Properties dialog box, select the Sheet Storage Location and choose the button to access the Browse for Folder dialog box.
7. In the Browse for Folder dialog box, navigate to the folder where you want drawing files (DWG) for the new sheets to be created. The location you specify depends on the folder structure of your project. If you store all of your project drawings (sheets) in one folder, select that folder. If you organize your drawings in subfolders, you may want different sheet storage locations based on the subsets in your sheet set. As you move forward with sheet sets you might want to consider creating separate folders for “sheet” drawings versus “model” drawings. I’ll talk more about that in a future post.
8. In the Sheet Set Properties dialog box, choose OK. The Confirm Changes dialog box appears and asks if you want to apply your changes to all of the nested subsets. This relates back to my previous comments about the ability to specify different sheet creation templates and locations based on subsets.
9. In the Confirm Changes dialog box, specify if you want to apply the changes to all nested subsets. If you choose Yes, the sheet creation properties will be consistent for the entire sheet set regardless of where you create the new sheet within the sheet list. If you choose No, you may get different sheet creation behavior depending in which, if any, subset you create the new sheet. If you have no idea what I’m talking about, select Yes :-)

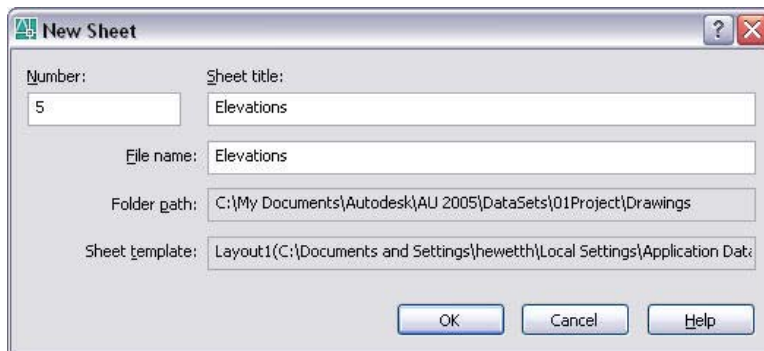
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10. In the Sheet Set Manager, right-click on the sheet set title and choose New Sheet.

11. In the New Sheet dialog box:

- Review the Folder Path and Sheet Template. They should match the location and template file that you specified in the sheet set properties.
- Enter a sheet number and title. As you enter the number and title, AutoCAD automatically enters them for the file name. You can name the file anything you want. I always remove the number from the file name to avoid future confusion because if you renumber the sheets in the sheet set, the sheet number and the file name will be different. Your current practice might be to include the sheet number in the file name to help you identify the drawing in your project folder. However, with sheet sets, that "old" practice is unnecessary because the SSM enables you to manage sheet numbers and access the correct drawing files.



- Choose OK. AutoCAD automatically creates a new drawing and adds the sheet to the sheet list. Remember that the sheet in the sheet list is simply a link (shortcut) to a layout in the DWG file.

12. Double-click on the new sheet to verify that it used the correct template.

If you want to apply different sheet creation properties based on the subset, you can right-click on a subset and choose Properties to modify the new sheet location, template, and prompt option for that particular subset. Then, when you right-click on that subset and choose New Sheet, AutoCAD will create the new sheet within that subset using those particular sheet creation properties.

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Step 12: Creating Sheet Views

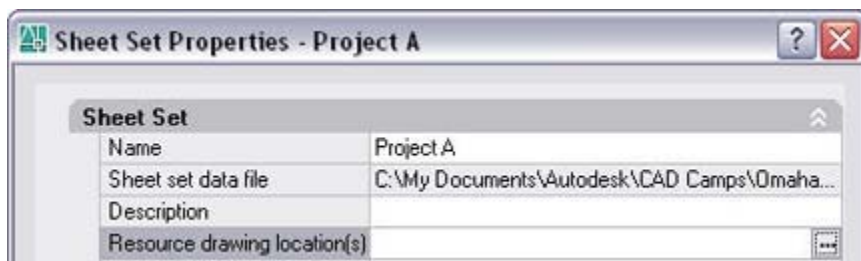
Did you think I was done with sheet sets? Not a chance! I've just been a little distracted by other activities. I'm sorry about the delay... I know you're anxious to move on to the really *exciting* topics relating to Fields! Before we get into fields, I've decided to squeeze in two more topics (Creating Sheet Views and Adding View Labels) because these are ways you can further increase your efficiency with minimal effort.

In Sheets Happen! Step 11, you learned how to use your existing template file to create a new sheet. Now I'll describe how you can quickly add content to that new sheet.

If you were creating "sheets" using traditional tools, you might create a drawing using your template and then attach external references of your model, create viewports on the layouts, set the viewport scale, and insert a view label to describe that particular view or detail. The same concepts apply using sheet set functionality, except the process is automated!

Assuming your xref drawings are in a particular folder on your hard drive (or on a network drive), you can add that folder (or folders) as a sheet set property. This will enable you to have easy access to your xref drawings from within the Sheet Set Manager.

1. In the Sheet Set Manager, right-click on the sheet set title and choose Properties.
2. In the Sheet Set Properties dialog box, select Resource Drawing Locations and choose the button to access the Resource Drawings Location dialog box.



3. In the Resource Drawing Locations dialog box, choose Add and navigate to the folders that contain the xrefs (model geometry) that you want easily accessible for this sheet set. You can add as many locations as you want.
4. Choose OK to close all of the dialog boxes and accept the changes.

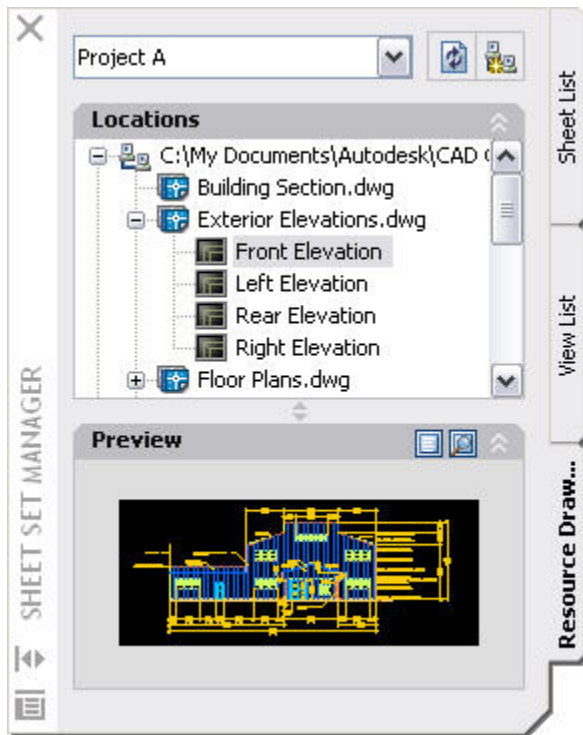
So far all of our work in the Sheet Set Manager has been on the Sheet List tab. However, as you have probably noticed, there are two other tabs: Resource Drawings and View List. The Resource Drawings tab displays a tree view of the resource drawing locations you added in step 3 above and you can add locations directly from the Resource Drawings tab. If you expand the file location node, you can see all the folders and drawings in that location. If you expand a drawing node, you will see the named modelspace views within that drawing. If the drawing does not contain named modelspace views, it will only expand as far as the drawing file itself.

Using the Resource Drawings tab, you can easily add content to your sheets. Rather than going through the manual process of attaching an xref and creating and scaling a modelspace viewport, you simply drag a resource drawing onto your sheet.

