BES220360

6 Sheet Set Manager Strategies for Success

Chad Franklin, CAD Coordinator
Associated Engineering

Learning Objectives

- Gain a solid understanding of Sheet Set Manager functionality
- Learn how to transfer and modify existing sheet borders for use with Sheet Set Manager
- Learn how to use the Sheet Set Manager to preconfigure project or company CAD standards requirements
- Learn how to avoid pitfalls and limitations by capitalizing on best practices for developing Sheet Set Manager content

Description

Over the past 7 years, hundreds of Associated Engineering production staff members across our 23 offices have been using AutoCAD software's Sheet Set Manager (SSM) to efficiently coordinate project drawing packages.

Throughout that time frame, we have continually adapted and fine-tuned our Sheet Set Manager templates (and support files) to not only provide flexibility for utilizing internal, project, or client-specific CAD standards, but also for ensuring conformance and standardization for all AutoCAD (and AutoCAD software-based) software output.

Sheet Set Manager can greatly impact productivity while reducing repetition, user frustration, project budgets, and schedules.

Please join us for this class, as we will be discussing 6 "key" Sheet Set Manager strategies that have proven to successfully assist CAD managers, project CAD leaders, and production management through incorporating this powerful productivity tool throughout development, implementation, and ongoing support.

Speaker

Chad Franklin is the CAD Coordinator for Associated Engineering, a multi-discipline engineering firm with 23 offices across Canada. He currently provides drawing production coordination including CAD standards development and implementation across the company's 350 Autodesk users.

Having 25 years of experience primarily on civil infrastructure and transportation design, Chad has been utilized for the past 6 years dedicated to full-time development of corporate CAD standards including extensive templates, macros/scripts and lisp, tool palette sets, sheet set manager implementation, quality management and production staff technical support/training.

Chad is an Autodesk Certified Professional (AutoCAD) and a member of several Autodesk Customer Councils (Product Delivery, Product Research and Visual Design Research) including Autodesk Beta programs. Chad has attended AU each year since 2013; 2017 and 2018 as an AU speaker/instructor. I am also a Mentor as part of the AU Speaker Readiness Mentoring Program.

Chad owns the AutoCAD and CAD Management Blog: theCADcafé (www.thecadcafe.com).

Contact Information

Chad Franklin, CAD Coordinator at Associated Engineering

Associated Engineering — GLOBAL PERSPECTIVE. LOCAL FOCUS.	www.ae.ca
theCADcafé	Blog/Website: www.thecadcafe.com
	cadologist@gmail.com
	Twitter: Cadologist
AUTODESK COMMUNITY — Find answers, share expertise, and connect with your peers.	Username: Cadologist

Acknowledgement

I would like to personally thank **Sam Lucido**, owner of the CADProTips blog/website, award winning Autodesk University speaker and Autodesk Expert Eite for his expertise and knowledge related to AutoCAD's Sheet Set Manager. Thanks Paul, very grateful for all your insight, past discussions and for your Autodesk University classes over the years related to Sheet Set Manager!!

Table of Contents

Appendices

Introduction

**** This handout uses BOOKMARKS to assist in navigating the content. Be sure to enable this feature within your PDF viewing software.*

What is Sheet Set Manager?

AutoCAD's Sheet Set Manager was first introduced in AutoCAD 2005 and provides a wealth of functionality, productivity workflows and a project drawing management interface to assist drawing production staff with coordinating drawing output.

With Sheet Set Manager, you can manage all the drawings within a project, in an AutoCAD "panel" that provides commands and tools to organize, rename/renumber, publishing options, ability to archive *(and eTransmit)* and other Sheet Set related functionality.

How does Sheet Set Manager work?

AutoCAD's Sheet Set Manager works by "linking" Sheet Border *(and Title Block)* information, using "fields" to a database *(called a DST file)*. All information contained within a fielded attribute is stored and managed within this database file, using the Sheet Set Manager panel in AutoCAD.

Whenever information contained within the attribute area of a Sheet Border *(Title Block)* is entered, required modification or update, etc.; these updates are added by modifying the Sheet Set Manager "Properties" for either the entire Sheet Set, or on a per-Sheet basis. CAD/Drawing Production staff can manage Sheet information without having to open an individual drawing *(e.g.: typical 'double-click' a block to edit attributes)*, since the information is stored externally, in the DST "database" file.

For more information on AutoCAD's Sheet Set Manager, be sure to check out Appendix C at the end of this handout!

Sheet Set Manager Strategy #1 – Templates, Templates, Templates

All new drawings in AutoCAD *should* start from either a default drawing template or a custom drawing template that you have previously created. Drawing templates store a variety of settings such as drawing-specific variables, layers, linetypes, plotter settings, symbols, sheet borders *(this is "key")* and other data.

A drawing template has the file extension *(.dwt)* rather than *(.dwg)* however the difference between the two file types is minimal. Creating a company or project-specific drawing template will provide your CAD/Drawing Production staff with a starting point that ensures all new drawings are correctly initiated and are preconfigured with all the necessary requirements.

Preconfigure Everything

As mentioned previously, a drawing template can store just about everything related to a company or project CAD Standard. Specific to Sheet Sets, a template can store all your preconfigured Sheet Borders *(and Title Blocks)* that have been structured for use with Sheet Set Manager.

Placing all standard Sheet Borders into a Sheet Set Template will ensure staff have all the required standards and preconfigured requirements when they start a new Sheet Set project.

Examples of content to include within a Sheet Set Template:

- All Sheet Borders *(Title Blocks)* setup for use with Sheet Set Manager
- All printing requirements *(all output needs including paper sizes, full and half size output)*
- Drawing variable adjustments *(such as unit variables)* all preconfigured
- CAD Standards

Workflow for New Projects

When it comes to Sheet Set Manager, using a preconfigured template that includes all the required sheet borders *(that have been setup for Sheet Set Manager)* is the easiest method for starting a new project.

CAD/Drawing Production staff need to simply, copy the Sheet Set Template *(and any external references if your Sheet Borders are structured in that manner)* to the location of the new project.

NOTE

Associated Engineering uses a credential-controlled server, read-only to the majority of staff to warehouse our templates *(and CAD/Drawing Production Standards)*. Our protocols for drawing production specify that each project needs to be self-sufficient to itself, meaning that all required CAD/Drawing Production standards (such as templates) are stored within the project folder(s). This allows project staff to modify a sheet border (e.g.: add a 'client' logo) and to tailor the template to the specific needs of the project.

Once the file(s) are saved, simply open the template, re-path any references *(as required)* and REMOVE any sheet borders that are not required for the project.

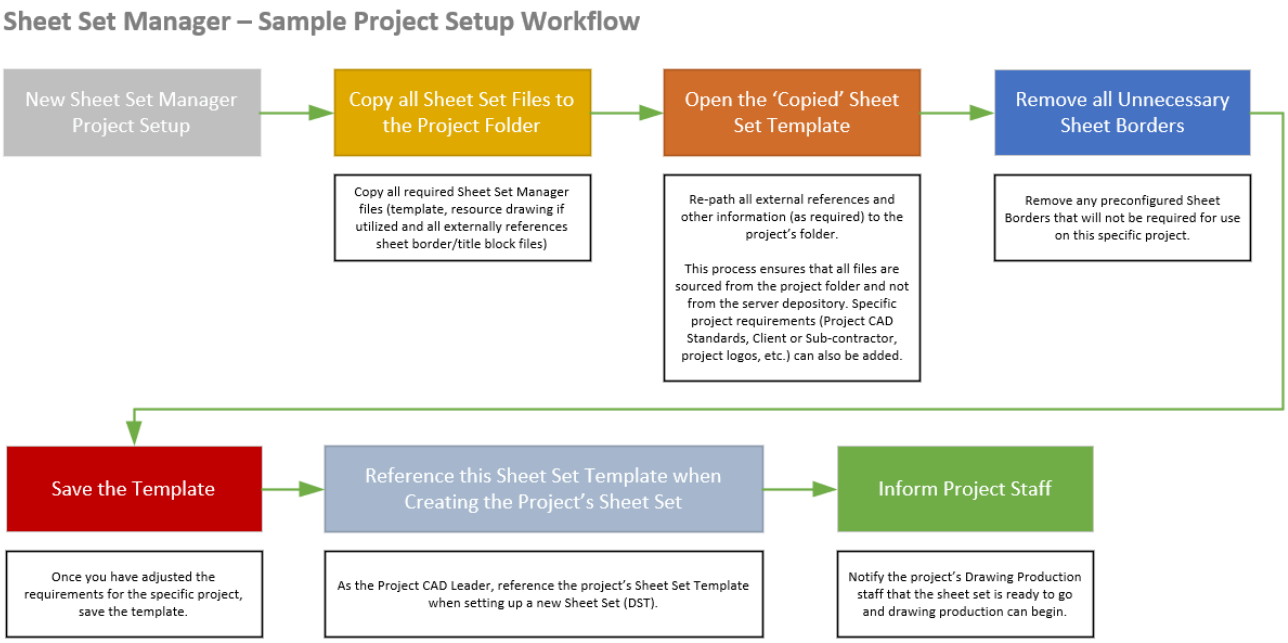
Example: Associated Engineering has 16 standard Sheet Borders *(Title Blocks)* as part of our CAD Standards package. Our standard Sheet Borders cover all output sizes *(e.g.: letter, tabloid and full-size ANSI-D)* including horizontal and vertical Title Block orientation options.

When creating a new Sheet Set Manager project, within the copied template, simply delete any layout tabs that contain Sheet Borders that will not be required for the project.

TIP!

It is much easier for someone to remove/delete something vs. having to manually add information to a drawing template. By providing your staff all options, the Project CAD Leader can simple DELETE unnecessary content, rather than having expel additional effort to manually create or "add" requirements one at a time.

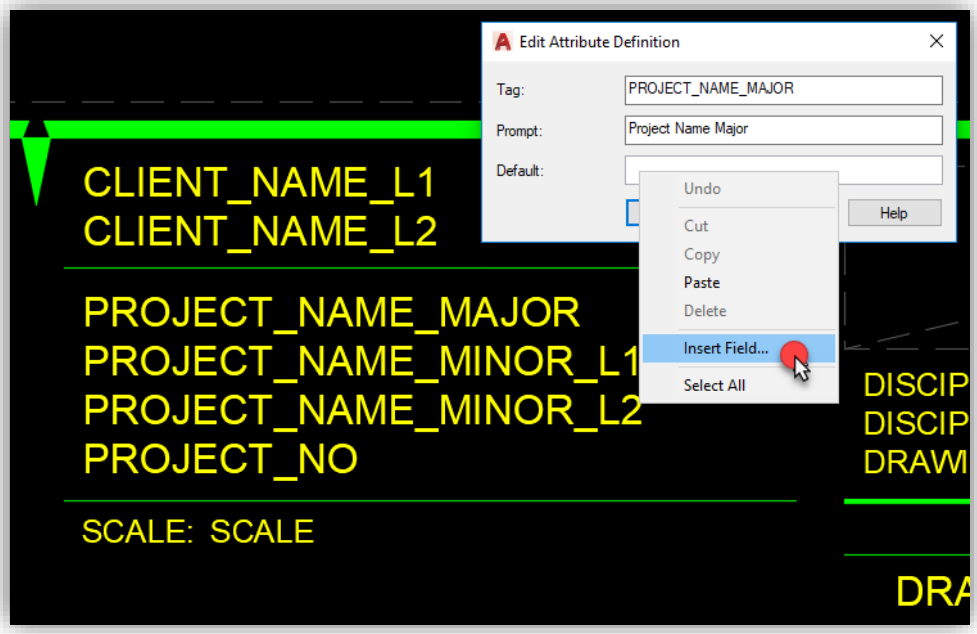
Once the Sheet Set Template has been adjusted for the requirements of the project, it can be referenced when a new Sheet Set is created.



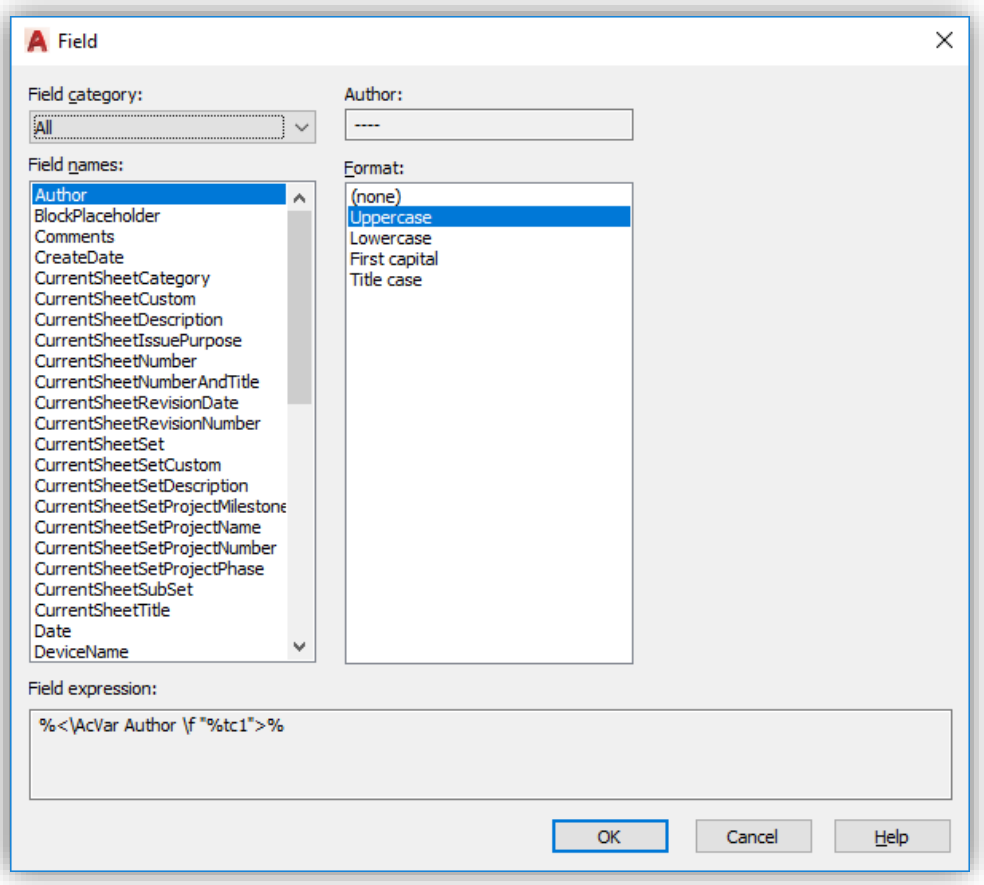
Sheet Set Manager Strategy #2 – Use Custom Fields

Within AutoCAD, you can automate textual data by adding fields to any type of text object, such as single and multi-line text, dimensions, leaders, block attributes *(this is "key")* and tables. When creating or editing any of these objects, right-click where you want the field to be located, then select "Insert Field" from the menu.

