CMI Standards Manager
Administration Training Manual

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Overview of CMI Standards Administrator Interface

This interface allows the use of an SQL Server database or a SQL Server Compact database (file with the extension of sdf). The initial interface contains the Database pulldown with commands to open or create a database.
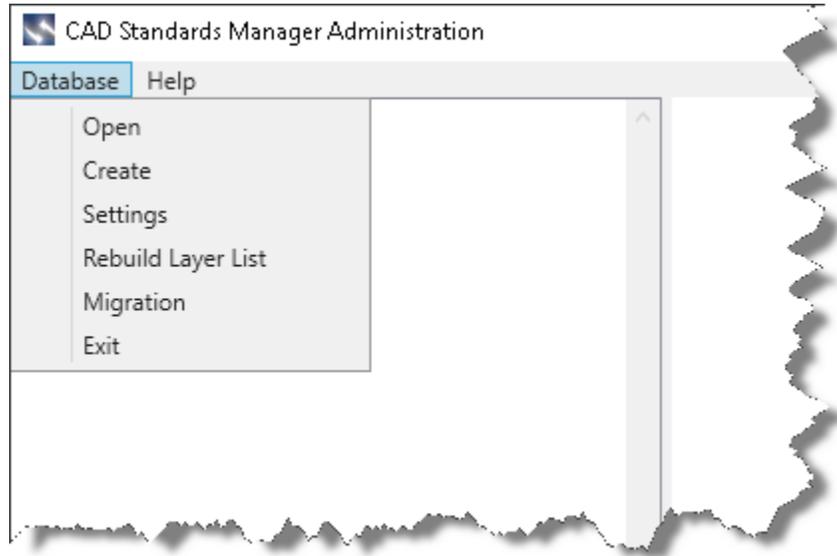
Settings

The initial step should be to guarantee the interface has the correct path to the standard library. For the users of the software this is configured during installation, however, it is not automatically set for the administrator. The software gives the administrator the option of working in a different location for testing and then copied the final product to the location for the end users. Edit the standards library path to determine where the database will be located, and then determine which version of AutoCAD you wish to use for importing styles and create images of symbols, details, and sheet borders.
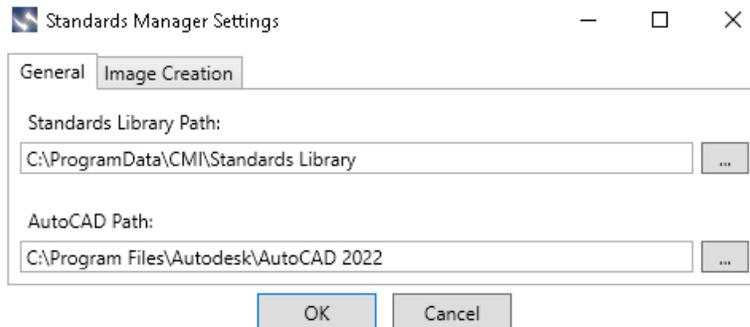
Open

When using the compact database connection option, make sure the *.sdf file in on a local drive to the computer (for example the c: drive). There is a limitation that Windows places on the driver of this option, if the administrator connects to a file on a network drive the speed will decrease significantly. It is recommended that the administrator copy the entire database locally for testing, then copy it back up to the master location once they are happy with the changes.

Context Sensitive Menus

CMI Standards Manager is equipped with context sensitive menus (right-click menus) in the product. Try to explore the context sensitive menus in the administrator module to make use of all the functions and capabilities.