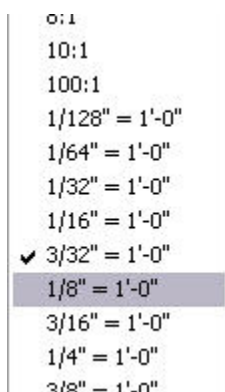
1. In the Sheet Set Manager, select the Sheet List tab.
2. On the Sheet List tab, open a sheet to which you want to add content.

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3. Select the Resource Drawings tab.
4. On the Resource Drawings tab, navigate to the drawing file you want to attach as an xref in your sheet.



5. Select a drawing or named modelspace view within the drawing and drag it onto the sheet. You can simply pick a point on the layout and AutoCAD will automatically determine an appropriate scale based on the size of the drawing/view and layout. However, since you probably want the new layout viewport to be at a particular scale, you can specify the scale before you place the viewport on the layout.
6. Before you specify the insertion point for the new viewport, right-click and select an appropriate scale from the list.



7. Specify the insertion point to place the viewport in the drawing.

So what exactly happened during this process? Nothing magic! AutoCAD did exactly what you do using traditional methods, but it did it in a lot fewer steps! AutoCAD attached the resource drawing file to the sheet drawing as an external reference with an insertion point at 0,0. It created

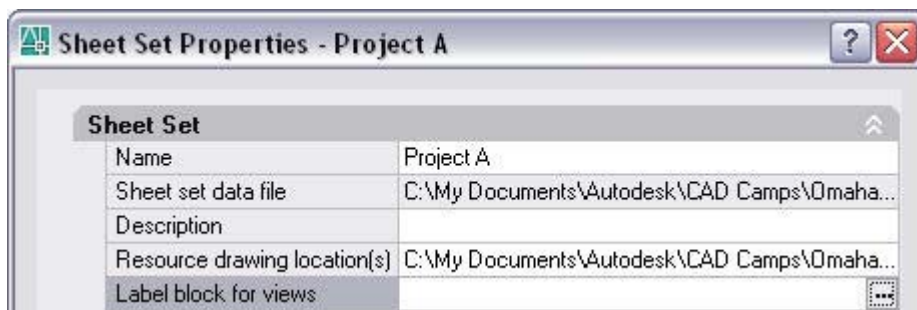
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a layout viewport and set the viewport scale. Regardless of whether you select a drawing or named modelspace view from the Resource Drawings tab, AutoCAD attaches the entire drawing. Your selection (the dwg or a particular modelspace view) determines how much of that xref will be displayed in the new layout viewport. If you select a drawing, the new layout viewport displays everything that was visible in modelspace of the xref file. If you select a named modelspace view, the new layout viewport displays everything that was visible in that named view; taking into account the layer visibility as well as the view boundaries. If you are not familiar with named views, I encourage you to learn more about them. Named views were enhanced in AutoCAD 2005 to support sheet set functionality but they are very useful even if you don't use sheet sets. And, as we look into the future of AutoCAD, named views will become even more valuable!

Step 13: Adding View Labels

When you create sheet views like I described in the previous Sheets Happen post, you probably want those sheet views to be labeled. Using traditional methods, you probably insert a block that uses attributes to display the view number, title and scale. You can continue inserting your view label block just like you've always done, or you can save some steps by assigning your view label block as a property in the sheet set.

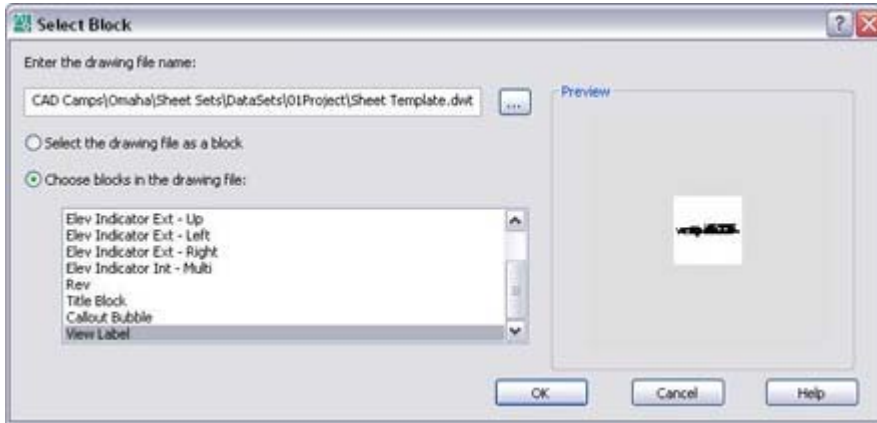
1. In the Sheet Set Manager, right-click on the sheet set title and choose Properties.
2. In the Sheet Set Properties dialog box, select Label Block for Views and choose the button to access the Select Block dialog box.



3. In the Select Block dialog box, navigate to file that defines your standard view label block. Your view label block might be defined in its own drawing (DWG) or template (DWT) file or it might exist as a block definition within a larger drawing or template file.
4. If your view label is its own file, select the option: Select the drawing file as a block.
Or
If your view label is a block definition within a drawing or template, select the option: Choose blocks in the drawing file and then select the appropriate block definition.

You can only assign one view label block to a sheet set.

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5. Choose OK to close both dialog boxes and accept the changes.

Now when you create new sheet views using the Resource Drawings tab as described in my previous post, AutoCAD will automatically insert the view label block for you. It places the view label block with its insertion point at the lower left corner of the viewport. You can then use traditional methods to enter the view number, name, and scale. But, wouldn't it be great if AutoCAD entered all of that information for you??? Ahhh Haaaa!! That is why we need Fields! Stay tuned!

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Implementing Sheet Sets for Maximum Efficiency

When you are ready to take full advantage of what sheet sets have to offer, you must integrate Field functionality into your sheet sets. This section shows you how!

Step 14: Creating Fields

Note: I added the March 24, 2006 posting, “Automating textual data using fields” for this section. It serves as an introduction to fields and most of this content can be used even without sheet sets.

In AutoCAD (2005, 2006, 2007), you can use Fields to automate textual data within your drawings. It may seem like a new and scary concept but it really isn't. Have you ever inserted an automatic page number or date in a Word doc? Those are fields!

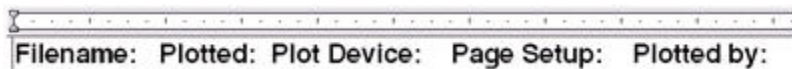
You can add fields to text, attributes and tables in your AutoCAD drawings. While creating or editing any of these objects, simply right-click and select Insert Field from the right-click menu. (Note: While you *can* add fields to attribute values within block instances, I strongly discourage that practice. If you want block attributes to include fields, you should add them as attribute defaults for the attribute definitions within the block definitions.)

Here are some of my favorite examples of where you might want to use fields in your AutoCAD drawings.

Plot Stamps!

You can combine field functionality with familiar Mtext editing to create a plot stamp that is as flexible in appearance and location as any other piece of text. Since the plot stamp is actually an Mtext object, you can view and modify its appearance in an intuitive WYSIWYG environment without having to first plot the drawing. You can create the plot stamp in your drawing template so that it is automatically included in any new drawings that you create. The field values automatically update to display data based on the new drawing. You can even copy the plot stamp into an existing drawing with the assurance that the field data will update accordingly.

1. In AutoCAD, open the drawing (DWG) or template (DWT) to which you want to add a plot stamp.
2. Create a new Mtext object.
3. In the Mtext editor create any labels that you want to include in your plot stamp. For example, you might want a label for the drawing file name, plot date, plot device, named page setup, and who plotted the drawing. Creating labels is optional. You may choose to insert field data without preceding text.