In the example below, when editing an attribute definition, right-click in the "Default" area and select "Insert Field" from the contextual menu.

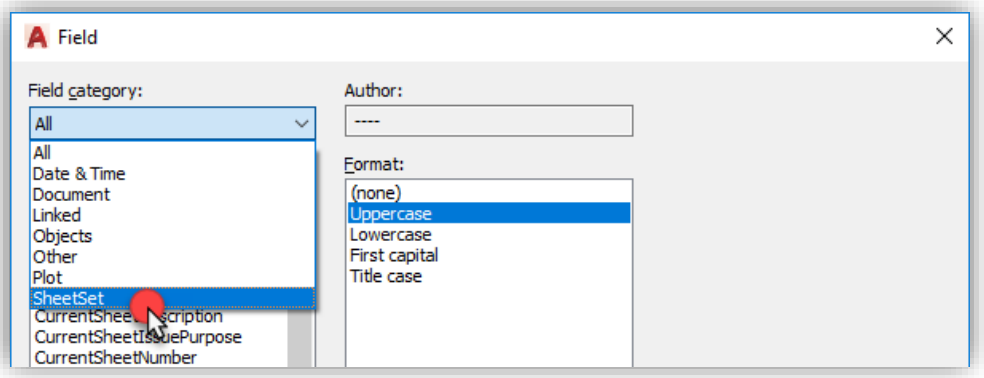


Within the Field dialog box, select from a list of approximately 50 predefined fields that can be inserted into a text object. If one of the provided fields does not align to your requirements, you can select "Other" to utilize "custom" fields such as DIESEL expressions, AutoLISP and System Variable options. To display all the available fields, ensure the Field Category is set to 'all' as shown in the following example.



Sheet Set Specific Fields

Under “Field Category” you can select from predefined groups to narrow or filter the available fields for easier selection. Let’s select the “Sheet Set” category…



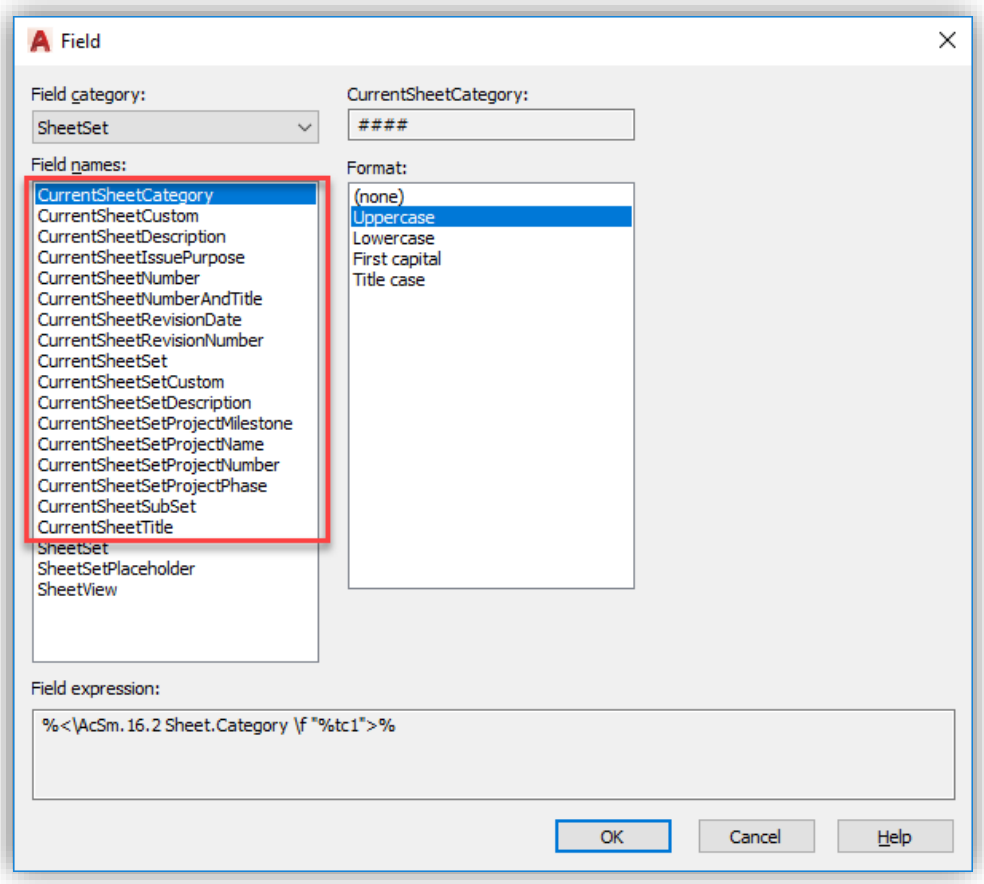
There are several types of available Sheet Set fields, which provide flexibility to customize the specific requirements and needs for your title block requirements.

Two distinct types of Sheet Set fields that I highly recommend you utilize in your Sheet Set sheet borders are **CurrentSheetSet** and **CurrentSheet** fields.

The primary difference between these two types of fields are:

- **CurrentSheetSet** fields apply to the entire sheet set *(as a whole)*, where one field and its included information *(e.g.: the project name)* is to appear consistently across all the drawings within the sheet set.

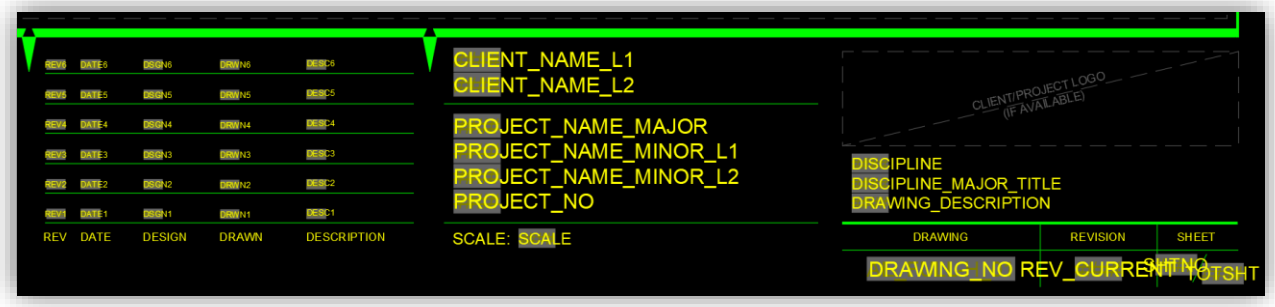
- **CurrentSheet** fields are used for individual drawings within a Sheet Set, where a field may include different information across drawings within the sheet set *(e.g.: the revision information on one drawing may not include the same information as another drawing's revision history)*.



As a best practice, when developing or converting your sheet borders *(and title blocks)* for usage with Sheet Set Manager, and when assigning attribute requirements, use a combination of CurrentSheetSet, CurrentSheet and predefined fields such as Date, Filename, etc.
Using a combination of custom and predefined fields will provide flexibility for all your title block textual requirements.

Before assigning fields to attributes within your title blocks, we need to cover a few important items. These items will ensure you are creating ‘fielded attributes’ correctly, consistently and in the desired display order.

The example below displays all the title block textual information *(text objects)* that we need to convert to fielded attributes.



Let’s determine which attributes require which “type” of field…

- Attributes such as CLIENT_NAME_L1/L2, PROJECT_NAME_MAJOR and MINOR L1/L2, PROJECT_NO, TOTSHT will display “static” information that will be the same on all drawing sheets within the project. We will use CURRENTSHEETSETCUSTOM fields for these text objects.

- Attributes such as SCALE, DISCIPLINE, DISCIPLINE_MAJOR_TITLE, REV_CURRENT and all REVISION LINE ITEMS will display information that may be different on each drawing sheet within the project. We will use CURRENTSHEETCUSTOM fields for these text objects.

- Other text objects, such as SHTNO and DRAWING_NO will use predefined fields that do not require a user to manually enter attribute information.

Now that we have determined which attributes require which fields, let’s proceed to apply a consistent naming convention to the fields, including a prepended number system to easily organize the display of attributes within Sheet Set Manager.

Sheet Set Field Naming and Numbering Convention

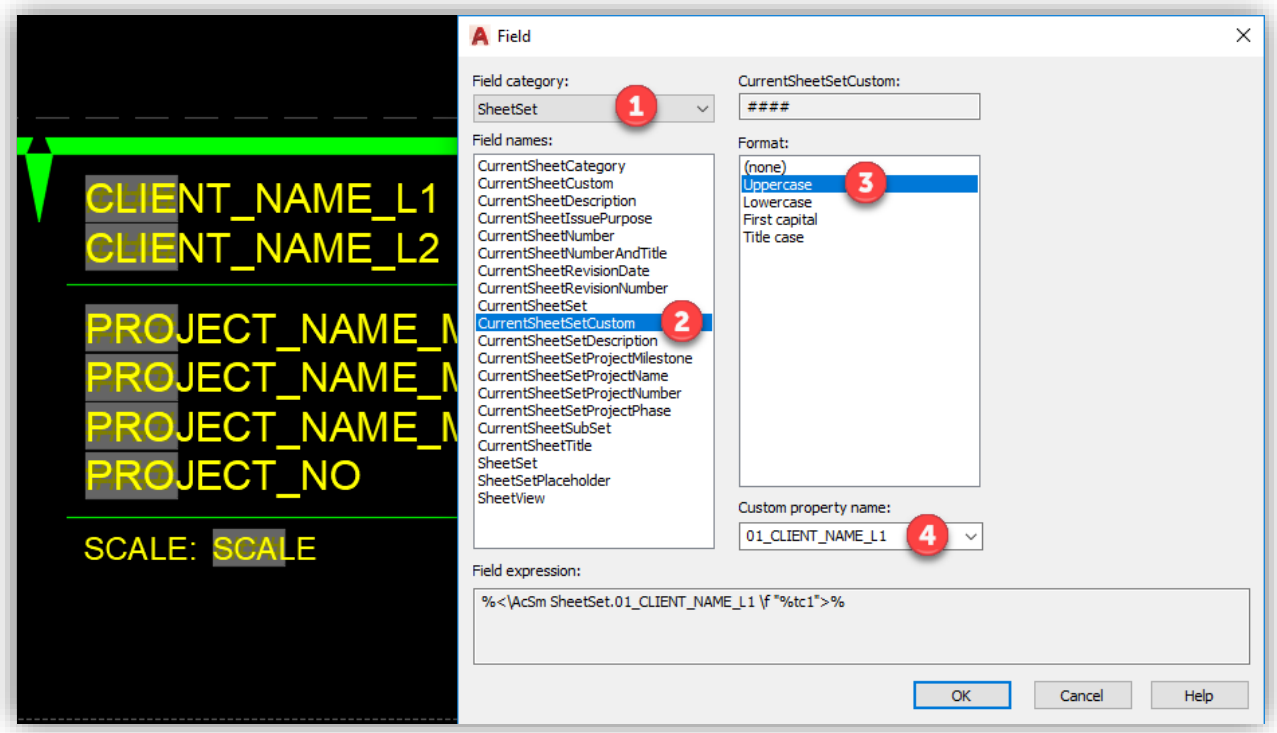
When creating your Sheet Set fielded attributes, use a combination of a number ‘place holder’ and an abbreviated name for each attribute you require within your title block.

Start the prepended number at 01_ for each type of Sheet Set field. Because each of the two primary types of Sheet Set custom fields appear in different sections within Sheet Set Manager “Properties”, each type will begin, starting with 01.

- All CURRENTSHEETSETCUSTOM fields will start at 01_ and all subsequent fields of the same type will numerically increase *(e.g.: 01_XXXX, 02_XXXX)*.
- All CURRRENTSHEETCUSTOM fields will start at 01_ and continue with consecutive numbering

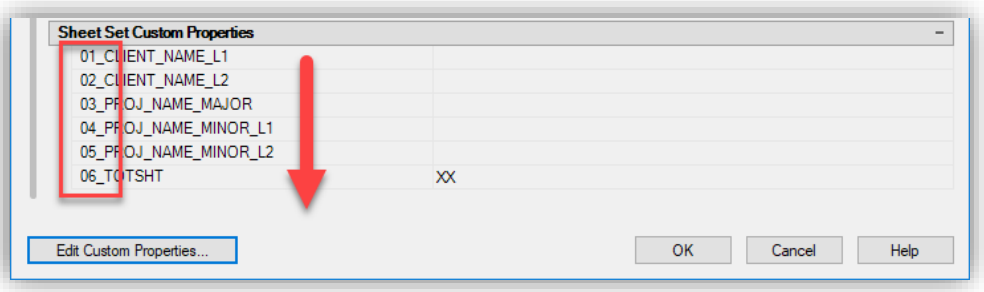
By using a prepended number *(e.g.: 01_XXXX)* you will be able to control the display order of the fields (top to bottom) when populating information within Sheet Set Manager.

Additionally, by using a descriptive abbreviation for each fielded attribute *(e.g.: TOTSHT for "Total Sheets")* it will not only provide easier coordination when developing your Sheet Set title blocks but also for users to identify which attribute requires what type of information.

