



# Autodesk® AutoCAD® Sheet Sets: Custom Solutions to Improve Sheet Set Manager

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**AC1610** This class covers the use of custom tools and workflows that extend the functionality of AutoCAD Sheet Set Manager (SSM). SSM has revolutionized the way we create and work with sheet sets and with the help of some custom tools and a bit of ingenuity, we can take SSM to the next level—above and beyond! We show you tools that automate the creation and management of sheet set data and also touch on SSM best practices.

## Learning Objectives

At the end of this class, you will be able to:

- Automatically create AutoCAD named views for use with SSM
- Convert Sheet Set (DST) files to and from Excel and XML format
- Globally edit sheet properties of multiple sheets in a sheet set file
- Automatically create sheet sets (DST) and associated sheet files from a list of drawings in Microsoft® Excel®

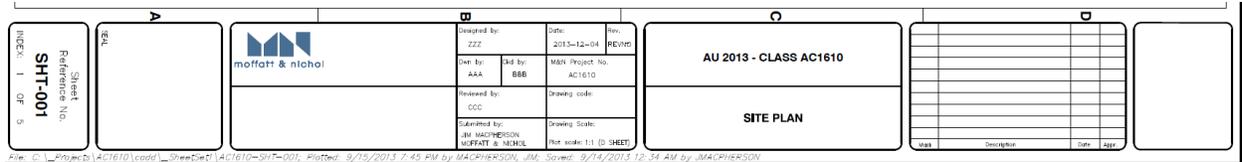
## About the Speaker

Jim is a CADD manager for Moffatt & Nichol in Tampa. Having 17 years of AutoCAD experience, he was one of the main contributors during the development of the company CAD standards in 2001. Jim is currently responsible for management and implementation of corporate CAD standards, including customization and deployment of Autodesk products, technical support and project implementation for over 100 users in 18 offices throughout the United States, Colombia, Panama and Canada. Jim regularly conducts training sessions, educating users on CAD standards, drawing productivity and best practices. Jim has an Associate Diploma in Civil Engineering from Wembley College in Western Australia.

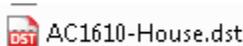
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# Sheet Set Manager (SSM) Overview

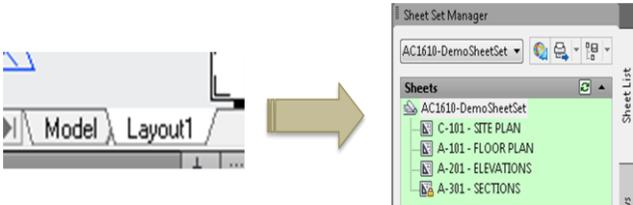
SSM is an AutoCAD tool that helps with the management of sheet drawings, sheet views and model views and the data associated with these 'objects'. Traditionally, one would add drawing information to sheets either using text or attributed blocks, however SSM basically eliminates the need to open drawings to do so. It literally provides a central storage location for sheet and view information, which is easily displayed through the use of AutoCAD FIELDS.



Sheet set data is stored in a single sheet set file and can be identified by the DST extension.



Each sheet in a sheet set is simply a link to a drawing layout.



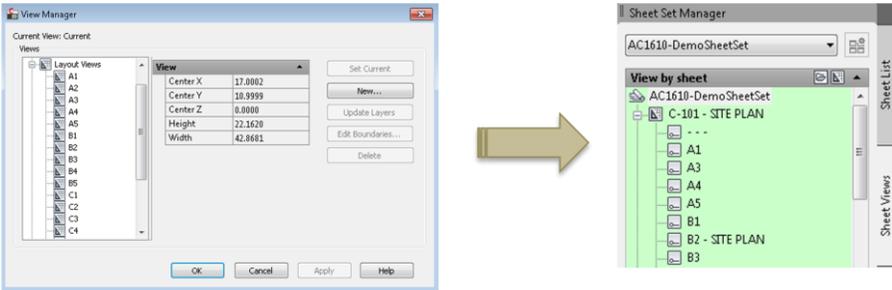
Sheets (layouts) can be added to a sheet set using any one of a number of different workflows. Either from within the SSM palette, or by right-clicking on a Layout tab.