Below are a few examples.
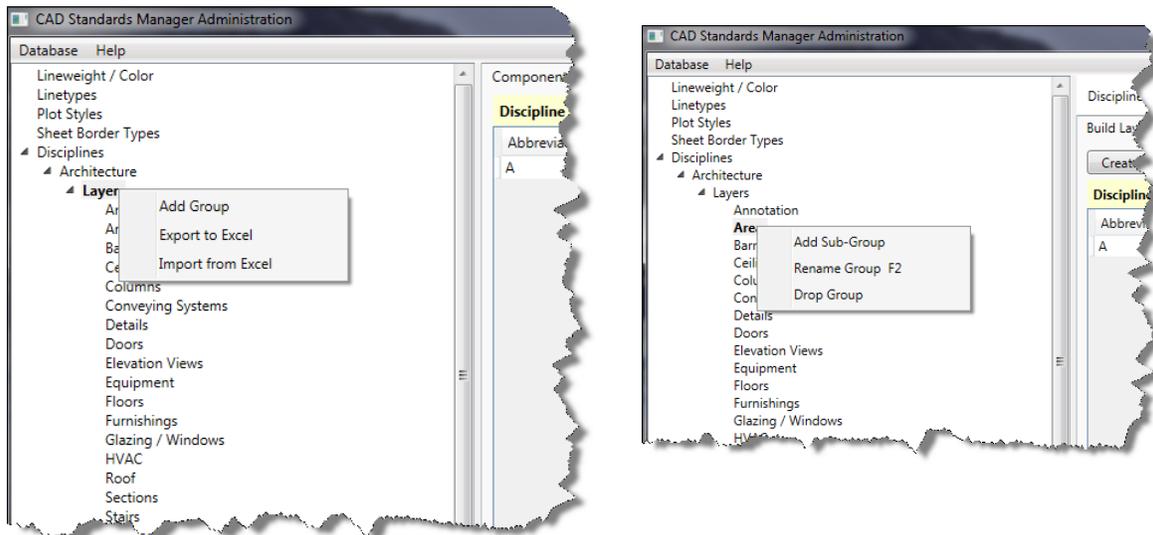
Layer Categories

The CMI Standards Manager uses a system based on the concepts of **Disciplines**, **Groups** and **Categories** to organize the procedures CAD staff should follow to maintain standards compliance.

In the context of CMI software, a **Standard** is the database where a complete list of your company's layers, colors, linetypes, symbols, details, title blocks, text styles, dimension styles and custom programs are stored. CMI Standards Manager allows the use of multiple standards to accommodate the needs of other, companies, agencies or regions. Each standard database contains layer names, symbols, text styles, and other CAD elements to be accessed by the organization's CAD users. All layers, blocks (including symbols, details, and sheet borders), text styles, and custom programs are subdivided into **Disciplines**. Layers, symbols, and details are then further divided into **Groups**. Additionally, layers can also be grouped by **Categories**.

A **Discipline** is a subset of a standard's layers, blocks, text styles, and custom programs. Each department within an organization can be assigned a distinct discipline according to the type of work accomplished. Examples of discipline names include Architectural, Civil Engineering, and Mechanical. The disciplinary organization allows each department to define its own layer, block, text style, and custom program setups.

A **Group** is a subset of the CAD Department's discipline-specific standard CAD elements. A discipline's layers, symbols, and details can be subdivided into different groups according to the types of objects designed in AutoCAD. Examples of groups include walls, doors, roads, and sewers. The advantages of creating groups include faster access to a particular layer or symbol within a large standard, and the ability to import and change visibilities for all layers within a group.

A **Category** defines the structure of layer names within a discipline. Each discipline must be assigned the number of desired categories. The software allows for a one through five-category layer naming system. A one and three-category layer naming system are described below:

> A one-category system is the simplest layer naming setup. In this system, "whole" names are used as layer names without any restriction on the length (except AutoCAD's restrictions) or organization of characters within the name.

National CAD Standards

Using the National CAD Standards (NCS) protocol denotes the use of a five-category system: Discipline Designator, Major, Minor 1, Minor 2, and Status. The discipline designator and major group are mandatory, while the minor 1, minor 2, and status are optional. Each category is separated by a dash for clarity. The discipline designators for NCS are displayed below.