4. After each label, right-click in the Mtext editor and choose Insert Field.
5. In the Field dialog box, select a field category and a field name.

The field category and field name that you choose depends on the data that you want to display. The drawing file name field is in the Documents field category but all of the plot-specific fields are in the Plot field category. If you want to display the plot date, for example, select the Plot field category and the PlotDate field name. Depending on the

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field that you choose, you may have the option to select from various formats such as month/day/year or year-month-day. If you are using sheet set functionality, you might want to include SheetSet fields such as the name of the sheet set to which this drawing belongs.

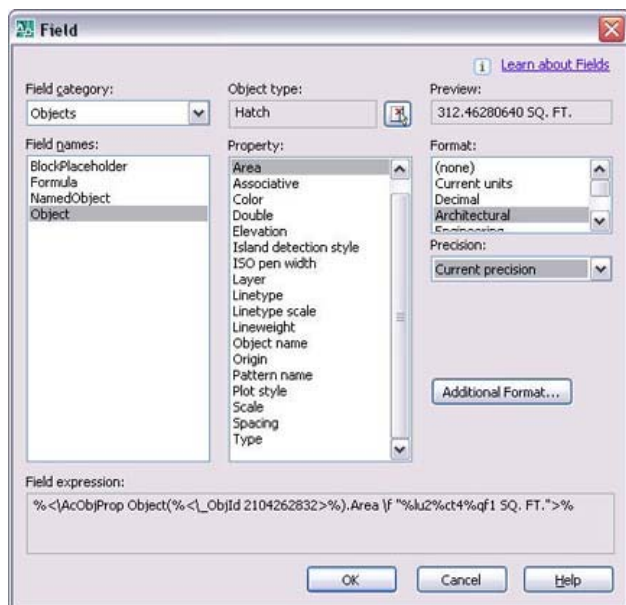
When you exit the Field dialog box, the field value appears in the Mtext editor. If the field cannot be evaluated, it will display dashes “----“. For example, AutoCAD can't evaluate the PlotDate field until the drawing is actually plotted. After you insert your fields in an Mtext object, you can modify their appearance using typical editing features. You can change a field by double-clicking on it and choosing an alternate one from the Field dialog box.



Object Data!

You can use fields to display information about a selected object. For example, you can display the diameter of a circle or the area of hatch. When you edit those objects, the field values update to reflect the changes in geometry.

1. Open the drawing to which you want to add the object field.
2. Access the Field dialog box by using the Field command (this will create a field within an Mtext object) or by right-clicking within a table cell, text object, or attribute.
3. In the Field dialog box, select the Objects field category. Notice there are various types of object fields to select from including named objects such as layers, views, etc.
4. If you want to display field data for a graphical object in the drawing (like a hatch), select the Object field name.
5. Choose the Select Object button and select the object for which you want to display field data. Depending on the type of object you select, various properties will be listed in the Field dialog box.



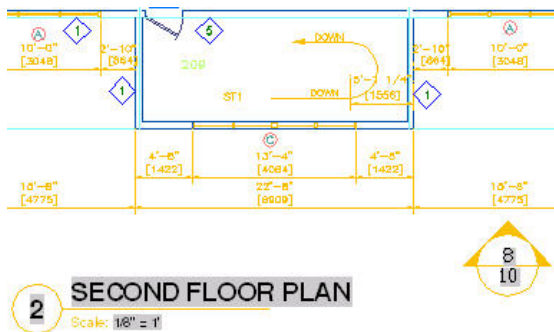
SHEETS HAPPEN!

6. Select the property, specify the format and choose OK. If you used the Field command to access the field dialog box, you will need to specify the location for the new field data. If you used any other method to access the field dialog box, you should see the new field data displayed in the existing object.



Sheet Sets!

One of the most powerful uses of fields is in combination with sheet set functionality. You can use fields to automate the data in view labels, callout blocks, and title blocks by managing that data from a central location within the project's sheet set.



drawn by: Sierra
checked by: Charley
date: March 21, 2008
drawing no.

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The remainder of this document describes how to integrate fields and sheet sets.

Step 15: Automating View Label Data

As you learned in my previous Sheets Happen! post, you can assign the Label Block for Views property in your sheet set so that it automatically inserts a label block when you create a view from the Resource Drawings (in AutoCAD 2007 the Resource Drawings tab is called Model Views). While you can manually edit the values for the block data, such as viewport scale, view title, and view number, wouldn't it be great if that process was automated? It can be! Assuming you already assigned the Label Block for Views property in the Sheet Set Properties according to

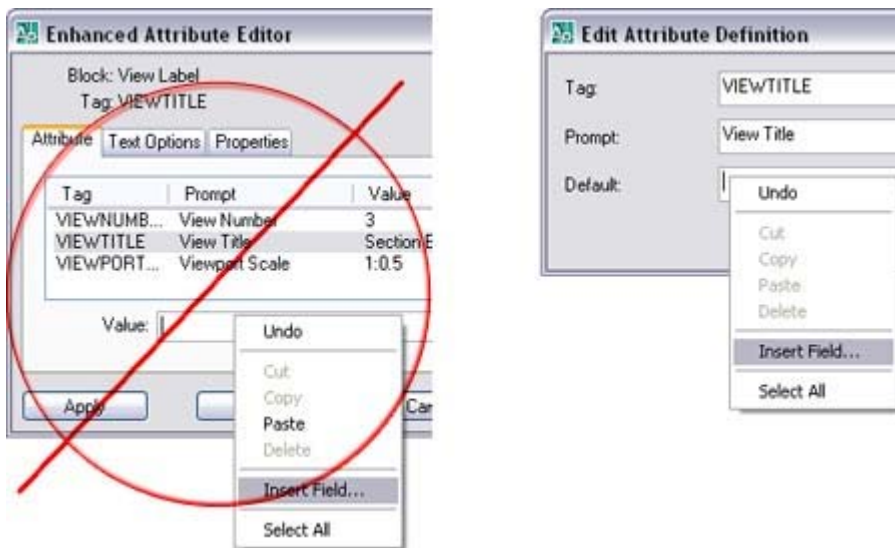
SHEETS HAPPEN!

Sheets Happen! Step 13, you can simply replace the default attribute values with the appropriate Fields! If your label block does not contain attribute definitions, you can define block attributes using traditional methods and then follow this procedure.

1. Open the drawing containing the source block definition. This is the drawing which is being used by the Label Block for Views in the Sheet Set Properties. It is very important that you make sure you are editing the block definition which is being used by the sheet set. If you are like me, you might have several versions of a block and if you are editing one version, but testing a different version, you will make yourself crazy trying to troubleshoot! Trust me! The time you take verifying that the exact path and file name being used by the sheet set matches the one you are editing, will be worth it!

You will need to edit the Default value for each of the attribute definitions. A typical view label block would include attribute definitions for the view number, name and scale. Your block might include additional information as well, but I'll focus on these three since they are the most common. The method you use to update the attribute definition depends somewhat on whether the block is stored as its own drawing or as a block definition within a drawing. Since I'm already assuming that you know how to create a block definition with attributes, I'm also going to assume that you know how to edit those attribute definitions. This way I don't have to describe all of the different methods for accessing the attribute definitions. Instead, I will describe the most graphical method with which everyone is probably familiar. Realize that you can use any method (Battman, etc) that you want.

You want to ensure that you are editing the attribute definition NOT the attribute value in the block instance. How do you know the difference? The attribute definition says "Default", whereas the attribute value says "Value". If you insert a field in an attribute "Value", it may appear to work properly, but if the instance was updated to include a field and the definition was not, the next time someone erases the block instance and reinserts it, the field data will no longer be there.