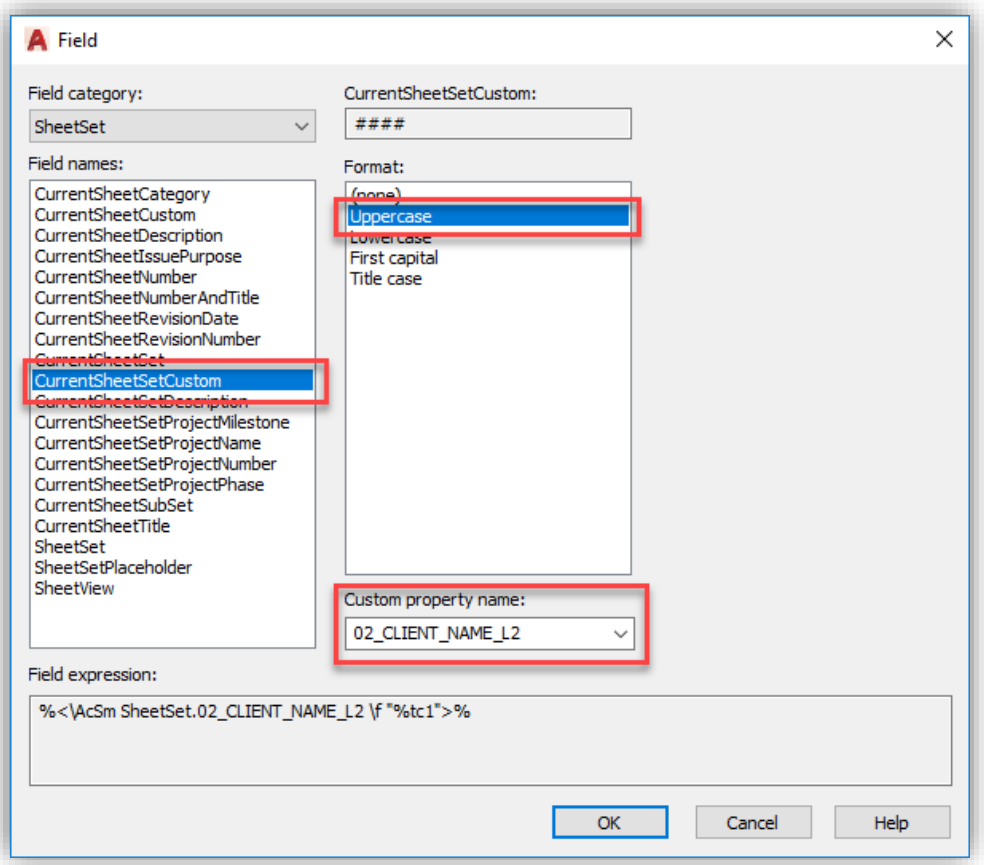


Let's begin with the attribute CLIENT_NAME_L1 and assign a CURRENTSHEETSETCUSTOM field. Since the client name is consistent across all drawing sheets within the project, we can assign this field which only requires a user to enter the information "once" within Sheet Set Manager.

1. Select the SheetSet option from the Field Category pulldown menu
2. Select CURRENTSHEETSETCUSTOM
3. Specify Format *(Associated Engineering uses UPPERCASE annotation, except for abbreviations as part of our CAD/Drawing Production Standard)*
4. Use 01_CLIENT_NAME_L1 for the Custom Property Name



Let's continue to the next attribute CLIENT_NAME_L2. Using the same process as we used for the previous attribute, assign the following information using the next number in sequence *(i.e.: 02_XXXX)*.



Continue to assign fielded attributes, to all CURRENTSHEETSETCUSTOM fields, using this numbering and field naming schema. Use the same system for any fields that will use CURRENTSHEETCUSTOM

Difference between BATTMAN and Prepended Numbering Convention

You may wonder why we are taking the effort to prepend a numbering system *(e.g.: 01_XXXX, 02_XXXX)* to our fielded attributes and not just using the BATTMAN command to maintain the desired order of attributes?

The BATTMAN command manages the attributes for a selected block definition and also allows you to "reorder" the attributes within the block. Depending on the order in which attributes are created, you may end up with a jumbled/mixed up order when accessing/editing the attributes and when adding information. This command allows you to reorganize the attributes, so they appear in the order you desire.

For more information on the BATTMAN command, refer to the Autodesk Knowledge Network link as shown below:

https://knowledge.autodesk.com/support/autocad/learn-explore/caas/CloudHelp/cloudhelp/2019/ENU/AutoCAD-Core/files/GUID-40613EEB-3049-4B39-AD1D-457146EEE0CB-htm.html?st=battman

The difference between BATTMAN and the Numbering Convention for our Sheet Set Fields, is that BATTMAN's order of attributes does not affect the order in which attributes display within Sheet Set Manager.

Sheet Set Manager lists the attributes in 'alphabetical or numerical' order, regardless of the order they appear within a block. By using 01_XXXX, etc. in your sheet set fielded attributes, you can control their order within Sheet Set Manager!

Some fields will not require a prepended numbering system within the fielded attribute name. Fields such as SHTNO *(Sheet Number)* can auto-populate from other assignable field options that do not require a user to manually enter information *(via Sheet Set Manager → Properties)*.

- For SHTNO use the SheetSet Field = CURRENTSHEETNUMBER

The sheet number will be auto-populated from the number used within Sheet Set Manager and does not require a user to enter this information within the "properties" of a sheet within Sheet Set Manager.

As a CAD Manager, I typically create a "Fields Cheat Sheet" that I include within a Sheet Set "Standards" folder. This cheat sheet provides information on each fielded attribute *(what each abbreviation means)* and what information goes where. Refer to the following example of a Sheet Set Template – Custom Fields Description List.

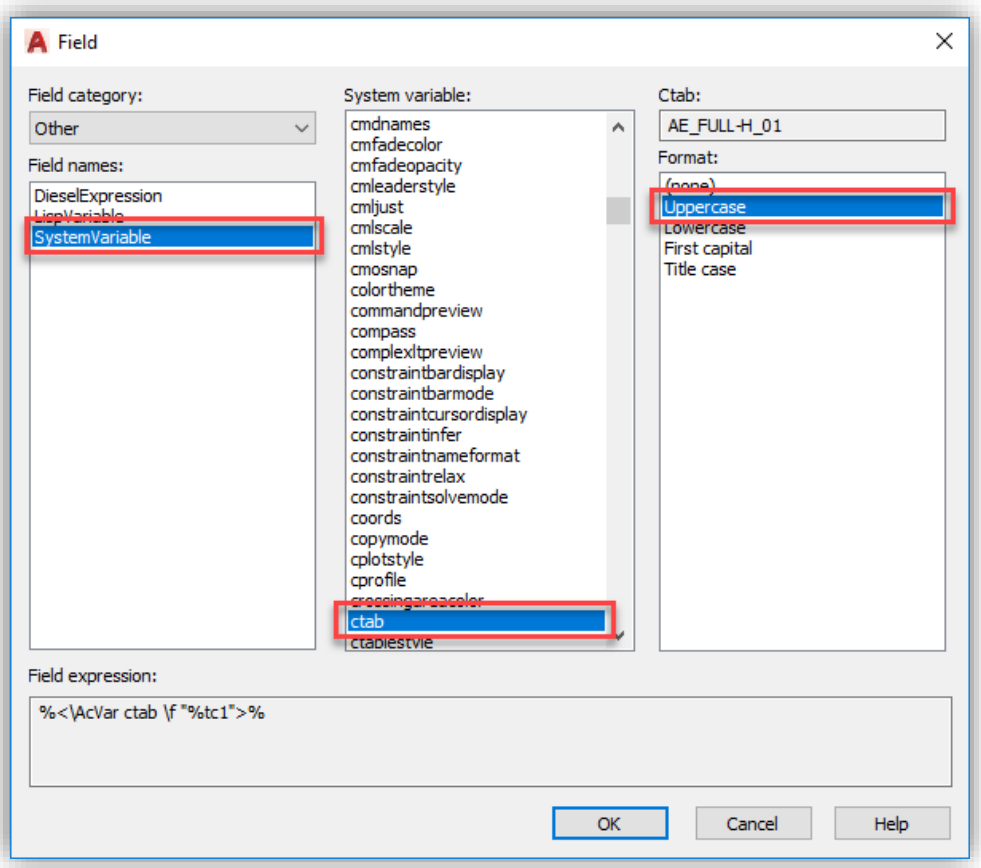
City of Winnipeg - Sheet Set Template - Custom Fields Description List	
Sheet Set Custom (global for all sheets)	
01_MAJOR_TITLE	Major Title or Project Name
02_TSHT	Total Sheets
03_BIDNO	Bid Opportunity Number
04_CONTRACTNO	Contract Number
Sheet Custom (adjustable per sheet)	
01_MINOR_TITLE_L1	Minor Title - Line 1
02_MINOR_TITLE_L2	Minor Title - Line 2
03_MINOR_TITLE_L3	Minor Title - Line 3
04_CHKD	Checked By
05_APPR	Approved By
06_DSGN	Designed By
07_DRWN	Drawn By
08_HORIZ	Horizontal Scale
09_VERT	Vertical Scale
10_DWGDATE	Drawing Date
11_CONSTRDATE	Released for Construction Date
12_CONSULTDWGNO	Consultant Drawing Number (Internal)
13_BMINFO	Benchmark Information

CTAB Variable

To provide flexibility respective to the displayed “drawing number’ within Associated Engineering’s Sheet Borders, we utilized a field that references the CTAB variable. Because our internal drawing numbering convention *(i.e.: file name)* may not correspond to the requirements or request to use a client’s drawing naming system, we can structure our Sheet Set title blocks to be flexible for both requirements. How?...

By assigning the DRAWING_NO attribute with the field that references the CTAB variable *(i.e.: Layout Tab Name),* we can adjust for whichever drawing naming system will apply.

By using the CTAB variable field, we have adapted our Sheet Set title blocks to be adaptable for any project’s drawing naming convention, without the need to manually edit or restructure our Sheet Set templates and resource files.



- If we use Associated Engineering's drawing naming convention, the file name and the displayed drawing name within the title block will "match". This can be easily achieved by toggling on a checkbox within Sheet Set Manager's Rename and Renumber functionality.

- If a client has requested we use their drawing naming system, we can enter their required system as the "Layout Name" within each drawing *(and layout)* but internally, still utilize Associated Engineering's file naming requirements.

Sheet Set Manager Strategy #3 – Standardize the DST

Utilizing a standard DST file for all Sheet Set requirements is highly recommended. By configuring the DST file to include every custom Sheet Set field used *(when developing or converting your sheet borders and title blocks)* you remove the risk of user-error. Let me explain further…

As a CAD/Drawing Production staff member, being new to Sheet Sets or well versed with their functionality, when setting up a new Sheet Set for a project, typical workflow requires that a 'default' or 'templated' DST file be reference and/or a starting point for your new Sheet Set.

If you can include ALL the fields within a single DST file, you remove the risk of a user accidentally using the wrong DST file *(in a case where multiple versions are available*. One file, hard to make a mistake….

Let's begin creating a 'standard' DST file…

Creating a 'Standard' DST File

The process of creating a DST file is relatively simple. The easiest method is to COPY an existing DST file, remove any custom properties *(i.e.: custom fields)*; or COPY AutoCAD's default DST file, which is located in the following folder:

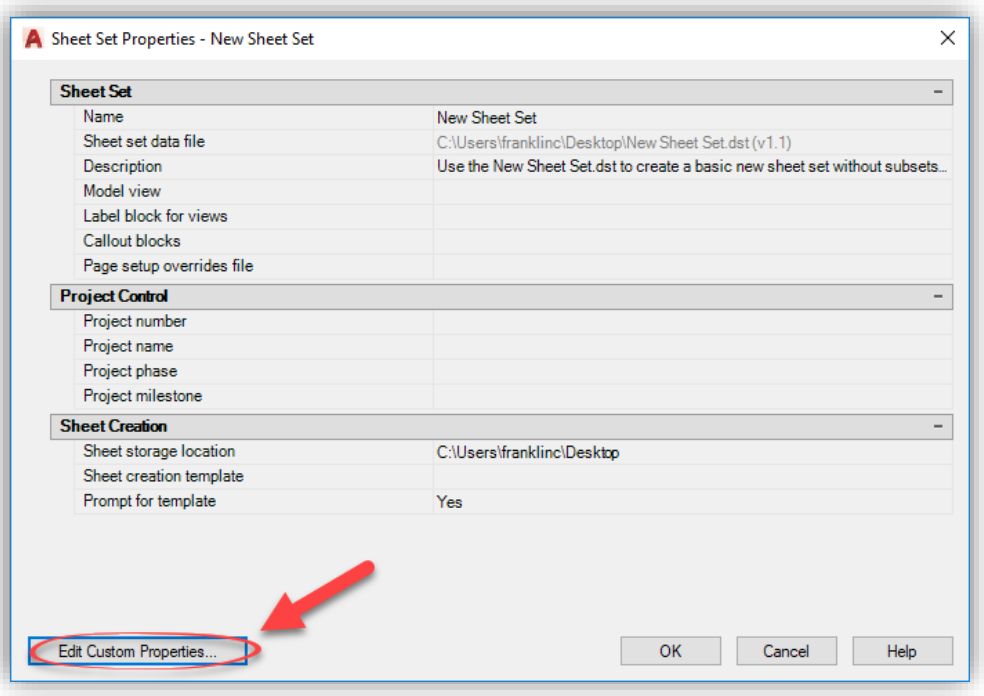
- C:\Program Files\Autodesk\AutoCAD 20XX\UserDataCache\en-us\Template\New Sheet Set.dst

Once you have a clean, empty DST file, being by adding all custom fields that you previously structured as part of your Sheet Set template *(sheet borders and title blocks)*.