Level 1 Discipline Designators

G	General
H	Hazardous Materials
V	Survey / Mapping
B	Geotechnical
W	Civil Works
C	Civil
L	Landscape
S	Structural
A	Architectural
I	Interiors
Q	Equipment
F	Fire Protection
P	Plumbing
D	Process
M	Mechanical
E	Electrical
T	Telecommunications
R	Resourse
X	Other Disciplines
Z	Contractor / Shop Drawings
O	Operations

Below is a small example of the use of National CAD Standards. This displays the use of 4 categories: Discipline designator, Major, Minor 1, and Minor 2. An example of the use of the 5th category could be: C-ROAD-CURB-FACE-N, where the "N" designates "New Work".

Layer Name	Description
C-ROAD	Roadways
C-ROAD-ASPH	Roadways: asphalt surface
C-ROAD-CNTR	Roadways: centerline
C-ROAD-CURB	Roadways: curb
C-ROAD-CURB-FACE	Roadways: curb: face
C-ROAD-CURB-BACK	Roadways: curb: back

Creating a New Standard

The initial step to creating a company standard through this software is to create a master database file in a centralized location for all users. The location is defined by the Settings command described in the overview section of the manual. The user has three options for database type: (1) SQL Server Compact (*.sdf), (2) SQLite (*.sqlite), and (3) SQL Server.
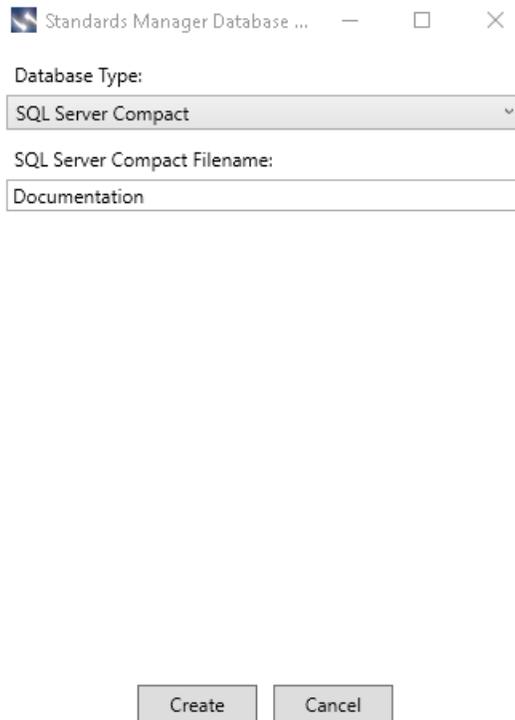
Click on Database pulldown and select the **Create** option. In the above example, a folder called Documentation would be created in the Standards Library location from the **Database** pull down and the **Settings** option. This folder is used to house any support files needed for the standard.