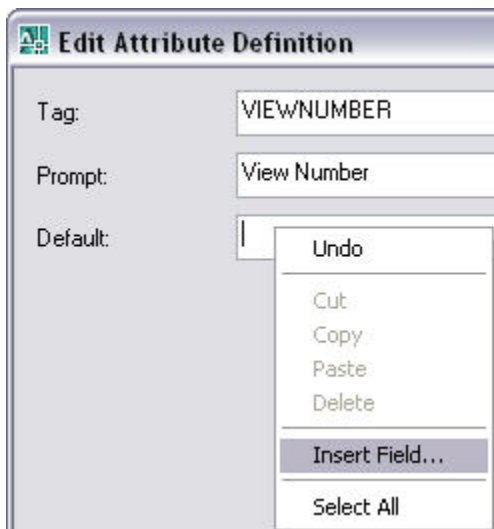


SHEETS HAPPEN!

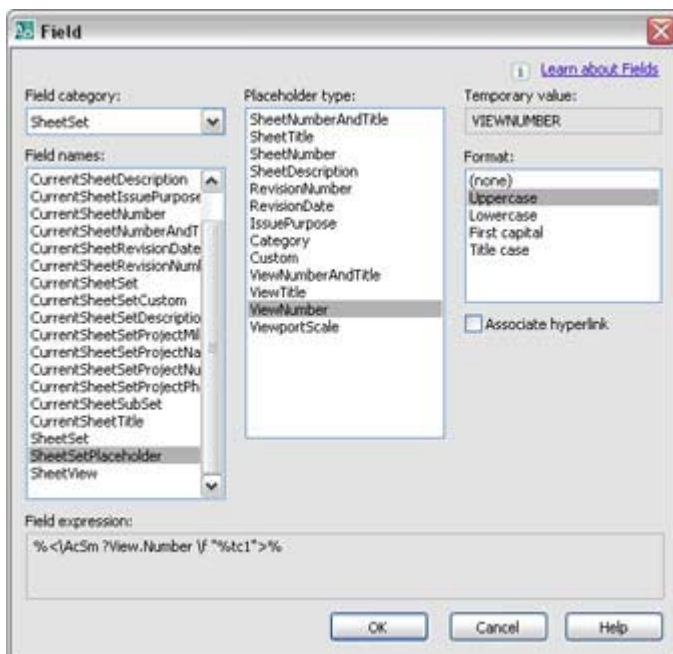
2. If your label block is stored as its own drawing, go to the next step. If your label block is stored as a block definition within your drawing, insert and explode the label block (alternate methods include Battman or the Block Editor). When you explode a block with attributes, the attribute values (left) are replaced with the attribute definitions (right).



3. Double-click on the attribute definition for the view number.
4. In the Edit Attribute Definition dialog box, right-click in Default and select Insert Field.



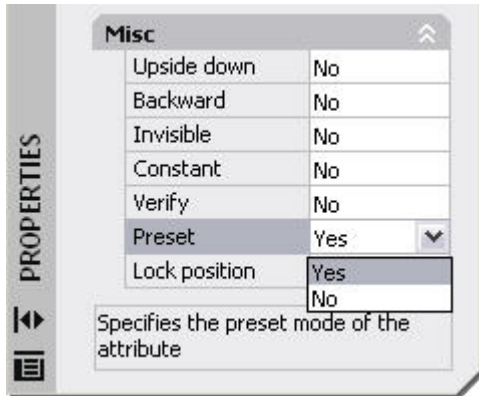
5. In the Field dialog box, select the SheetSet Field category, the SheetSetPlaceholder Field name, the ViewNumber Placeholder type and an appropriate format and then choose OK.



6. Select the attribute definition that you just edited, right-click and choose Properties.

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7. In the Properties window, set the Preset property to Yes. Since the Field will be entering the attribute value for you, you do not want to prompt the user to enter the information as you would have done using traditional attribute definitions. Setting the Preset property to yes will prevent AutoCAD from asking for a value when the block is inserted.



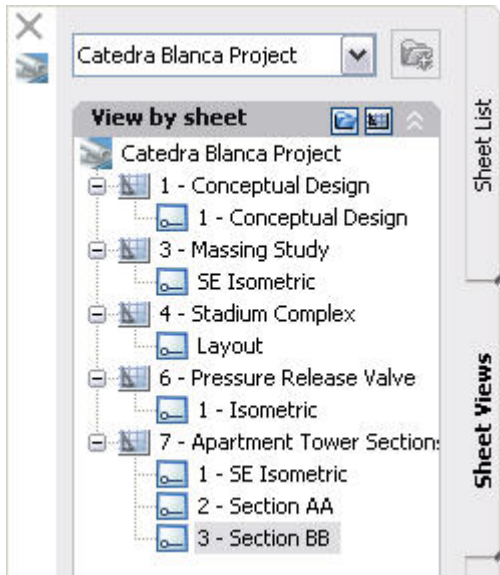
8. Repeat steps 3-7 to add fields to each of the attribute definitions by selecting the appropriate Field name. For example, use ViewTitle to display the name of the view and use ViewportScale to display its scale.
9. Redefine the view label block using the Block command (not necessary if you use Battman or the Block Editor) and save the drawing. Keep in mind that the insertion point you specify will determine how the block is inserted relative to the viewport (see Sheets Happen! Step 13 for more information).

That is all it takes to make your old view label block smarter! Now you can try it out by creating a new sheet and then dragging a view from the Resource Drawings (Model Views) onto the sheet. The view label should automatically display the viewport scale and view title. By default, the view title uses the name of the named model space view or the drawing depending which one you inserted from the Resource Drawings (Model View) list. There is no default number associated with the view but you can easily change the view number and the view title in the Sheet Set Manager using the View List tab (in AutoCAD 2007 the View List tab is called Sheet Views).

1. In the Sheet Set Manager, select the Sheet List tab.
2. Right-click and choose New Sheet. When creating and testing sheet set fields, always create a new sheet to ensure that you are using the appropriate (new) definitions. If you add a new view to an existing sheet which already contains your old view label block definition, it will use that definition rather than the one you updated in the source file and you'll spend all your time trying to "fix" a problem that doesn't exist.
3. Open the new sheet.
4. Select the Resource Drawings (Model Views) tab and drag a view or drawing onto your sheet. When you add a new view to your sheet, that new view will automatically display on the View List (Sheet Views) tab.
5. Select the View List (Sheet Views) tab. The View List (Sheet Views) tab displays all of the sheet/layout views created by the Sheet Set Manager. You can display the view list by sheet or by view category (AutoCAD 2005 only displays by view category). I may discuss view

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categories in a future post, but if you want to learn more about them now, you can refer to the Help system.



6. Right-click on the newly-created view and choose Rename & Renumber.
7. In the Rename & Renumber dialog box, you can enter a view number and/or change the view title and then choose OK. The field value in the view label block will update the next time the drawing regenerates (ie during an Open, Save, Plot, etc) or you can use the Regen command to force a regeneration.

Now that your drawing is using field data, it is CRUCIAL that you do not edit those attribute values using traditional methods. For example, if you want to change the view title, it might be tempting to double-click on the inserted view label block and enter the new title. If you do that, you've replaced the dynamic field data with static old text and the intelligence you gained from fields is gone. Unfortunately there is not currently a way to prevent users from making this mistake so it can only be avoided through education! If you see a field in a drawing (text with a grey background), never edit it! That data is being read from somewhere else and you need to edit the source, not the attribute value! In most cases that I will describe, that source data must be edited in the Sheet Set Manager.