A layout can only be associated with one sheet set.

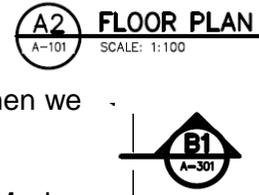
If we were to look at the data structure of the DST, we would see that it is a simple database.

Sheet ID	Sheet number	Sheet title	Description	publish	number	Revision date	Purpose	Category	Folder	File Name	Layout	Full Path	Relative Path	Environment Path
g1A94D27E-196A-4655-A5CE-62056F03FBE3	C-101	SITE PLAN	SITE PLAN	Yes		2013-12-04			AC1610-C-101.dwg	Layout1	C:\Projects\AC1610\cadd_DemoSheetSet\	.\	C:\Projects\AC1610\cadd_DemoSheetSet\	
gB57D7ACB-96FE-4838-B2C4-EA1AC025F576	A-101	FLOOR PLAN	FLOOR PLAN	Yes		2013-12-04			AC1610-A-101.dwg	Layout1	C:\Projects\AC1610\cadd_DemoSheetSet\	.\	C:\Projects\AC1610\cadd_DemoSheetSet\	
g892F1FAA-E2A3-4A6D-A1E9-9ECAFCCE7B4	A-201	ELEVATIONS	ELEVATIONS	Yes		2013-12-04			AC1610-A-201.dwg	Layout1	C:\Projects\AC1610\cadd_DemoSheetSet\	.\	C:\Projects\AC1610\cadd_DemoSheetSet\	
gF68BD1D5-724C-40CB-B63A-16279574FCDF	A-301	SECTIONS	SECTIONS	Yes		2013-12-04			AC1610-A-301.dwg	Layout1	C:\Projects\AC1610\cadd_DemoSheetSet\	.\	C:\Projects\AC1610\cadd_DemoSheetSet\	

Sheet views are really just links to AutoCAD Named Views and when created, are generated automatically in the SSM.



Sheet view data is used to populate callouts and view titles. These drawing objects are used to cross-reference information views across drawings in a sheet set. Sheet view data is generated automatically when we insert respective (attributed) blocks from the SSM to a sheet.



In addition to the respective management functions mentioned, SSM also allows us to automatically publish and archive sheet sets or subsets.

## Best Practices

- Keep DST on local network – WAN performance is poor. If you work on projects with other offices in your company, don't try to share the sheet set over the WAN - unless you have LAN speeds over your WAN, which I highly doubt, considering the cost!
- Utilize sheet and page overrides templates to automate publishing. This ensures consistency, regardless of who is creating the output.
- Centralize all sheet-specific data in SSM. Everything! Just throw it all in there and you will never have to open a single sheet again to update anything.
- Label Named Views based on their sheet coordinates. This will make it easier to keep your named views and sheet view data synchronized. It also helps to figure out what's what later on somebody reorganizes your detail sheets! Did you know that you can figure out what named view that a view label or callout block is linked to?



...double-click on the view number of the attributed block in question, then edit the field to bring up the field editor dialog. Look to the bottom of the dialog

box and you will see a field expression. The answer is here! Immediately after the drawing file name, you will see a #. The string after this hash tag is the named view that the block is linked to.

Field expression:

```
%<\\AcSm Database("c:\_AU 2013\ac1610 - ssm custom solutions\sheetsets\_House\ac1610-house.dst").SheetSet("g7E0F60F7-EAAA-49DE-885E-A35C150619C2").Component("g2A8B7225-757D-45AD-8CAA-C4CDB7F2A879").Number {href "c:\_AU 2013\ac1610 - ssm custom solutions\sheetsets\_House\AC1610-A-201.dwg#C2,Layout1##1"}>%
```

- Keep Named Views and Sheet Views synchronized. This is a sanity saver for when things get complicated later in the project!