Creating a Discipline

A company standard should separate the layer standards based on disciplines. Each discipline may have up to 5 layer categories. As explained in the previous section, National CAD Standards uses a five-category system. In the following example we will create a discipline for Civil and create layers accordingly using the National CAD Standards (NCS).
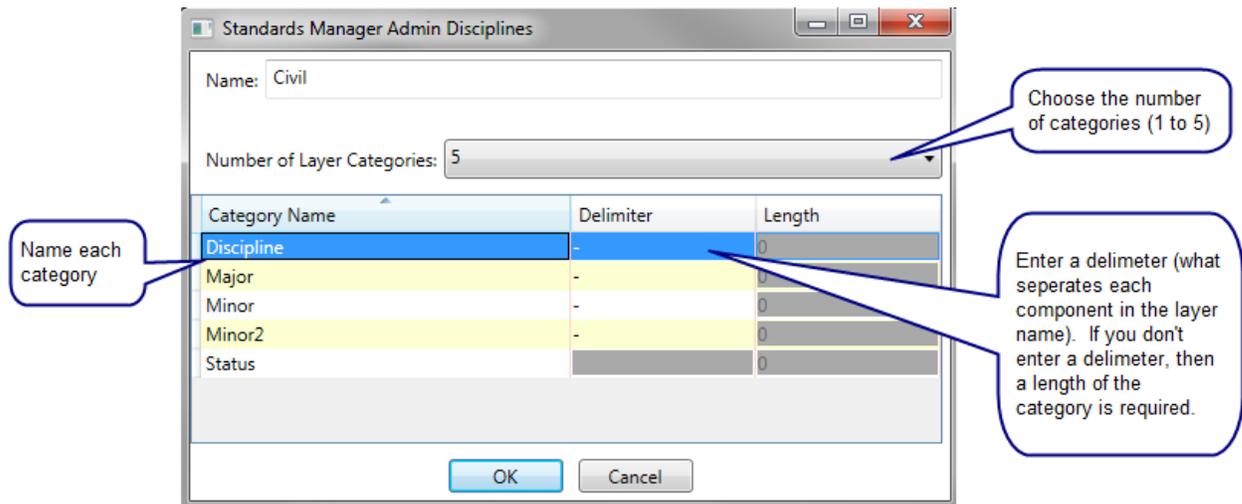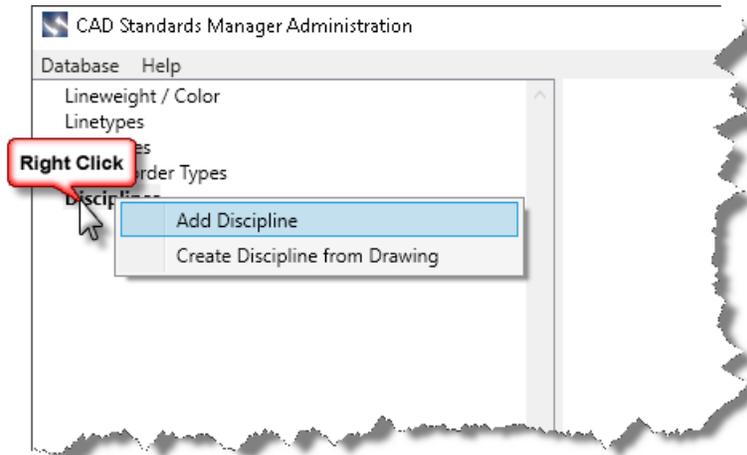
Importing a Color to Lineweight Table (CTB)

The majority of AutoCAD users utilize the color to lineweight method of plotting, i.e., every color plots a certain thickness. Because AutoCAD does not allow a direct link to a company's CTB file, CMI Standards Manager allows the administrator to import the standard CTB for compliance. However, it should be noted that if the administrator edits the colors and lineweights in the CMI Standards Administrator interface, they must also change the companies CTB file to match the changes made.
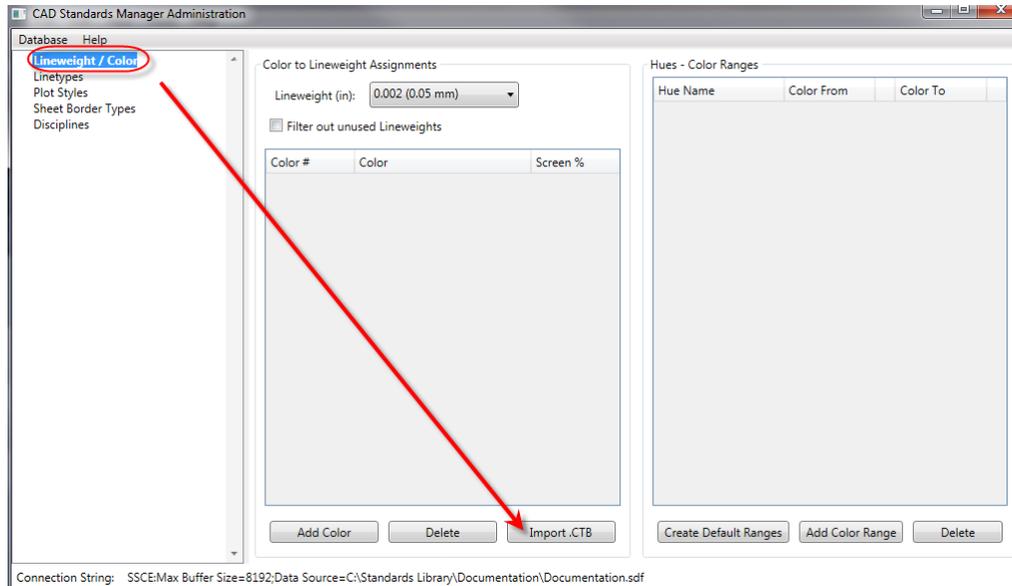
Once imported, the ctb file will overwrite any color setup already entered. This can be used also if you change the ctb file and wish to re-import it into the administrator interface.