Step 16: Automating Callout Data

Most sheet sets contain information that is interrelated. For example, a view on one sheet might refer to a view on a different sheet. Using traditional methods, you can manually maintain the text references between sheets but that process can be tedious and error-prone. You can dramatically improve your productivity and minimize errors by updating your existing blocks to include fields. In addition to automatically updating textual data as changes occur, hyperlinks enable you to quickly open the sheet that is referenced by the callout and zoom to the appropriate view.

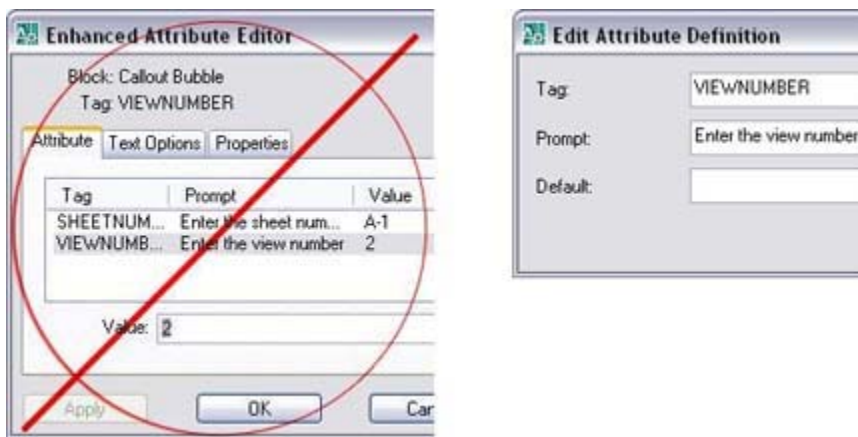
The process for automating callout data is very similar to automating block label data. However, unlike view label blocks, you can assign multiple callout blocks to your sheet set. You will need to update the default value of the attributes to include fields. If you have multiple callout block definitions, you will need to repeat this process for each one. If you combined your callout

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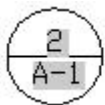
blocks into a single dynamic block as I described in the Dynamic Detour post, you will only have to add fields to that one dynamic block definition.

1. Open the drawing that contains the callout block from your source library. The callout block might be its own little DWG file or it might be a block definition within another drawing, such as a template.

You will need to edit the Default for each of the attribute definitions. A typical callout block would include attribute definitions for the view number and sheet number. Your block might include additional information as well, but I'll focus on these two since they are the most common. The method you use to update the attribute definition depends somewhat on whether the block is stored as its own drawing or as a block definition within a drawing. Since I'm already assuming that you know how to create a block definition with attributes, I'm also going to assume that you know how to edit those attribute definitions. This way I don't have to describe all of the different methods for accessing the attribute definitions. I will describe the most graphical method with which everyone is probably familiar. Realize that you can use any method (Battman, etc) that you want. However, you want to ensure that you are editing the attribute definition NOT just the attribute value in the block instance. How do you know the difference? The attribute definition says "Default", whereas the attribute value says "Value". A good rule of thumb is to NEVER insert a field in an attribute "Value". It may appear to work properly, but if the instance was updated to include a field and the definition was not, the next time someone erases the block instance and reinserts it, the field data will no longer be there.



2. If your callout block is stored as its own drawing, go to the next step. If your callout block is stored as a block definition within your drawing, insert and explode the callout block (Alternate methods include Battman or the Block Editor. If you are editing a dynamic block, you should use an alternate method because exploding will lose the dynamic block parameters and actions). When you explode a block with attributes, the attribute values (left) are replaced with the attribute definitions (right).

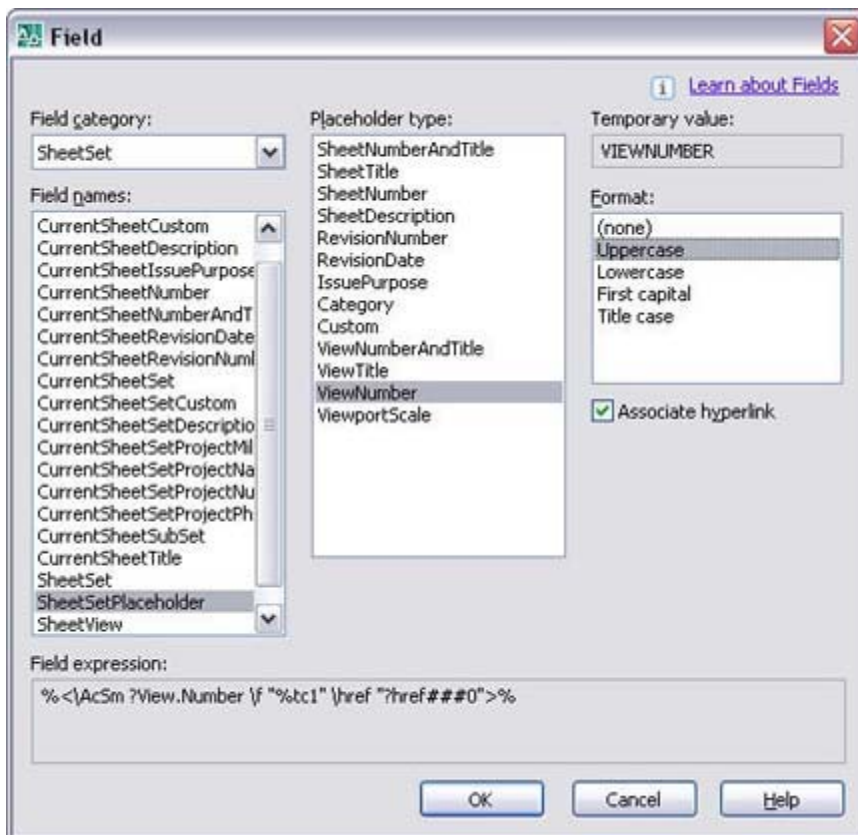


3. Double-click on the attribute definition which represents the view number.
4. In the Edit Attribute Definition dialog box, right-click in Default and select Insert Field.

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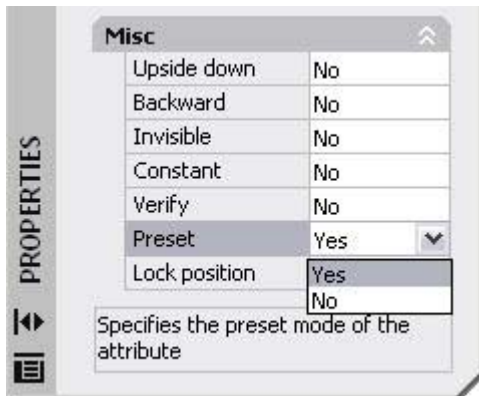
5. In the Field dialog box, select the SheetSet Field category, the SheetSetPlaceholder Field name, the ViewNumber Placeholder type, specify an appropriate format, select Associate hyperlink, and then choose OK. Using the SheetSetPlaceholder field in your callout block enables you to define block attributes for fields that are not associated with any particular sheet or sheet set. Associating a hyperlink will enable you to click on the inserted callout block to open the associated sheet and zoom into that particular view number.