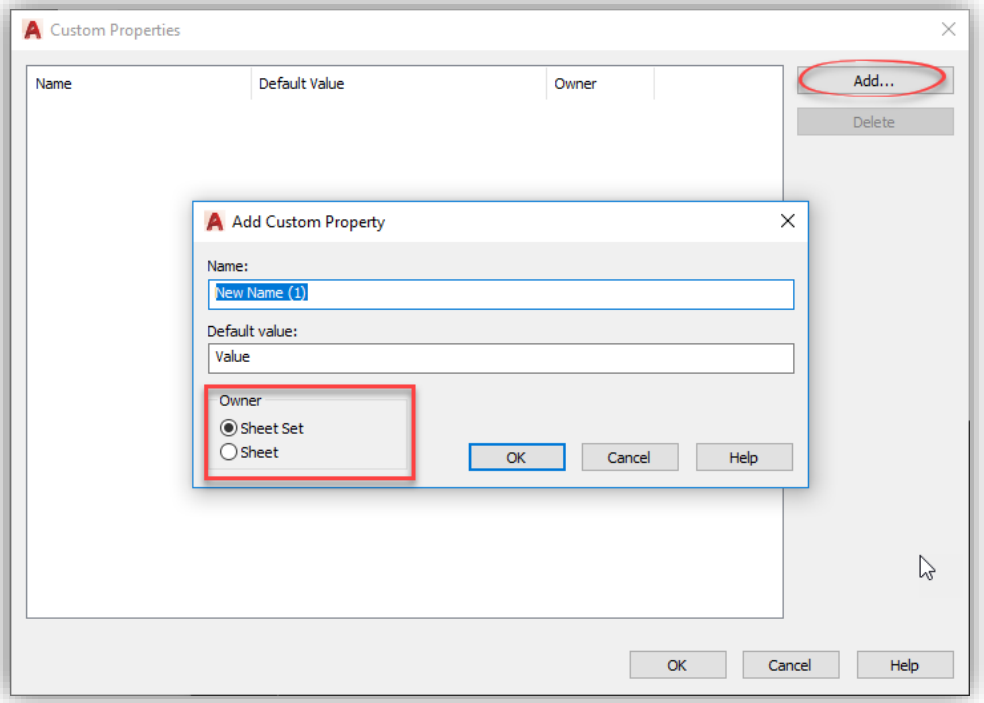
IMPORTANT

The name of the custom fields that are included in the Sheet Set template **MUST** match exactly to the 'Custom Properties' that are added to the DST file. If the names do not correspond, Sheet Set Manager will not be able to populate the information correctly within your Sheet Set borders.

To add all custom fields to your newly created DST file, right-click on the Sheet Set name (within Sheet Set Manager) and select ‘Properties’. In the Sheet Set Properties – New Sheet Set dialog box, press the ‘Edit Custom Properties’ button…



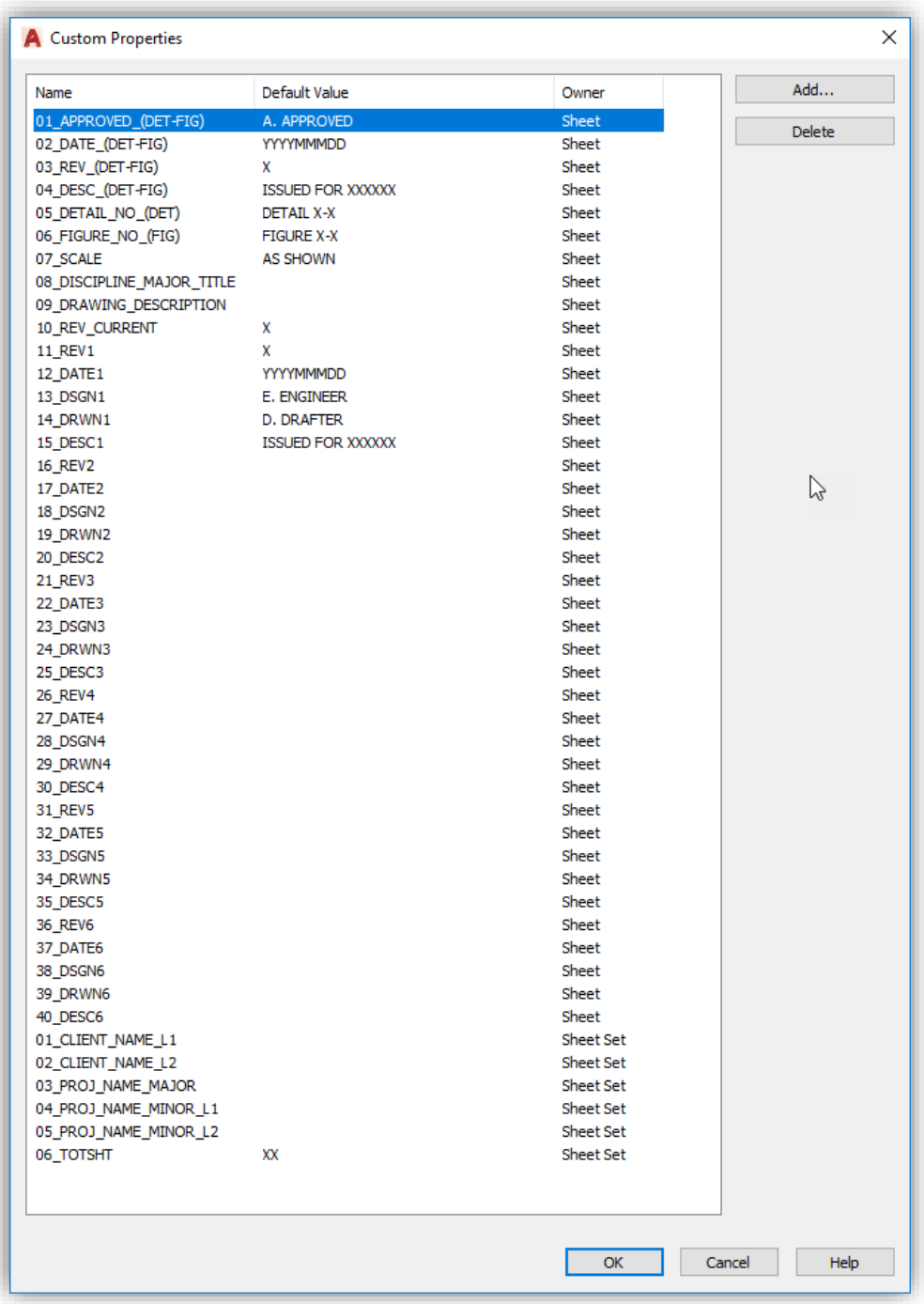
For each custom field, you will need to ‘Add a Custom Property’. As mentioned earlier, ensure the NAME matches exactly to that of the fielded attribute name within the Sheet Set Template.



Add all custom fields being sure to toggle the applicable ‘Owner’…

- Sheet Set = CURRENTSHEETSETCUSTOM fields
- Sheet = CURRENTSHEETCUSTOM fields

Once complete, your DST file will include all SHEETSETCUSTOM and SHEETCUSTOM fields.



In the image above, you will notice that some of the Custom Properties have ‘default values’ added *(e.g.: 01_APPROVED_(DET-FIG) has a ‘default’ value of A. APPROVED)*.

Adding default values to specific custom properties provides CAD/Drawing Production staff with ‘placeholders’ that they need to populate once a new Sheet Set drawing is created. Additionally, you will see that many of the custom properties do not have a default value, or do they?

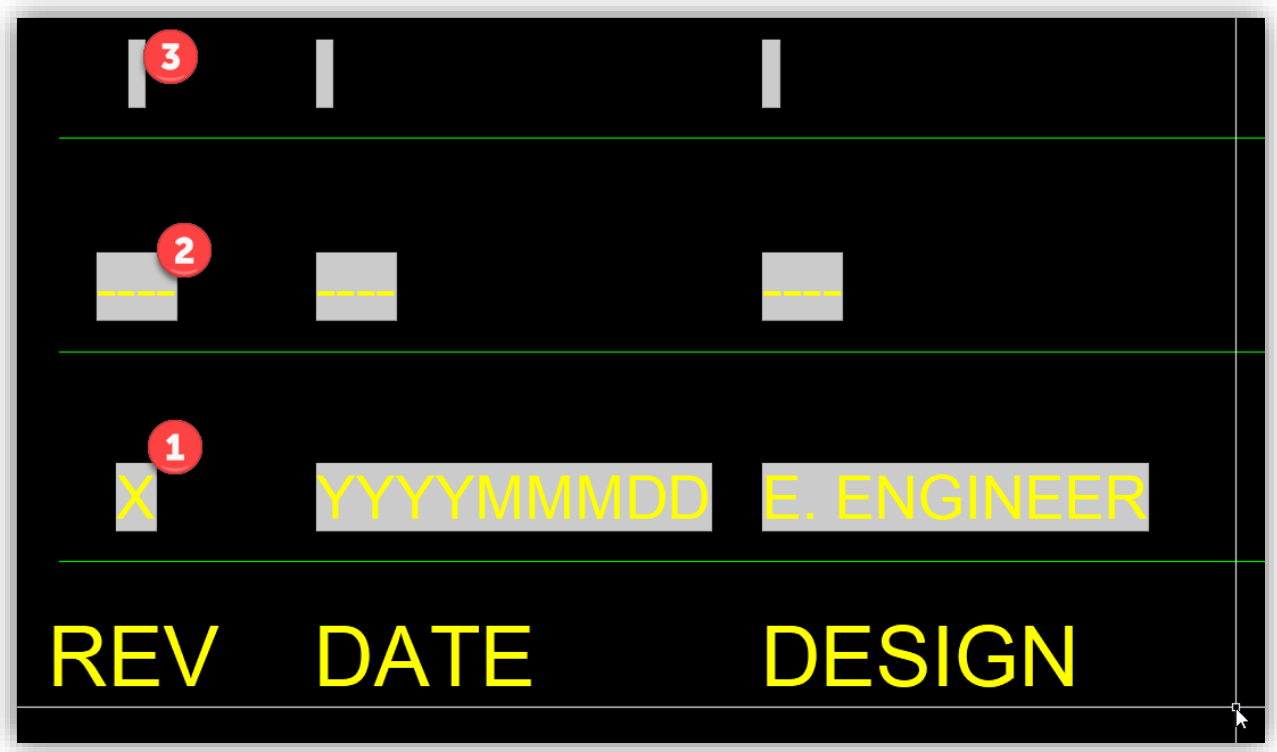
This is where the ALT+160 non-breaking space comes in….

Preassign ALT+160 to “Blank” Fields

If a field does not have a default value, when a Sheet Set drawing is opened, a series of ‘dashes’ *(e.g.: ‘---‘)* will appear. A non-breaking space is created by holding down the ALT key while typing 0160. This space is different than pressing the spacebar key and will ensure that fields remain blank.

The example below illustrates the behavior of field entry.

1. A field with information that has been entered will appear like this.
2. A field that is blank, without the non-breaking space will appear as dashes.
3. A field that has a non-breaking space (ALT+160) will appear like this.



By prepopulating fields that will be initially blank when a CAD/Drawing Production staff member creates a drawing; saves time for the user, the project and reduces budgets. When a user needs to add information, as an example: revision line 2, they simple backspace/delete the non-breaking space character and replace it with pertinent information related to revision 2.

Sheet Set Manager Strategy #4 – Preconfigure Print (Plot) Settings

Page setups are a collection of preconfigured variables used when printing (plotting). Page setups capture page size, plot scale, pen table, as well as virtually any variable found within the AutoCAD plot dialog box. Once a page setup is configured, it remains part of the electronic drawing file (dwg). When printing, page setups ensure consistent output each time.

Preconfigure all Printing (Plotting) Requirements

Preconfigured page setups can be preconfigured into a Template so that CAD/Drawing Production staff do not need to manually setup required printing *(plotting)* specifics. By including all standard output *(aligning to your company or project standards)* you remove a significant amount of effort for your CAD/Drawing Production staff while mitigating the risk of error on output due to inconsistencies, incorrect settings, etc.

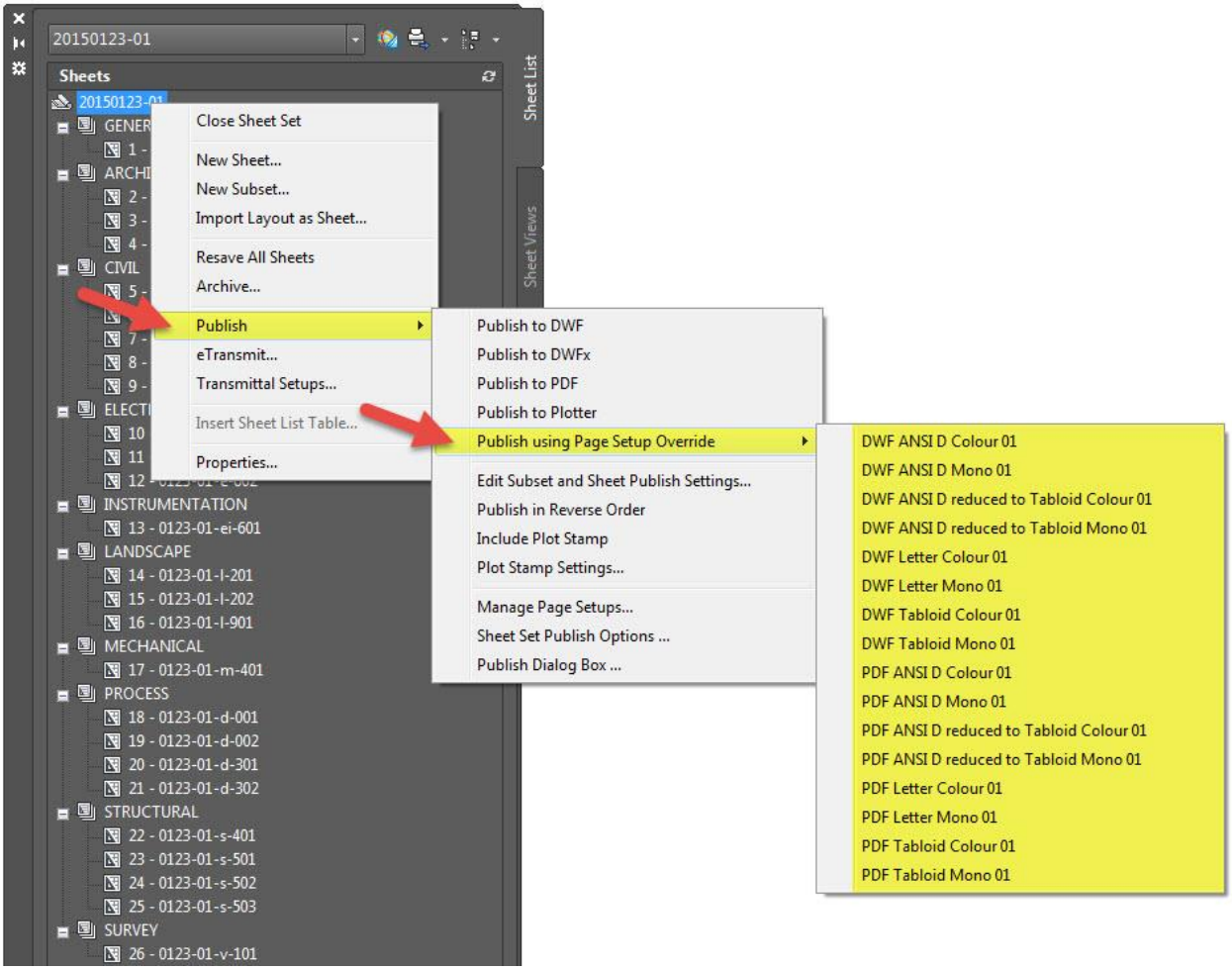
At Associated Engineering, we print to DWF (or PDF) first, then to hardcopy. Single-source printer *(plotter)* drivers are stored on a credential-controlled server, meaning all plotting *(DWF and PDF)* utilize the same driver(s). This strategic setup ensures that staff cannot accidentally modify the driver's core settings and to ensure all output is consistent *(e.g.: every uses the same driver)*.