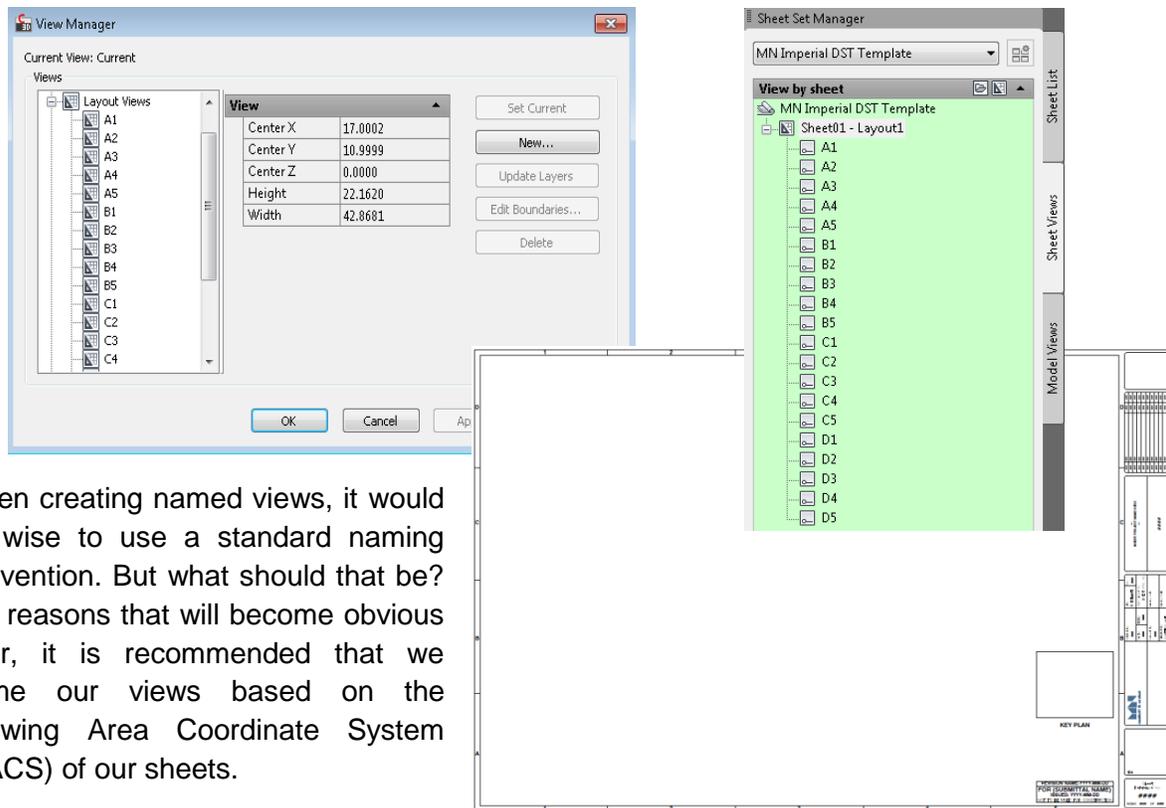
## SSM Variables

Following are drawing and system variables to be aware of as it relates to SSM operation. By tweaking some of these values, you can potentially improve performance. Keep in mind however, that there is a compromise. To improve performance, you either have to increase the

- SSFOUND - Displays the sheet set path and file name if a search for a sheet set is successful.
- SSLOCATE - Controls whether the sheet set associated with a drawing is located and opened when the drawing is opened.
- SSMAUTOOPEN - Controls the display behavior of the SSM when a drawing associated with a sheet is opened.
- SSMPLLTIME - Controls the time interval between automatic refreshes of the status data in a sheet set.
- SSM SHEETSTATUS - Controls how the status data in a sheet set is refreshed.
- SSMSTATE - Indicates whether the Sheet Set Manager window is open or closed.

## Creating Sheet Views

In order to enable sheet view functionality within SSM, we first need to create Named Views within our drawings using AutoCAD's View Manager.



When creating named views, it would be wise to use a standard naming convention. But what should that be? For reasons that will become obvious later, it is recommended that we name our views based on the Drawing Area Coordinate System (DACS) of our sheets.

Manually creating views using the Named View dialog can be somewhat tedious (or therapeutic) depending on your disposition. In any case, adding views to every sheet in a set may not be the most productive use of our time. The good news is that there are a couple of solutions that can streamline or automate this process, which are outlined in the following sections.