6. Select the attribute definition that you just edited, right-click and choose Properties.
7. In the Properties window, set the Preset property to Yes. Since AutoCAD will enter the attribute value for you (via field data), you do not want to prompt the user to enter the

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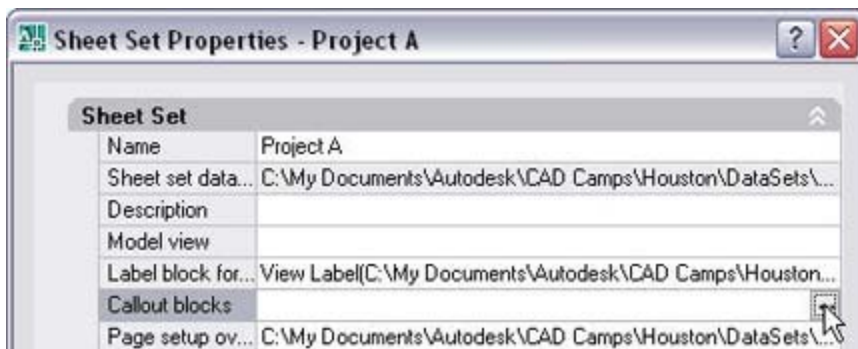
information as you would have done using traditional attribute definitions. Setting the Preset property to yes will prevent AutoCAD from asking for a value when the block is inserted.



8. Repeat steps 3-7 to add a field to the attribute definition for the sheet number using the SheetNumber placeholder type.
9. Redefine the callout block using the Block command (not necessary if you use Battman or the Block Editor) and save the drawing.

That is all it takes to make your old callout block(s) smarter! Now you need to assign your callout block(s) to the Callout blocks property in your sheet set.

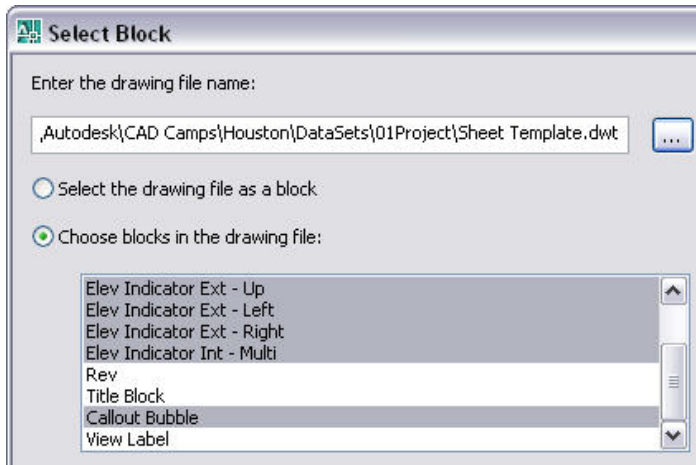
1. In the Sheet Set Manager, right-click on the sheet set title and choose Properties.
2. In the Sheet Set Properties dialog box, select Callout Block and choose the button to access the Select Block dialog box.



3. In the Select Block dialog box, navigate to file that contains your updated callout blocks. As I mentioned previously, your callout blocks might be defined in their own drawing (DWG) or template (DWT) files or they might exist as a block definitions within a larger drawing or template file.
4. If your callout blocks are individual drawings, select the option: Select the drawing file as a block.
Or
If your callout blocks are definitions within a drawing or template, select the option: Choose blocks in the drawing file and then select the appropriate block definitions.

You can assign any number of callout blocks to a sheet set.

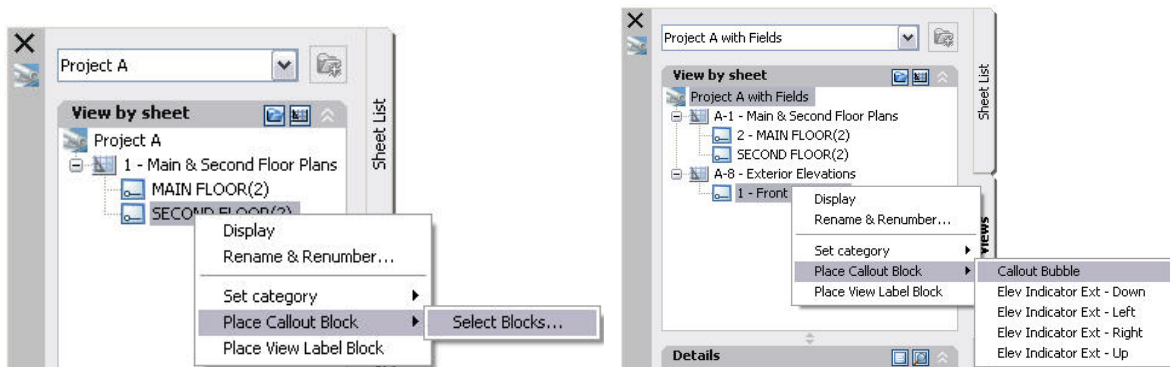
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5. Choose OK to close each of the dialog boxes and accept the changes.

Now you're ready to test it out!

1. In the Sheet Set Manager, select the Sheet List tab.
2. Open a sheet to which you want to add a callout.
3. Select the View List (Sheet Views) tab. The View List (Sheet Views) tab displays all of the sheet/layout views created by the Sheet Set Manager.
4. Right-click on the view that you want to reference in your callout and choose Place Callout Block. The first time you do this, the Place Callout Block cascading menu option may display the option to Select Blocks. You can choose the Select Blocks option and then select all the callout blocks that you want to be available from the Sheet Set Manager. Subsequent access to the Place Callout Block cascading menu will display all the blocks that you selected.



5. Select the callout block you want to insert and place it on the sheet. The view and sheet numbers should automatically display in the callout.
6. Hover the cursor over the callout block and press Ctrl as you select the view or sheet number. If you select the sheet number, AutoCAD will open the appropriate drawing sheet. If you select the view number, AutoCAD will open the drawing as well as zoom into the appropriate view.

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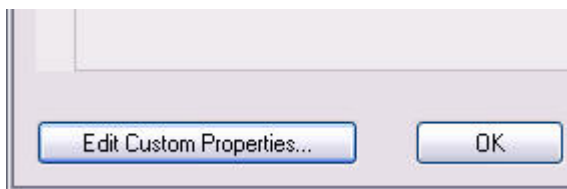
Now that your drawing is using field data, it is CRUCIAL that you do not edit those attribute values using traditional methods. For example, if you want to change the view number or sheet number on the callout, it might be very tempting to double-click on the callout block and enter the number for the Value of that block instance. If you do that, the intelligence you gained from fields is gone. Unfortunately there is not currently a way to prevent users from making this mistake so it can only be avoided through education! If you see a field in a drawing (text with a grey background), never edit it! That data is being read from somewhere else and you need to edit the source, not the attribute value! In most cases that I will describe in the Sheets Happen series, that source data should be edited in the Sheet Set Manager. Since a callout is reading the view and sheet numbers from an existing view/sheet, you need to change the view or sheet number on the View List (Sheet Views) or Sheet List tab. Don't forget to REGEN your drawing to ensure it displays the most current field data.

By the way, if you are familiar with view categories (refer to the Help system for more information), you may wish to use different callout blocks for different types of views. For example, you might have a view category called Elevations that points to one set of callout blocks and a view category called Sections that points to a different set of callout blocks. You can use the View List (Sheet Views) tab to assign callout blocks to different view categories.

Step 17: Create Custom Properties

The Sheet Set Manager enables you to define custom properties to use as fields in your drawings. You can define custom properties that apply to the entire sheet set or vary per sheet. For example, you might create custom properties for the project name and project number. When you enter values for those properties, you want them to apply to every sheet in the sheet set. Additionally, you might create custom properties indicating who created or reviewed a particular sheet. For those properties, you want the values to vary by sheet.