It should be noted that AutoCAD allows for custom lineweights in the CTB file. However, CMI Standards Manager does not. This ensures that the lineweight applied to the layer matches the lineweight in the database. During the import process, it converts a custom lineweight to the closest default AutoCAD lineweight match. Below are AutoCAD's standard lineweights.

——— 0.00 mm	——— 0.000"
——— 0.05 mm	——— 0.002"
——— 0.09 mm	——— 0.004"
——— 0.13 mm	——— 0.005"
——— 0.15 mm	——— 0.006"
——— 0.18 mm	——— 0.007"
——— 0.20 mm	——— 0.008"
——— 0.25 mm	——— 0.010"
——— 0.30 mm	——— 0.012"
——— 0.35 mm	——— 0.014"
——— 0.40 mm	——— 0.016"
——— 0.50 mm	——— 0.020"
——— 0.53 mm	——— 0.021"
——— 0.60 mm	——— 0.024"
——— 0.70 mm	——— 0.028"
——— 0.80 mm	——— 0.031"
——— 0.90 mm	——— 0.035"
——— 1.00 mm	——— 0.039"
——— 1.06 mm	——— 0.042"
——— 1.20 mm	——— 0.047"
——— 1.40 mm	——— 0.055"
——— 1.58 mm	——— 0.062"
——— 2.00 mm	——— 0.079"
——— 2.11 mm	——— 0.083"
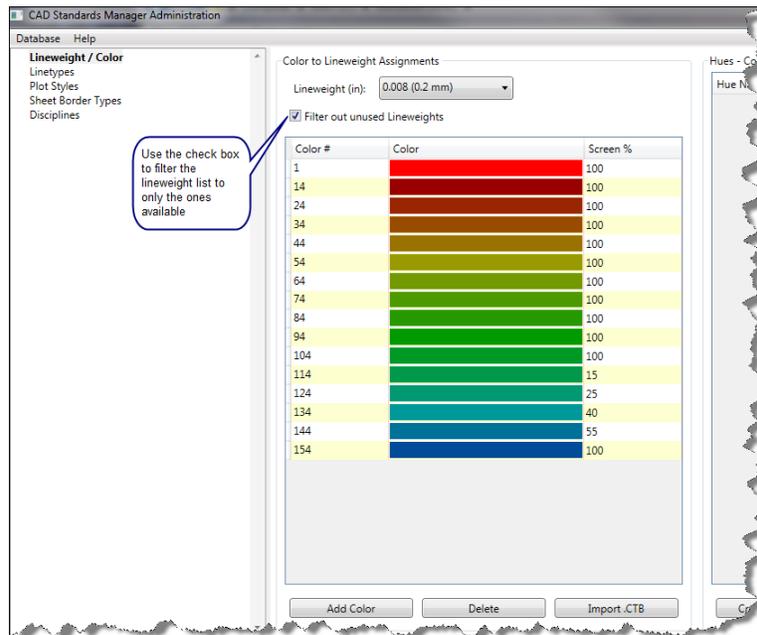
Color Ranges (Hue)

If you are using color dependent plotting the **Hue – Color Ranges** pane allows you to define hues or groups of similar colors that map to different lineweights. These hue ranges can then be assigned to layer groups. For example, your standards might contain a "storm drain" layer group that includes such layers as: main lines, laterals, manholes,

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drain inlets, etc. You assign a cyan hue to the layer group and the software automatically picks a color within the hue range based on a layer's lineweight. The result is all storm drain layers have a cyan hue making storm drain layers easily discernable by their similar colors.