Each type of output *(file type, paper size, pen/color tables, full and half size)* is preconfigured into all Sheet Border templates, including the Sheet Set Template.

Printing (Plotting) Workflow for Sheet Set Manager

Within Sheet Set Manager, there are several options for printing *(or publishing)* drawings. Two typical options for plotting a drawing *(or drawings)* with Sheet Set Manager:

Plotting an Entire Drawing Set	**'Right-Click'** on the **DST File** and select **'Publish'** then **'Publish using Page Setup Overrides'** then choose the **Desired Output Type**
Plotting a Selection of Sheets in a Drawing Set	**First** use a combination of **'Shift and Control'** to select the desired sheets, then **'Right-Click'** and select **'Publish'** then **'Publish using Page Setup Overrides'** then choose the **Desired Output Type.**



IMPORTANT

If you have a mixture of Sheet Sizes (i.e.: different Sheet Border types) in the drawing set, in the second menu shown above, select “Publish to PDF” to ensure the current Page Setups are used rather than applying an override to the published drawings. This workflow ensures that all Sheet Sizes applicable to the mixture of Sheet Borders in the project are properly applied.

IMPORTANT

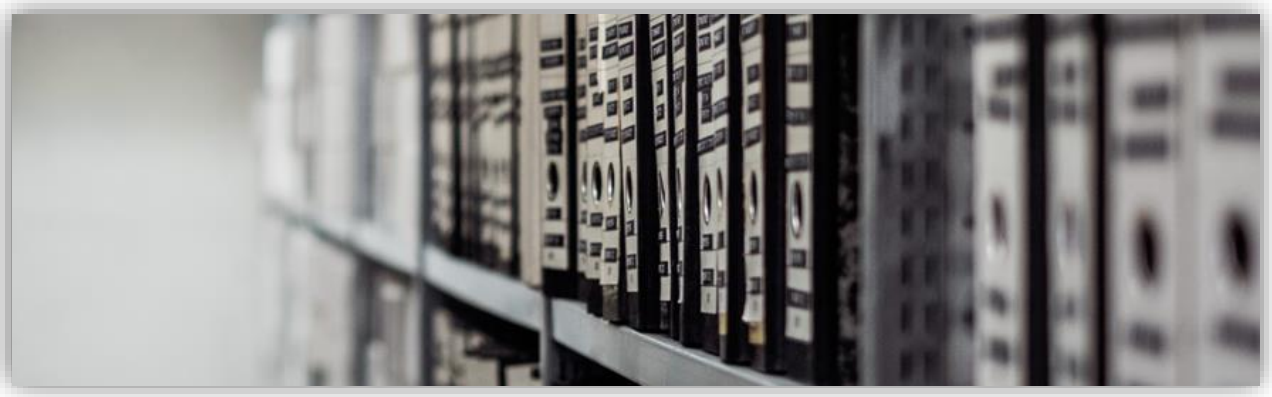
If the entire right-click menu is “greyed out” it is likely because you do not have a drawing open in AutoCAD or you are not provisioned to the project *(e.g.: user credentials to access project location with “modify” ability)*. Sheet Set Manager panel requires that a single drawing is open in AutoCAD, so the software’s commands are accessible *(i.e.: loading the CUI).*

Sheet Set Manager Strategy #5 – Sheet List Table Functionality

Sheet Set Manager functionality allows a user to add a list of all, or a selection of the sheets in a drawing set to an AutoCAD table. This “Sheet List” table is typically placed on the Cover Sheet of a drawing package, or on a secondary sheet if a large number of drawings are included in a drawing package *(i.e.: the Cover Sheet typically has limited room and may not provide enough space for a large, long table)*.

Sheet Set Manager will query the DST file and create the table, linking it to the DST file for the project. This linking ability allows the table to be quickly updated *(using a two-step process for our requirements at Associated Engineering, but can be completed in one-step, depending on criteria/data and formatting needs)*.

Anytime changes are made to the drawing set, including additional sheets being added, or removed, or the Sheet Border *(Title Block)* information is updated, a user can quickly re-sync the table to the DST file ensuring the table is up-to-date.

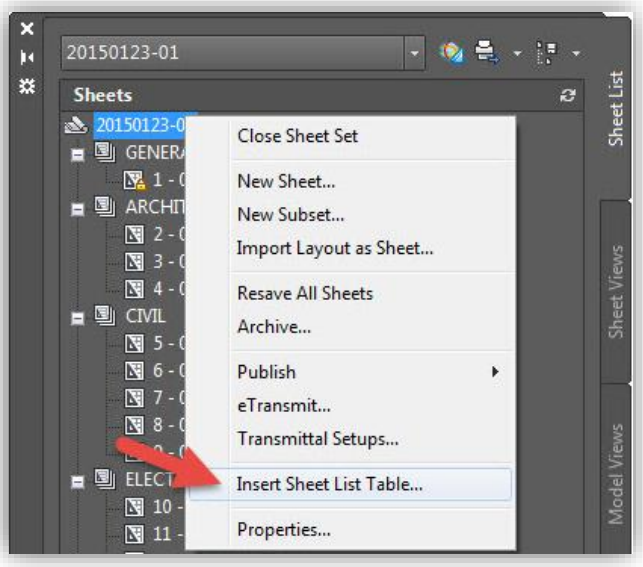


Creating the Sheet List Table

The process of creating a Sheet List Table is very simple, however you will need to configure the data that is included in the table to ensure the columns/rows align to the ‘fielded attributes’ that you configured within your Sheet Set’s DST File.

Because custom properties *(Sheet Set fields)* were used, we can reference the information in the DST “database” and populate that information into the Sheet List Table.

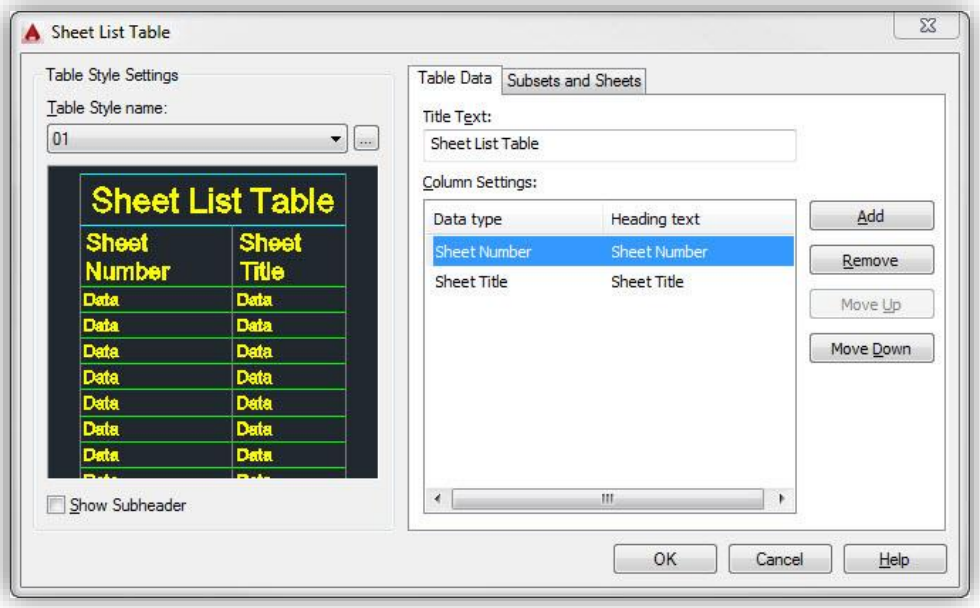
To create the Sheet List table, right-click on the Sheet Set *(in Sheet Set Manager)* and select “Insert Sheet List Table”.



NOTE

If the 'Insert Sheet List Table' option is greyed out, that means there are no sheets/drawings open for this specific Sheet Set (or a blank drawing opened in AutoCAD). Open the Cover Sheet first, then the option to "Insert the Sheet List Table" will be available.

The Sheet List Table dialog box will open allowing us to adjust the criteria to include in the Sheet List Table.



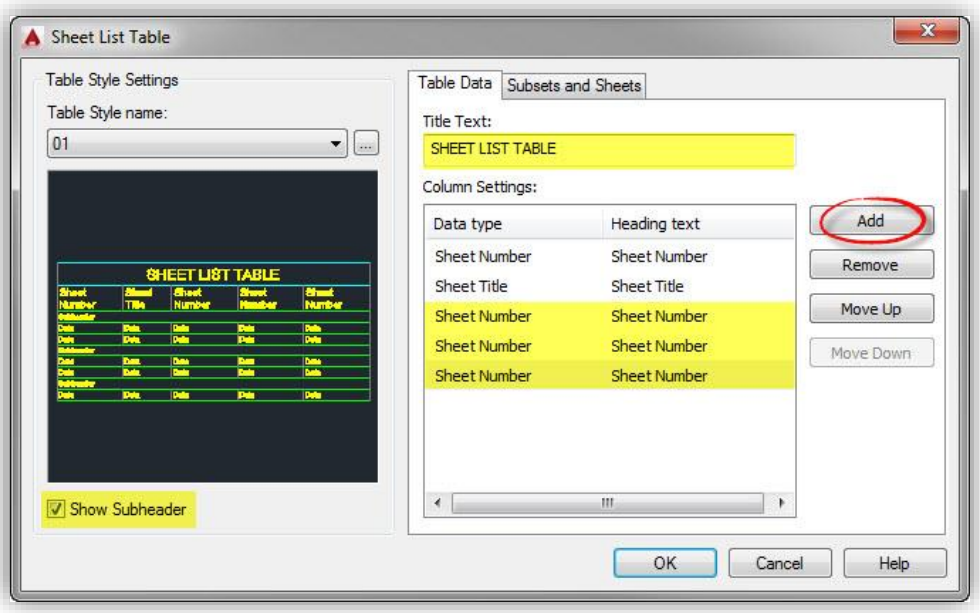
By default, the Sheet List Table does not include all the required criteria that you may need for your project *(or company)* CAD/Drawing Production Standards, therefore, several adjustments need to be applied.

For this example, we will use Associated Engineering's 'default' Sheet List Table criteria requirements.

- Toggle "ON" the "Show Subheader" option. This ensures the Subset Names *(Engineering Disciplines)* are included in the Sheet List Table.
- Under "Table Data" change the Title Text to UPPERCASE *(i.e.: SHEET LIST TABLE)*
- Under "Column Settings" add (3) additional line items *(as described in the next steps)*.

Under the "Subsets and Sheets" tab a user can select what Subsets to include *(or exclude)* in the Sheet List Table.

To add additional line items to the Sheet List Table, press the 'Add' button (3) times. You will see we now have (3) additional line items as shown in the following image.

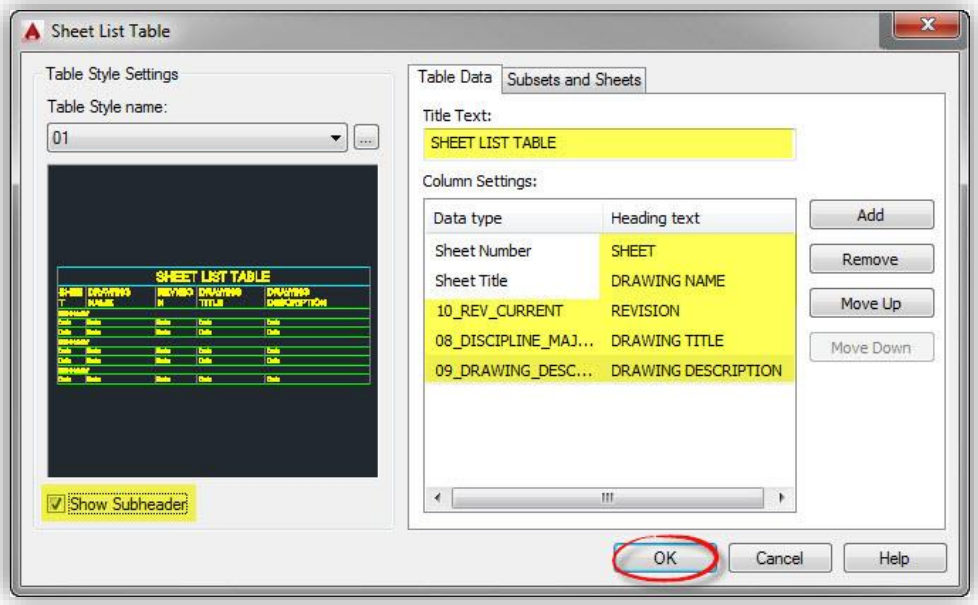


Next, select one of the Data type entries *(for one of the three newly added line items)* and a pulldown menu will allow you to select a CURRENTSHEETSETCUSTOM or CURRENTSHEETCUSTOM field to populate into that line item for the Sheet List Table.