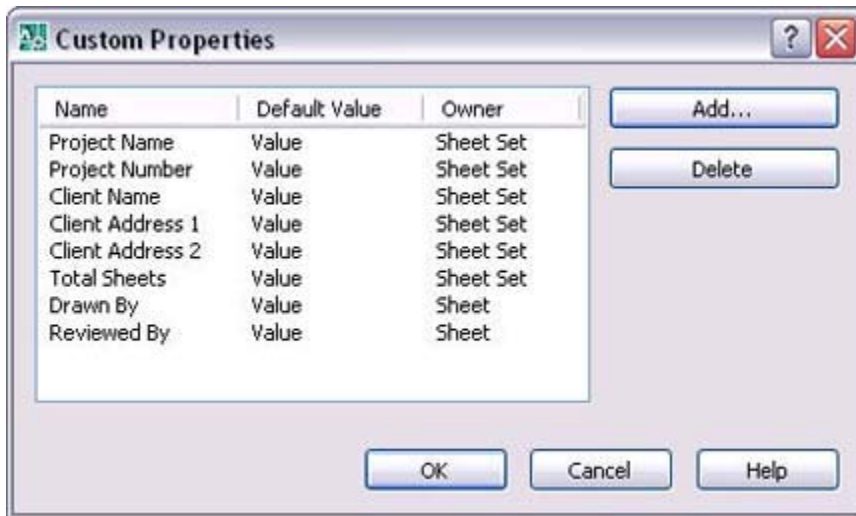
1. In the Sheet Set Manager, on the Sheet List tab, right-click on the sheet set title and choose Properties.
2. In the Sheet Set Properties window, choose Edit Custom Properties.



3. In the Custom Properties dialog box, choose Add.
4. In the Add Custom Property dialog box, enter the name, default value and owner for your custom property and repeat the process for each property you want to create. The following image shows examples of some typical custom properties that you may wish to create. Notice that the information which applies to the entire sheet set (i.e. project name, total sheets, etc) is owned by the sheet set and the information that might vary from sheet to sheet is owned by the Sheet. You can enter a default value for any of the custom properties. For example, if most of your projects are for a particular client, you might enter that client name and address in the default values. If the values for those properties always change, you can leave the "value" value as a default or, better yet, enter meaningful data so that when you insert these properties as fields, the field value will help assure you that you've selected the proper field.

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For example, I use TS, DB, and RB for the default values of my Total Sheets, Drawn By, and Reviewed By custom properties.



After you create your custom sheet set properties, you can insert them as fields in your drawings. You can use them anywhere that you can insert a field but the most obvious use for these custom properties is in your titleblock. I'll cover that in a future post!

Step 18: Automating Titleblock Data

AutoCAD offers considerable flexibility in the way you create and edit your title blocks. For example, you might attach your title block as an external reference but store the title block data as text within each drawing. Alternatively, you might insert your title block in a template file and then edit title block attributes each time you create a new drawing from the template. Regardless of how you create and use your drawing title blocks, you can significantly automate the process of updating title block data by using fields. The field functionality in AutoCAD enables you to include sheet set data in your drawing title blocks so that, as sheet and sheet set information changes, the title block data is always current. To automate your titleblock data, you must replace the existing data with field codes. You can insert field codes using the Field dialog box that is accessible in most text and attribute editing tools. The Field dialog box includes field codes for common data such as current date, sheet number, and drawing name. In addition to using the predefined field codes, you can insert custom sheet set fields that you create yourself.

While there are many ways to create a title block, the most common is to use a block definition with attributes for the various title block data and include that block on the layout of a template file. This is the method I will use as I describe how to automate your title block data but keep in mind that you can apply much of this information to other methods as well.

If your title block is inserted in a template file and I tell you that you need to update your title block to include fields, your first instinct might be to open the template file and edit the title block from there. Although this method will work, it does not offer you instant feedback as you select various sheet set fields because the template file itself is not a sheet in the sheet set. If you make a mistake somewhere along the way, you will spend far more time trying to troubleshoot than you spent on the initial setup. Trust me, I know! The easiest way to add fields to your title block, with the assurance that you are selecting the proper fields, is to work with it as part of the sheet set.

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Way back in Sheets Happen! Step 11: Create new sheets, you (hopefully) updated your sheet set properties so that your sheet set uses your existing drawing template to automatically create new sheets in the sheet set. That sheet creation template is, presumably, the same file that you want to update with fields. So, if you create a new sheet in the sheet set and it uses that template, how does the new sheet compare to the template file? It is exactly the same, right? It is just like using the traditional methods of selecting File>New and choosing your template. The new drawing is exactly the same as the template file. The only difference when creating a new sheet as part of a sheet set is that the new drawing is actually a sheet in the sheet set. Because it is a sheet in the sheet set, when you insert sheet set fields, you will immediately know if you have the right field because it will display the current sheet set data. If you add fields directly to the default template file, which is being used by the sheet set but isn't actually a sheet in the sheet set, your sheet set fields will display as pound “#” signs because AutoCAD has no relevant values to insert.

To ensure that you insert the proper sheet set fields the first time (and minimize the amount of trouble-shooting), I strongly suggest that you create a new sheet in the sheet set, add the fields to the title block, remove the new sheet from the sheet set, and then save the new drawing (with the updated titleblock) over your old template file. I know this sounds complicated but it really isn't. It is just like making a copy of your template file, updating it and then replacing the old one.

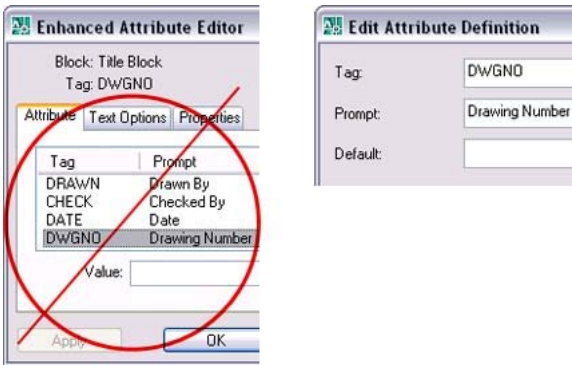
1. In the Sheet Set Manager, on the Sheet List tab, right-click and choose New Sheet.
2. In the New Sheet dialog box, enter values for the sheet number and title. Since you will eventually remove this sheet from the sheet set, the values you enter don't necessarily matter. However, I strongly suggest that you enter meaningful values so that when you insert the sheet number and sheet title fields in your title block, you will get useful feedback to help ensure you have selected the correct sheet set fields. I like to use “SheetNum” and "SheefTitle" for the sheet number and title.
3. In the Sheet Set Manager, double-click on the new sheet to open it in the drawing editor. This opens the new sheet (drawing file) which is exactly like your template.

Now I'm going to slow down for a few minutes and talk about what NOT to do! When I teach these classes live, I always ask the audience “If I tell you that I want to update the title block attributes to include fields, what do you think I should do next”. These are the responses (in order) that I typically receive:

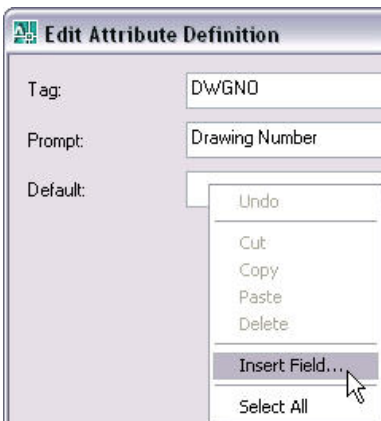
- Double-click on the titleblock and add fields for each of the attributes. This response is completely understandable because we have been trained to double-click. If you want to change something about an object in the drawing, double-click! Yes, that is the natural response, but you should never double-click on a block reference to add fields to attributes. Why? Because when you double-click on a block reference with attributes, AutoCAD displays the Enhanced Attribute Editor, which is how you edit the “Value” of an attribute instance. It does not enable you to edit the attribute definition itself. Although you could right-click in the Value box and choose Insert Field and everything might appear to work, somewhere down the line (tomorrow, next week, next year) someone is going to erase and reinsert the title block and if you updated the “Value” of the instance rather than the “Default” of the attribute definition, your title block automations will be gone. NEVER add fields to an attribute “value”. Insert them as a “default” in the attribute definition.