## **Sheet Templates**

The more 'traditional' method for streamlining the creation of named views, among other things, is to use drawing templates. In this scenario, we would create new sheets using a drawing template that already contains predefined views, along with standard drawing components such as a border and attributed title block information. The named views would assume our standard naming conventions and the title block attributes would contain sheet set placeholder fields that would automatically populate with information as the respective sheets are added to a sheet set and information updated accordingly.

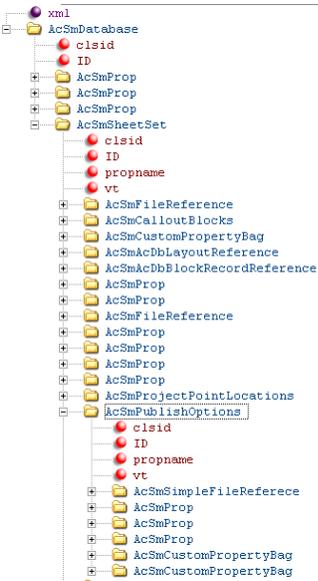
This works well when creating sheets from scratch – either through SSM or via the File-New procedure - but is not particularly useful if you are trying to 'retrofit' existing drawings into a sheet set..

## **Automatic View Creation 'on-the-fly'**

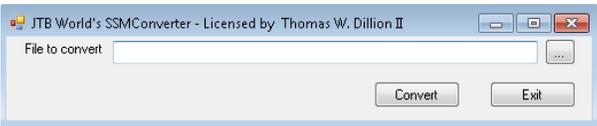
In this example, we will employ an AutoLisp solution, although we could also achieve the same result using VB or .NET, if so inclined. Our routine will automatically create a group of named views in one fell swoop, leaving us to get on with our lives!

The code will be made available during class.

# Convert Sheet Set (DST) files to and from XML



Sheet set converter is a simple, two-way file converter. It will convert a DST file to XML format to



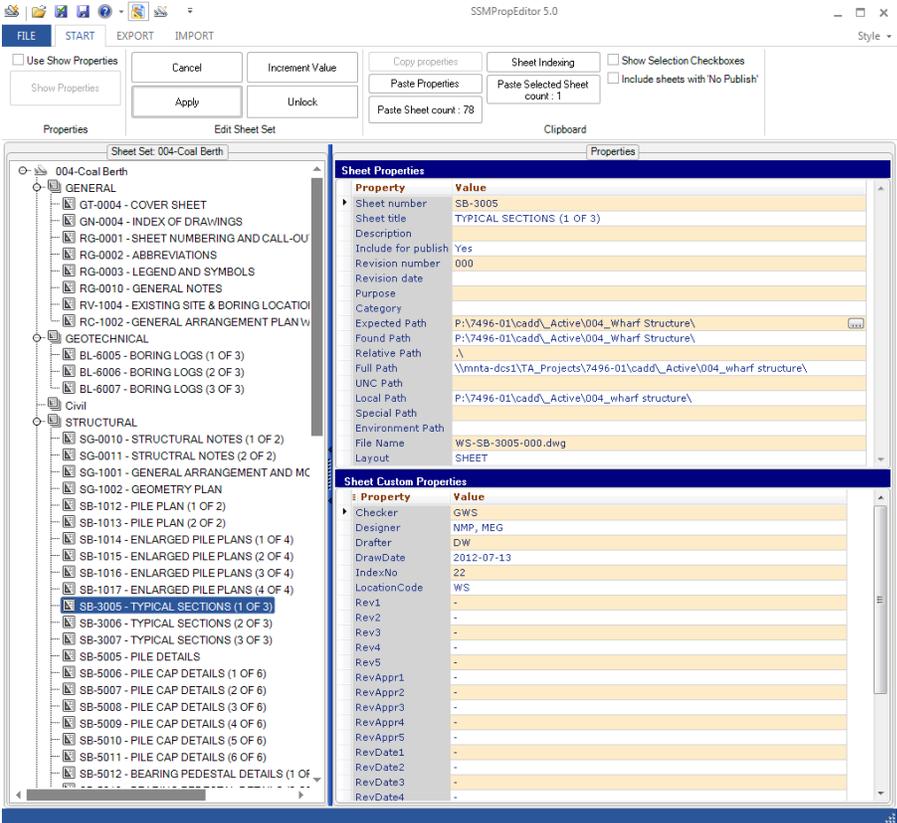
enable editing in an XML editor. The modified XML file can then be converted back to the native DST format for continued use in SSM.