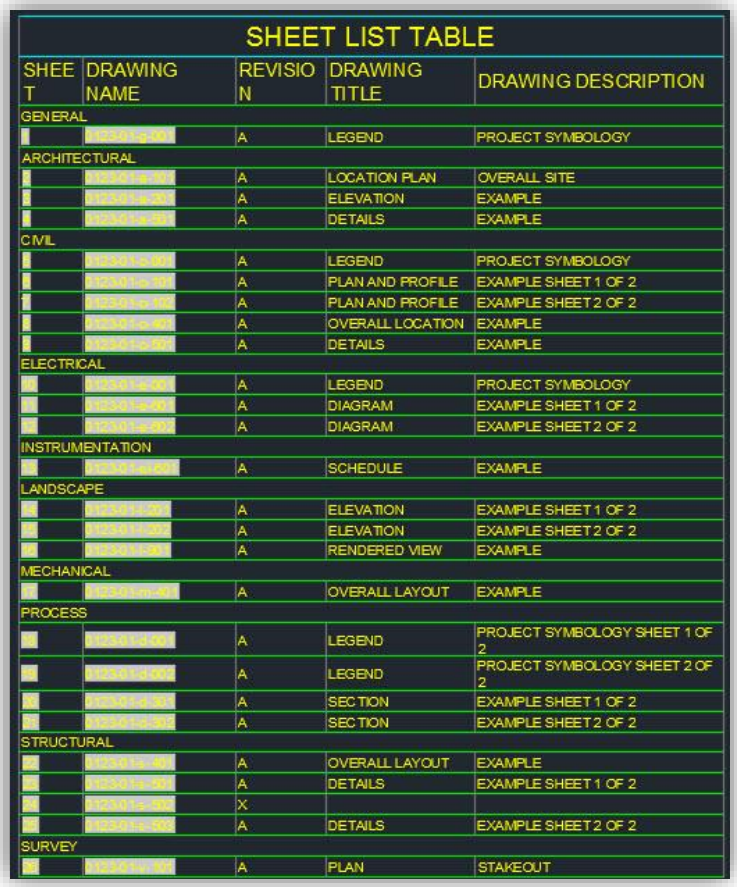
Using the following table, populate the (3) additional line items with the matching Data Type *(custom property i.e.: sheet set field)* and applicable Heading Text.

Data Type	Heading Text
Sheet Number	SHEET
Sheet Title	DRAWING NAME
10_REV_CURRENT	REVISION
08_DISCIPLINE_MAJOR_TITLE	DRAWING TITLE
09_DRAWING_DESCRIPTION	DRAWING DESCRIPTION

Once complete, the Sheet List Table dialog box should appear as shown in the following image.



Press ‘OK’ to confirm and to continue by inserting the Sheet List Table onto the Cover Sheet.

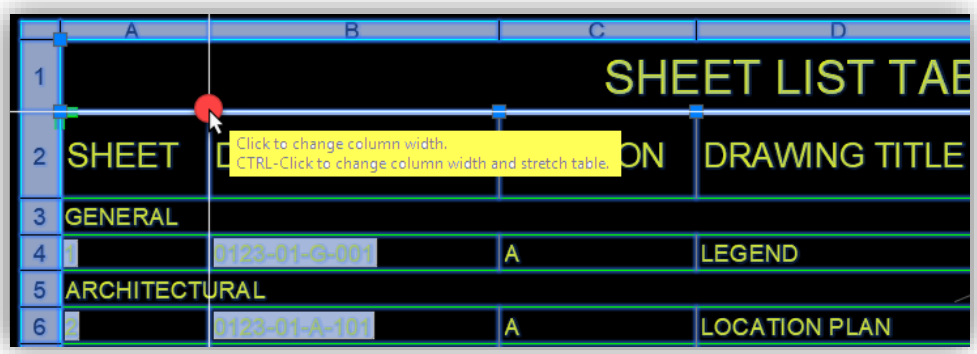


SHEET LIST TABLE

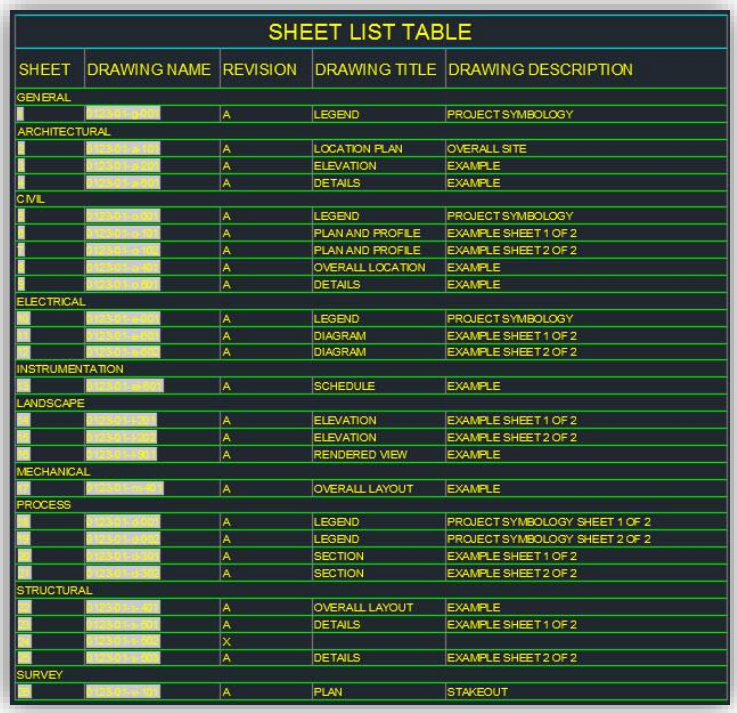
SHEET	DRAWING NAME	REVISION	DRAWING TITLE	DRAWING DESCRIPTION
GENERAL				
		A	LEGEND	PROJECT SYMBOLOGY
ARCHITECTURAL				
		A	LOCATION PLAN	OVERALL SITE
		A	ELEVATION	EXAMPLE
		A	DETAILS	EXAMPLE
CIVIL				
		A	LEGEND	PROJECT SYMBOLOGY
		A	PLAN AND PROFILE	EXAMPLE SHEET 1 OF 2
		A	PLAN AND PROFILE	EXAMPLE SHEET 2 OF 2
		A	OVERALL LOCATION	EXAMPLE
		A	DETAILS	EXAMPLE
ELECTRICAL				
		A	LEGEND	PROJECT SYMBOLOGY
		A	DIAGRAM	EXAMPLE SHEET 1 OF 2
		A	DIAGRAM	EXAMPLE SHEET 2 OF 2
INSTRUMENTATION				
		A	SCHEDULE	EXAMPLE
LANDSCAPE				
		A	ELEVATION	EXAMPLE SHEET 1 OF 2
		A	ELEVATION	EXAMPLE SHEET 2 OF 2
		A	RENDERED VIEW	EXAMPLE
MECHANICAL				
		A	OVERALL LAYOUT	EXAMPLE
PROCESS				
		A	LEGEND	PROJECT SYMBOLOGY SHEET 1 OF 2
		A	LEGEND	PROJECT SYMBOLOGY SHEET 2 OF 2
		A	SECTION	EXAMPLE SHEET 1 OF 2
		A	SECTION	EXAMPLE SHEET 2 OF 2
STRUCTURAL				
		A	OVERALL LAYOUT	EXAMPLE
		A	DETAILS	EXAMPLE SHEET 1 OF 2
		X		
		A	DETAILS	EXAMPLE SHEET 2 OF 2
SURVEY				
		A	PLAN	STAKEOUT

You will see that the initial Sheet List Table requires some adjustments for column widths as the word “SHEET” is split - *(**Shee** on the first thing, **T** on the second line)*.

Adjust the Sheet List Table using the Table Selection Grips to expand/adjust the columns so that the information is displayed properly.



Once all the adjustments are completed, the Sheet List Table should appear as below.



SHEET LIST TABLE

SHEET	DRAWING NAME	REVISION	DRAWING TITLE	DRAWING DESCRIPTION
GENERAL				
		A	LEGEND	PROJECT SYMBOLOGY
ARCHITECTURAL				
		A	LOCATION PLAN	OVERALL SITE
		A	ELEVATION	EXAMPLE
		A	DETAILS	EXAMPLE
CIVIL				
		A	LEGEND	PROJECT SYMBOLOGY
		A	PLAN AND PROFILE	EXAMPLE SHEET 1 OF 2
		A	PLAN AND PROFILE	EXAMPLE SHEET 2 OF 2
		A	OVERALL LOCATION	EXAMPLE
		A	DETAILS	EXAMPLE
ELECTRICAL				
		A	LEGEND	PROJECT SYMBOLOGY
		A	DIAGRAM	EXAMPLE SHEET 1 OF 2
		A	DIAGRAM	EXAMPLE SHEET 2 OF 2
INSTRUMENTATION				
		A	SCHEDULE	EXAMPLE
LANDSCAPE				
		A	ELEVATION	EXAMPLE SHEET 1 OF 2
		A	ELEVATION	EXAMPLE SHEET 2 OF 2
		A	RENDERED VIEW	EXAMPLE
MECHANICAL				
		A	OVERALL LAYOUT	EXAMPLE
PROCESS				
		A	LEGEND	PROJECT SYMBOLOGY SHEET 1 OF 2
		A	LEGEND	PROJECT SYMBOLOGY SHEET 2 OF 2
		A	SECTION	EXAMPLE SHEET 1 OF 2
		A	SECTION	EXAMPLE SHEET 2 OF 2
STRUCTURAL				
		A	OVERALL LAYOUT	EXAMPLE
		A	DETAILS	EXAMPLE SHEET 1 OF 2
		X		
		A	DETAILS	EXAMPLE SHEET 2 OF 2
SURVEY				
		A	PLAN	STAKEOUT

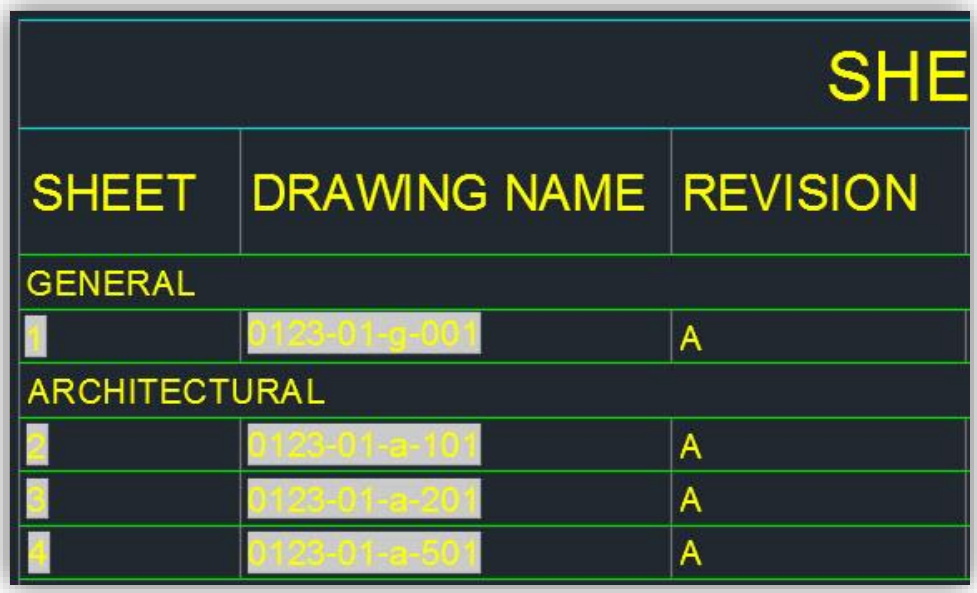
The default ROW HEIGHT for the Sheet List Table is 5.3 units. While adjusting the table, if any rows *(for the Sheets)* become inconsistent, you can edit the heights of the rows by editing from the Properties Panel.

Updating the Sheet List Table

As mentioned earlier in this chapter, Associated Engineering requires the use of a two-step process when updating an existing Sheet List Table. In most cases, a one-step update process is achievable, however due to our CAD/Drawing Production Standards and IT File Naming Conventions, our process required an additional step.

Both workflows *(one and two-step processes)* are documented below.

Continuing from the previous sections…. you will notice that the **Drawing Name** columns are showing the **Discipline Designator** as a **"lowercase"** letter.



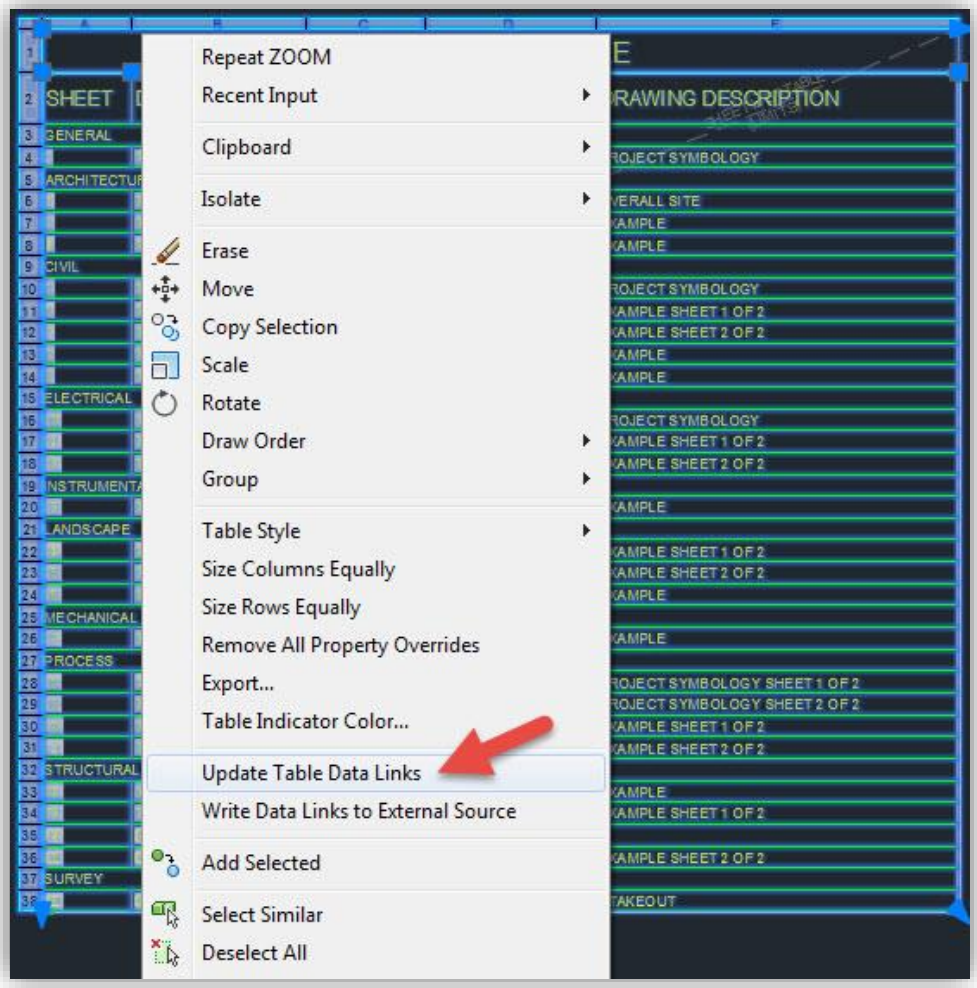
SHE		
SHEET	DRAWING NAME	REVISION
GENERAL		
1	0123-01-g-001	A
ARCHITECTURAL		
2	0123-01-a-101	A
3	0123-01-a-201	A
4	0123-01-a-501	A

Because Associated Engineering IT File Naming Convention requires "lowercase" letters, but our CAD/Drawing Production Standards required "uppercase" letters, a two-step updating process is required. This two-step process required an extra step 'after' the Sheet List Table data has been updated, which removes "Property Overrides" from the Sheet List Table. The removal of property overrides "swaps" the lowercase letters out and replaces them with uppercase letters as 'overrode' in the CURRENTSHEETSETCUSTOM and CURRENTSHEETCUSTOM fields.