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- **BATTMAN.** Everyone loves BATTMAN! BATTMAN (Block ATtribute MANager) is a tool that you can use to edit your block attribute definitions without exploding and redefining the block. Yes, this is a natural response and yes, it seems like it should work.... And it does. HOWEVER, attribute functionality was specifically designed (way back) so that if you updated the default value of an attribute in a block definition, those default values would not apply to existing attributes in block insertions. This was intentional behavior because if you had many attributes in many block instances for which you had entered individual attribute values, you might not want all of those values to be instantly replaced by the default value. What about ATTSYNC? ATTSYNC will update existing block insertions to include new/updated attribute definitions but it does NOT update attribute values for existing block insertions. REFEDIT and BEDIT have the same issues as BATTMAN. You can use any of these methods to update the attribute definitions but you must erase and reinsert the title block to ensure that the attributes in the block insertion are using the new attribute definitions. Alternatively, you can simply explode, update, and then redefine the title block. However, keep in mind that if you explode your title block, any dynamic block functionality within the title block definition will be lost.
4. Access the attribute definitions for each title block attributes for which you want to insert a field using whatever method you choose. (BATTMAN, REFEDIT, BEDIT, EXPLODE). Regardless of the method you choose, you will know you are adding the fields to the attribute definition rather than the attribute value if the label says “Default” instead of “Value”.



5. Right-click in Default and select Insert Field.



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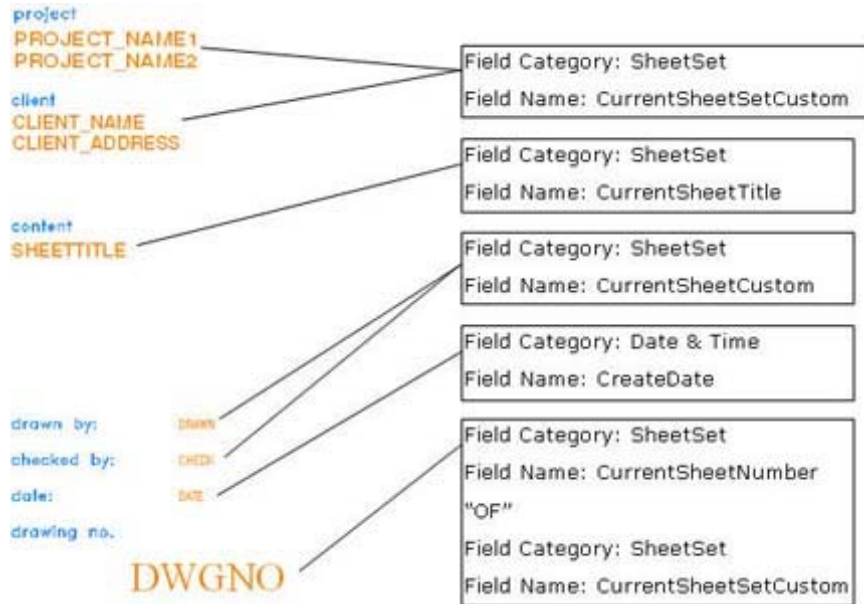
6. In the Field dialog box, select the appropriate Field category and Field name. The field category and name that you choose depends on the attribute you are currently editing. For example, if you want the attribute to display the current date, you would select the Date & Time field category and the Date field name. Most of the fields that you will use for titleblock data are in the SheetSet field category and the field names begin with “CurrentSheet”. Using the CurrentSheet fields in your title block enables AutoCAD to read the values that apply to any sheet in which the title block is inserted. For example, you will probably want attributes that display the CurrentSheetNumber and CurrentSheetTitle.

If you created custom sheet set properties, you can access them using the CurrentSheetSetCustom and CurrentSheetCustom field names. Of these two custom options, the one you select depends if the custom property you created is owned by the sheet set or by the sheet. A drop-down list enables you to see all of the available custom properties. For example, if you created a custom sheet set property called Project Name, which is owned by the sheet set, you would select the CurrentSheetSetCustom field name and then select Project Name from the Current Property Name list.

As you apply fields to your attribute definitions, you receive instant feedback by seeing the appropriate value displayed. If you do not see a value, the sheet set property has not been assigned a default value. You might find it helpful to include generic default values for all of your sheet set properties. For example, in the Description property for a sheet, enter the words “Sheet Description”. The instant feedback that you receive during the field insertion process is the reason I suggest updating the title block drawing as part of a sheet set rather than editing the template file directly. If you opened the template file without it being part of the sheet set, you would receive no feedback regarding sheet set properties and because it would have no current sheet set to read from, the list of custom property names would be blank requiring you to type the exact name of the custom property rather than selecting it from a list.

You will repeat the process to add fields for each attribute. Below are some examples of typical title block data and the associated fields include one example with multiple fields combined in a single attribute definition. If you want to display the sheet number as 1 OF 20, 2 OF 20, etc. You can insert the Sheet number "OF" and then insert a custom field for the total number of sheets. AutoCAD won't count the sheets for you, but at least you only have to enter the total number of sheets in one location (the sheet set properties) and it can be read throughout the entire sheet set!

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After you update all of the title block data, you must remove the title block drawing from the sheet set and use it to replace the old sheet creation template.

1. In the SSM, right-click on the sheet you have been working on and choose Remove Sheet. The drawing is still open but it no longer belongs to the sheet set.
2. If you used BATTMAN, REFEDIT, or BEDIT to update the attribute definitions, you must erase the existing title block and reinsert it to ensure the attribute values use the newly added fields.

OR

If you used EXPLODE to update the attribute definitions, you must redefine the block (BMAKE).

3. From the File menu, choose Saveas.
4. In the Save Drawing As dialog box, select the appropriate file type (DWT, DWG, or DWS), and select the sheet creation template file to overwrite. Prior to saving the file, it is a good idea to verify the file name and path of the sheet creation template in the Sheet Set Properties to ensure that the one you overwrite is the same one that is being used by the sheet set.

After you replace your previous title block template with your new version, you should verify that all the title block fields function properly. You can do this by creating a new sheet using your new template and then reviewing and editing the associated title block data. Once you have verified that your title block data updates appropriately you are good to go! New sheets that you create using your title block will automatically display the current sheet information and, with little effort, you can replace the title blocks in the existing drawing layouts that you imported. Simply erase and purge the old titleblock definition from existing drawings and insert the new titleblock. You don't have to reenter the attribute data because it is stored in the sheet set and automatically read by the title block fields.

SHEETS HAPPEN!

Conclusion

Well, that's it!!! If you have followed me through the entire Sheets Happen series to successfully implement your own sheet sets, you now know everything I do about sheet sets! Congrats!

If you're just getting started, you have the information, now you just need a few minutes, here and there, to begin implementing it.

Good luck and remember these Dos and Don'ts:

- Do verify that the block you are editing is the same version as the one being used by the sheet set manager.
- Do create a new sheet each time you test updates to your attribute definitions to ensure that you are using the new block definition.
- Do erase and reinsert existing block insertions if you have updated the block definition with fields.
- Don't insert fields in attribute values (block instances).
- Don't edit field data (grey text) in a drawing.