Why would we need to convert a DST to XML? Well, believe it or not, it has been known for DST files to become 'corrupt'. There have been reports, and I have experienced issues where the DST inexplicably grows in size by an order of magnitude. The cause is typically related to large quantities of superfluous data in the "AcSmCustomPropertyBag" nodes.

The simple solution is to delete the bad nodes, save the XML file and then convert back to DST. Problem solved!

# Sheet Set Properties Editor

SSProp Editor is a productivity tool that allows us to easily modify sheet properties and other DST data through a simple interface.



Key features:

- Update a custom sheet property on multiple sheets simultaneously. (This effectively eliminates the need to repetitively open and close the sheet properties dialog in SSM)
- Automatically update the index number # (of Y) on an entire sheet set.

The SSProp Editor features will be presented in a live demo during this class.

### Sheet Set Creator

We perform this awesome feat using a third-party application called “Sheet Set Creator” – another application developed by JTB World.

Turn this...

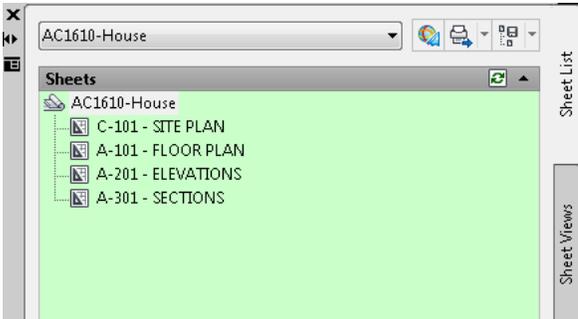
1	A	B	C	D	E	F	G	H	I	J	K	L	M	O
Sheet Number	Sheet Title	File Name	Layout Name	Sheet Description	RevNo	Revision date	Purpose	Category	01_IndexNo	02_DrawDate	03_Designer	04_Drafter	05_C	
2	C-101	SITE PLAN	AC1610-C-101	Layout1		2013-12-04			1	2013-12-04	ZZZ	AAA	BBB	
3	A-101	FLOOR PLAN	AC1610-A-101	Layout1		2013-12-04			2	2013-12-04	ZZZ	AAA	BBB	
4	A-201	ELEVATIONS	AC1610-A-201	Layout1		2013-12-04			3	2013-12-04	ZZZ	AAA	BBB	
5	A-301	SECTIONS	AC1610-A-301	Layout1		2013-12-04			4	2013-12-04	ZZZ	AAA	BBB	

into this...

 AC1610-A-101.dwg	11/6/2013 10:06 PM	AutoCAD Drawing
 AC1610-A-201.dwg	9/15/2013 9:37 PM	AutoCAD Drawing
 AC1610-A-301.dwg	9/15/2013 9:37 PM	AutoCAD Drawing
 AC1610-C-101.dwg	11/6/2013 10:00 PM	AutoCAD Drawing
 AC1610-House.dst	11/8/2013 6:41 PM	AutoCAD Sheet Set

...and get your sheet set data created in the process...

Sheet Custom Properties	
01_IndexNo	1
02_DrawDate	2013-12-04
03_Designer	ZZZ
04_Drafter	AAA
05_Checker	BBB
06_Reviewer	CCC
07_RevNo	RevNo
08_Rev01	%%
09_RevDesc01	%%
10_RevDate01	%%
11_RevAppr01	%%
12_Rev02	%%
13_RevDesc02	%%
14_RevDate02	%%
15_RevAppr02	%%
16_Rev03	%%
17_RevDesc03	%%
18_RevDate03	%%
19_RevAppr03	%%



...including any custom properties you desire...

Live demonstration during class, where all will be revealed.