Whenever any updates are made to the drawing package, such as additional sheet requirements or Sheet Border Title Block updates *(attribute information)*, the Sheet List Table can quickly be updated using a one *(or two)* step process.

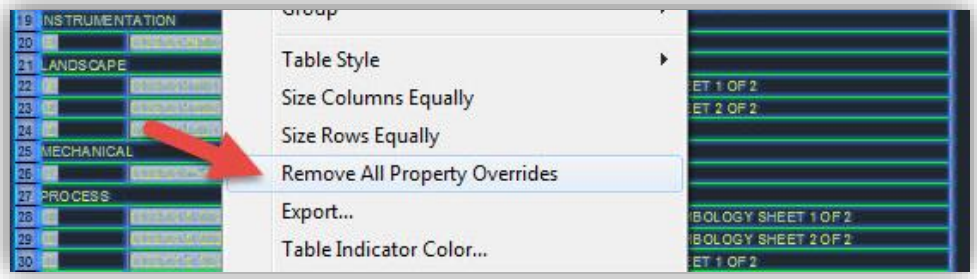
First, open the drawing that includes the Sheet List Table *(typically the Cover Sheet of the drawing package)*.

Once opened, select the Sheet List Table then right-click and select "Update Table Data Links".



The “Update Table Data Links” function will sync the Sheet List Table data to the data stored within the Sheet Set’s DST file. If you did not include any formatting overrides *(i.e.: uppercase toggle)* within your fielded attributes, your done….. the Sheet List Table is up-to-date!

If you did include overrides, you need to select the table once more, right-click and select “Remove All Property Overrides”.



Sheet Set Manager Strategy #6 – Performance and Workflows

System Variable Adjustments

Sheet Set Manager (SSM) performance is influenced by several factors. A slow network connection can have a significant (negative) impact on the performance of SSM. The more sheets you have in a Sheet Set (DST file), the more demand assigned to the network in order to refresh the Sheet Set.

The negative effect of these factors is compounded by the number of users accessing the SSM simultaneously, (each periodically refreshing the DST file), makes it easy to see how quickly performance can degrade. This can be especially apparent on multi-office projects where staff are accessing the SSM outside of local networks.

So what options are available to increase SSM performance?

The list below outlines several options to increase SSM performance.

- Increase the **SSMPOLLTIME** system variable to lengthen the time between refreshes. The default refresh time is 60 seconds, but you can modify it to a maximum of 600 seconds (10 minutes). Note: The system variable, **SSMSHEETSTATUS** must be set to 2 for the timer to operate.

- Turn off automatic refreshing of sheet sets completely by setting **SSMSHEETSTATUS** to 0 *(in this case, refreshing must be done manually)*. Making this *(or the previous)* change for all users on a project may help minimize the amount of traffic to and from the DST file.

- Disable **SSMAUTOOPEN** *(set to 0)* to prevent the automatic opening of a DST file when you load an SSM drawing.

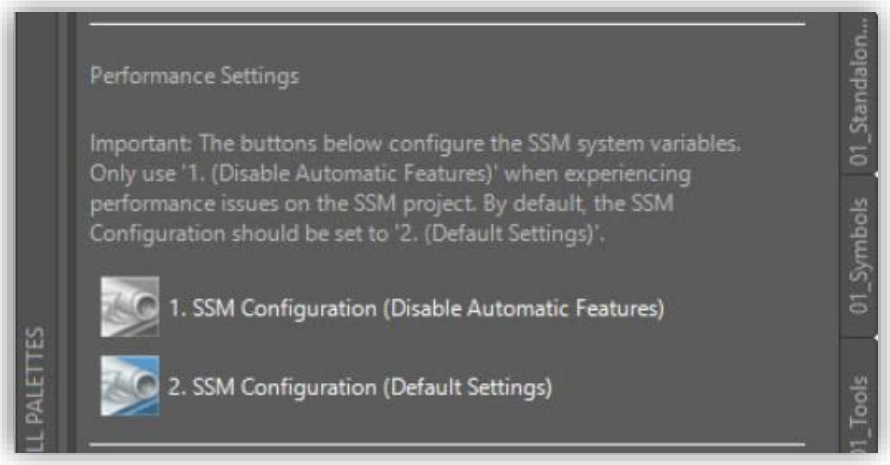
- Check how frequently 'FIELDS' are refreshed. If your sheets contain a lot of fields and they are refreshed often, this will negatively impact SSM performance. Check the **FIELDEVAL** system variable or the Options dialog box *(User Preferences → Field Update Settings)* and adjust how often the fields are evaluated. The 'default' setting for **FIELDEVAL** is 31 *(turns every option on for that variable)*.

- Close the DST file if you are not using it. This is different from simply closing the SSM. You need to "right-click" the sheet set name at the root of the SSM tree *(Sheet Set Manager Palette)* and select "Close Sheet Set" from the shortcut menu.

- Disable background publishing. Although the idea of printing in the background while you continue to work on drawings sounds like a great idea, it typically can severely impact performance. You can disable background publishing from the Options Dialog Box *(Plot and Publish tab → Background Processing Options → clear/un-toggle the 'Enable Background Plot When Publishing' option)*.

Is there an easier way to provide this for my staff?

Yes, you could create two buttons on a company tool palette that will aid in SSM Performance and make it easier for staff to apply the adjustments. These buttons could be similar to the example below:



Button 1 – SSM Configuration (Disable Automatic Features)

This button and respective code example *(below)* could be used when accessing an SSM project in another office or when performance issues are experienced. These settings will boost the SSM performance by disabling the system variables listed below.

Button Code = **^C^Cssmsheetstatus;0;ssmautoopen;0;**

- SSMSHEETSTATUS is set to 0 *(disabled automatic refreshing)*
- SSMAUTOOPEN is set to *0 (disable SSM automatic opening)*
- SSMSHEETSTATUS is set to 2 *(enabled automatic refreshing by time interval set in SSMPOLLTIME)*
- SSMAUTOOPEN is set to 1 *(enabled SSM automatic opening)*
- SSMPOLLTIME is set to 60 seconds *(time interval per automatic refreshing of the SSM)*

Button 2 – SSM Configuration (Default Settings)

This button and respective code example *(below)* could be used when your SSM project is not experiencing performance issues *(normal access)* and is recommended as 'default' settings unless performance issues are apparent.

Button Code = **^C^Cssmsheetstatus;2;ssmautoopen;1;ssmpoletime;60;ssm;**

- SSMSHEETSTATUS is set to 2 *(default AutoCAD setting, refresh the status data when the sheet set is loaded or updated; or at a time interval set by SSMPOLLTIME)*
- SSMAUTOOPEN is set to 1 *(default AutoCAD setting, opens the Sheet Set Manager automatically)*
- SSMPOLLTIME is set to 60 seconds *(default AutoCAD setting, ensures this system variable is set back to default in case a user has adjusted it when troubleshooting SSM access issues)*

Be sure to reset the SSM to “Default Settings” once you have completed working on the SSM project that is experiencing performance issues.

AutoLISP - Remove Fields from Attributes

In certain cases, a client may be unfamiliar with Sheet Set Manager, request that we do not deliver a SSM project, and/or require deliverables to align to their specific standards. In these instances, do we avoid using SSM entirely for the project? No….

We can still use SSM internally and capitalize on all the efficiency gains, yet still ensure we meet the client *(or project)* deliverable requirements. How?

I stumbled upon an AutoLISP routine several years ago that converted “fielded attributes” to “attributes”, thus removing any SSM properties, yet not having to go through exploding Sheet Borders.

Whenever the requirement is to provide non-SSM Sheet Border deliverables, simply run the AutoLISP routine *(FLD2TXT, as follows)* to convert your SSM Sheet Borders into typical attributed Sheet Borders.

You will need to run this AutoLISP on each drawing contained within the project, individually or potentially through a script or other means to apply to all drawings equally. Additionally, you can add a button to a Tool Palette that will allow staff to quickly click/run this routine on the currently opened drawing.

Ensure that you COPY all the drawings to a separate location to prepare the deliverable as you do not want to “break” the SSM properties on drawings that are currently being used with SSM.

```
(defun c:FLD2TXT (/ ss n bn an ad s)
    (prompt "Select the blocks you wish to remove the field links from: ") ;_ end of prompt
    (setq ss (ssget '((0 . "INSERT"))))
  ;Get selection set from user
    (setq n 0)
  ;Initialize counter
  ;; Step through selection set one entity at a time
    (while (< n (sslength ss))
    (setq bn (ssname ss n))
  ;Get the nth entity in the selection set
    (setq an (entnext bn))
  ;Get the next enity after bn
  ;; Step through each next entity until it is not an attribute
    (while (and an
  ;Check if entity is found
    (setq ad (entget an))
  ;Get data
    (= "ATTRIB" (cdr (assoc 0 ad)))
  ;Check if attribute
    )
  ;_ end of and
    (setq s (cdr (assoc 1 ad)))
  ;Get text value
    (setq ad (subst (vl-list* 1 "") (assoc 1 ad) ad))
  ;Clear the attribute's value
    (entmod ad)
  ;Modify the entity
    (setq ad (subst (vl-list* 1 s) (assoc 1 ad) ad))
  ;Set the attribute's value back to only the text
    (entmod ad)
  ;Modify the entity
    (entupd an)
  ;Update screen to show change
    (setq an (entnext an))
  ;Get next entity
    )
  ;_ end of while
    (setq n (1+ n))
  ;Increment counter
    )
  ;_ end of while
    (setq ss nil)
  ;Clear selection set
    (gc)
  ;Clear unused memory
    (princ)
    )
;_ end of defun
```

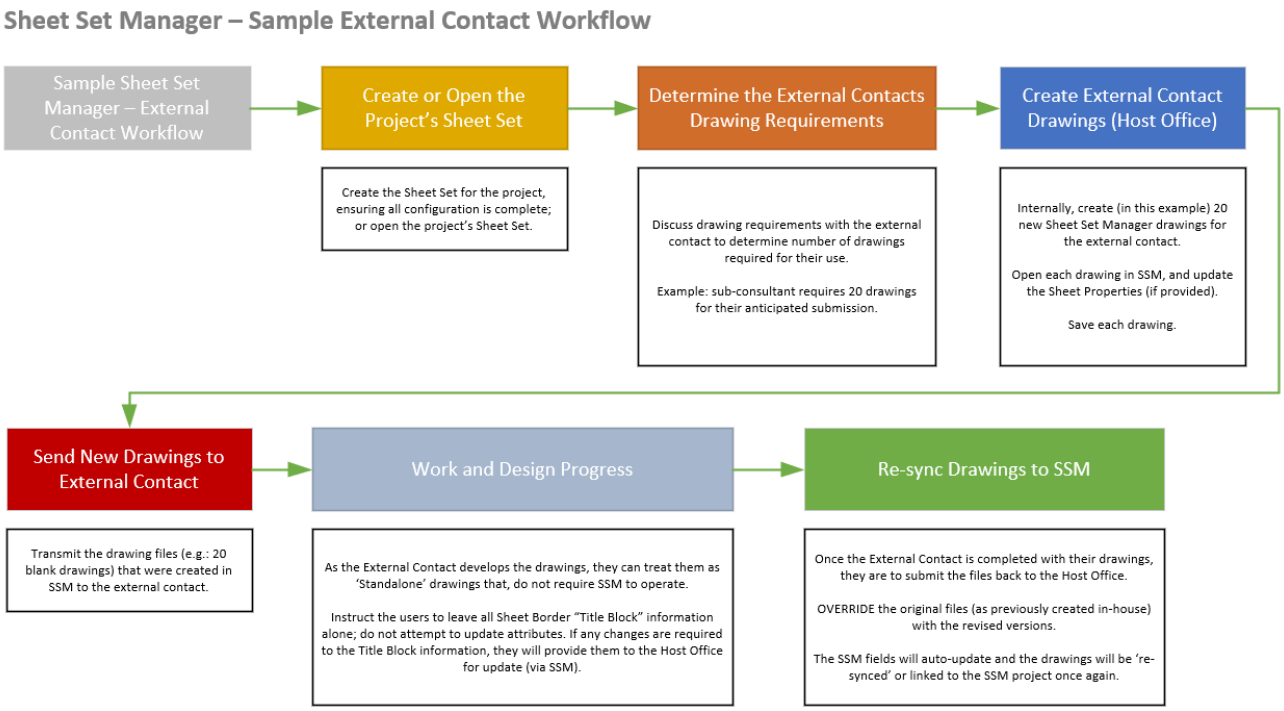
Working with External Contacts and/or Non-Sheet Set Users

A simple workflow can be implemented in situations where we (Associated Engineering) are working with an external consultant, or individuals that are not familiar with Sheet Set Manager; while still using SSM on the project.

Example: If we are the prime *(main consultant)* using our standards on a project, we typically utilize Sheet Set Manager, regardless if a sub-consultant is not familiar with SSM. The productivity of SSM is too beneficial to disregard on the project.

By utilizing the following workflow, we can accommodate our levels of expertise related to SSM, and its benefits, while ensuring our sub-consultants can work with our standards, mitigating the requirement for them to "learn" SSM. Assuming in this example that the subs are not familiar with SSM, never used SSM before, etc.

The workflow is as follows….



Appendix A – Available References

There are multiple articles on Autodesk's Knowledge Network to assist in getting you started with AutoCAD's Sheet Set Manager. Be sure to visit the site and use the search functionality to find the desired information you are looking to obtain. The search crawls not only Product Documentation but also Forum Posts, Technical Support, YouTube and Screencast videos, as well as blogs and other online depositories.

In addition to the Autodesk Knowledge Network, you can search Autodesk University Online for hundreds of recorded sessions from past Autodesk University conferences. I have provided a selection of past classes that I either attended in person or references in the past regarding AutoCAD's Sheet Set Manager. Be sure to check them out!!

Sam Lucido: Mighty Macros – Pumping Up Productivity 1 Character at a Time - - http://au.autodesk.com/au-online/classes-on-demand/class-catalog/classes/year-2014/autocad/ac4873#chapter=0

Sam Lucido: No Sheet, You Can Do That With SSM In AutoCAD (AU2014) - - http://au.autodesk.com/au-online/classes-on-demand/class-catalog/classes/year-2014/autocad/ac4870-l#chapter=0

Sam Lucido: No Sheet, You Can Do That With SSM In AutoCAD (AU2015) - - http://au.autodesk.com/au-online/classes-on-demand/class-catalog/classes/year-2015/autocad/gen9539#chapter=0

Sam Lucido: Advanced Topics Using the Sheet Set Manager in AutoCAD - - http://au.autodesk.com/au-online/classes-on-demand/class-catalog/classes/year-2016/autocad/gen15297#chapter=0

Jim MacPherson: AutoCAD Sheet Sets: Custom Solutions to Improve Sheet Set Manager Productivity - - http://au.autodesk.com/au-online/classes-on-demand/class-catalog/2013/autocad/ac1610?_ga=2.45131684.1861933361.1537794237-376110944.1536612500#chapter=0

Appendix B – AutoCAD Tool Palette for Sheet Set Manager

AutoCAD Tool Palettes can be used for not only sourcing warehoused block/symbol libraries, but also to facilitate company-specific CAD/Drawing Production Standards workflows and to assist CAD Managers and Drawing Production Staff with quick-access to required tools and other functionality.

By creating a Sheet Set specific Tool Palette, you can provide your staff with access to your company's Sheet Set Manager content, workflows, system variable adjustments and other related information, all in one, single place.

For more information on AutoCAD's Tool Palettes, please refer to my Autodesk University 2017 class: **CAD Manager's Guide – Using Tool Palettes to Manage Standards and Configuration**. A class recording, and handout are available on Autodesk University Online's website – refer to the link below…

http://au.autodesk.com/au-online/classes-on-demand/class-catalog/classes/year-2017/autocad/es122494#chapter=0

I am presenting my Tool Palettes class at **Autodesk University 2018 on Wednesday, November 14th at 9:15am**. *Be sure to join if you are attending AU2018 in person and have schedule availability)!*

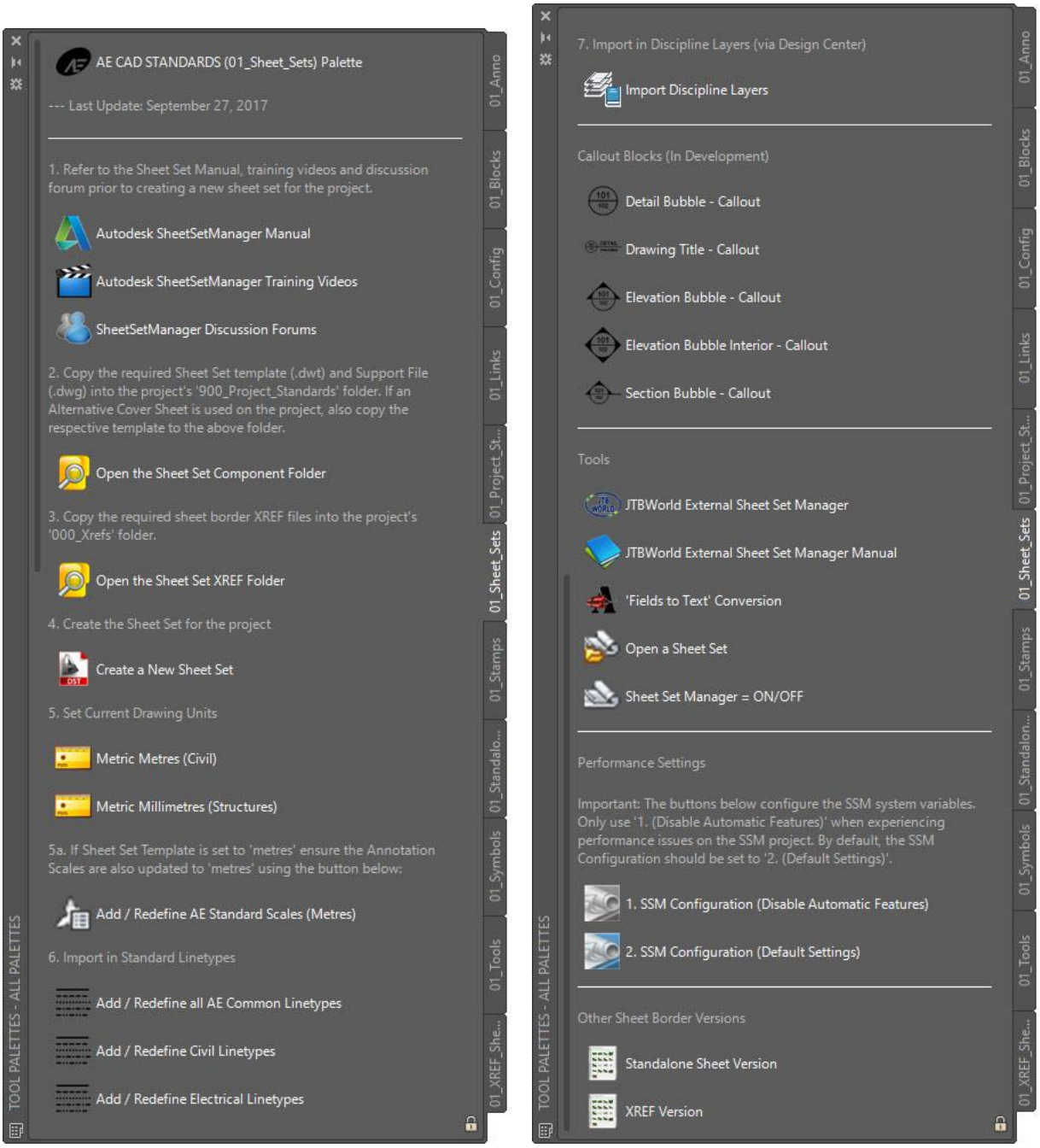
If this class is one selected to be recorded at this year's conference, the recording will be released on Autodesk University Online website following this year's conference.

Sheet Set Tool Palette Example

Associated Engineering's Sheet Set Tool Palette includes the following sections:

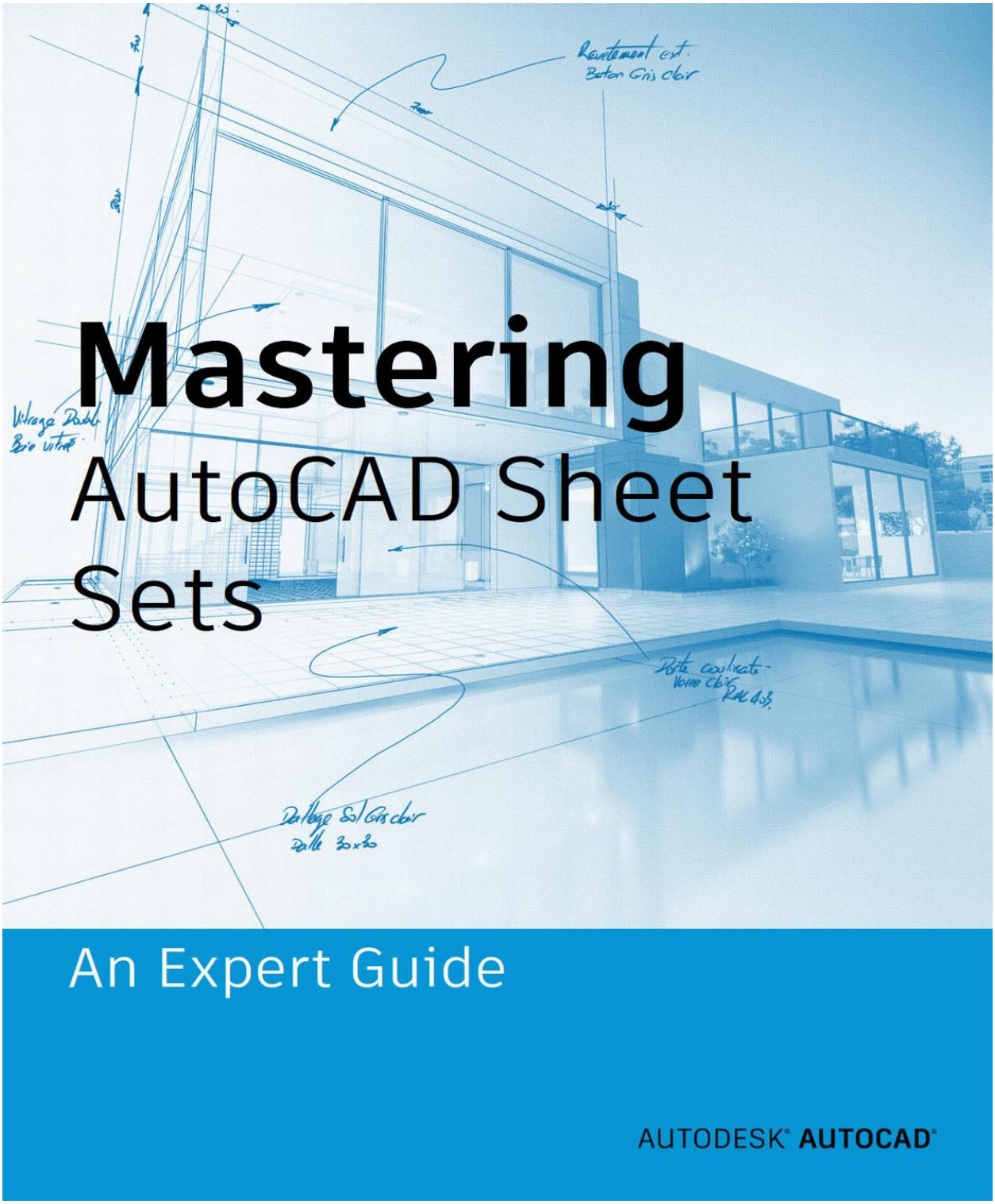
- Links to our internal Sheet Set Manager Manual, Training Videos and SharePoint discussion forums *(Intranet)*
- Workflow to assist Drawing Production Staff with Creating Sheet Sets
- Hyperlinks to Sheet Set templates and resource files
- Launch button for Sheet Set Manager
- Setup macros for adjusting units *(we use Metres and Millimetres in Canada)* including buttons to reconfigure drawing scales (by unit), linetype access and updates
- Sheet Set configured callout blocks
- Tools related to Sheet Sets such as an AutoLISP code to explode fields to attributes, should a client request non-sheet set deliverables
- Performance settings to adjust Sheet Set Manager variables automatically *(via buttons)*

For more information on Associated Engineering's Sheet Set Tool Palette, please refer to the following screenshots and additionally, refer to the Autodesk University Online class recording linked above.


AE CAD STANDARDS (01_Sheet_Sets) Palette
--- Last Update: September 27, 2017
1. Refer to the Sheet Set Manual, training videos and discussion forum prior to creating a new sheet set for the project.
Autodesk SheetSetManager Manual
Autodesk SheetSetManager Training Videos
SheetSetManager Discussion Forums
2. Copy the required Sheet Set template (.dwt) and Support File (.dwg) into the project's '900_Project_Standards' folder. If an Alternative Cover Sheet is used on the project, also copy the respective template to the above folder.
Open the Sheet Set Component Folder
3. Copy the required sheet border XREF files into the project's '000_Xrefs' folder.
Open the Sheet Set XREF Folder
4. Create the Sheet Set for the project
Create a New Sheet Set
5. Set Current Drawing Units
Metric Metres (Civil)
Metric Millimetres (Structures)
5a. If Sheet Set Template is set to 'metres' ensure the Annotation Scales are also updated to 'metres' using the button below:
Add / Redefine AE Standard Scales (Metres)
6. Import in Standard Linetypes
Add / Redefine all AE Common Linetypes
Add / Redefine Civil Linetypes
Add / Redefine Electrical Linetypes
TOOL PALETTES - ALL PALETTES
01_Anno
01_Blocks
01_Config
01_Links
01_Project_St...
01_Sheet_Sets
01_Stamps
01_Standalo...
01_Symbols
01_Tools
01_XREF_She...
7. Import in Discipline Layers (via Design Center)
Import Discipline Layers
Callout Blocks (In Development)
Detail Bubble - Callout
Drawing Title - Callout
Elevation Bubble - Callout
Elevation Bubble Interior - Callout
Section Bubble - Callout
Tools
JTBWorld External Sheet Set Manager
JTBWorld External Sheet Set Manager Manual
'Fields to Text' Conversion
Open a Sheet Set
Sheet Set Manager = ON/OFF
Performance Settings
Important: The buttons below configure the SSM system variables. Only use '1. (Disable Automatic Features)' when experiencing performance issues on the SSM project. By default, the SSM Configuration should be set to '2. (Default Settings)'.
1. SSM Configuration (Disable Automatic Features)
2. SSM Configuration (Default Settings)
Other Sheet Border Versions
Standalone Sheet Version
XREF Version

Appendix C – Mastering AutoCAD Sheet Sets

Autodesk's AutoCAD Blog released an *extensive* series on Mastering AutoCAD Sheet Sets, which includes a downloadable eBook.



Each aspect of Sheet Set Manager has been fully documented (within the eBook) and includes sections on:

- Introduction to Sheet Set Manager
- Process Overview
- Getting Started with Sheet Sets
- Transitioning to a Sheet Set Master
- Implementing Sheets Sets for Maximum Efficiency
- Conclusion

To download the AutoCAD Mastering Sheet Sets – An Expert Guide (eBook) refer to the following link:

https://www.autodesk.com/cad-manager/manage-projects/mastering-autocad-sheet-sets

Additionally, you can view each section *(as originally posted to the Autodesk AutoCAD Blog)* using the following link:

http://blogs.autodesk.com/autocad/tag/mastering-autocad-sheet-sets/