Hue Name	Color From		Color To	
Primary	1		9	
Red	10		19	
Red Orange	20		29	
Orange	30		39	
Tan	40		49	
Yellow	50		59	
Olive	60		69	
Lime Green	70		79	
Chartreuse	80		89	
Green	90		99	
Sea Green	100		109	
Aqua	110		119	
Teal	120		129	
Cyan	130		139	
Turquoise	140		149	
Royal Blue	150		159	
Blue	160		169	
Navy	170		179	
Slate	180		189	
Purple	190		199	
Violet	200		209	
Magenta	210		219	
Pink	220		229	
Maroon	230		239	
Crimson	240		249	
Gray	250		254	

Create Default Ranges   Add Color Range   Delete

In the above example the **Cyan** hue contains the colors 130 through 139. The lineweight .35mm corresponds to color 131 in that hue range. Assigning the cyan hue range to the "storm drain" layer group will automatically assign the color 131 to any layer in that group with lineweight .024".

If no hue color exists for the lineweight assigned to a layer, the layer will retain its current color.

Importing a Style Table (STB)

CAD Standards Manager allows the database to be setup for both CTB and STB plotting simultaneously. For the end user, the program reads the drawing property to determine the drawing type and inserts the properties for the layer accordingly.
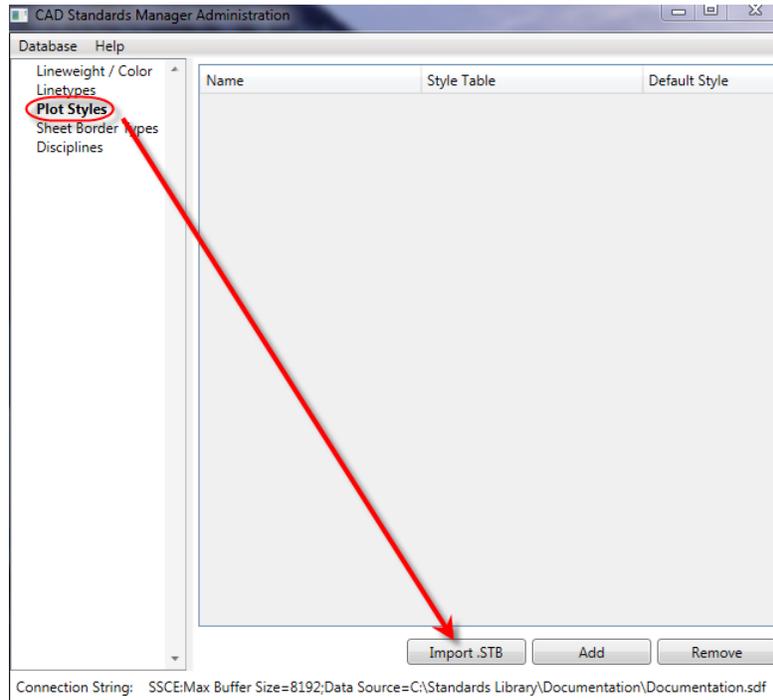

The administrator then needs to decide the default style to apply to layers. In the example below, the administrator decided to set *Black* as the default style.

Linetype Definitions

Within the **Linetypes** tab you can import your custom linetypes from existing .LIN files or add new linetypes by manually entering the linetype code. Once you import your .LIN files the tab will display all available linetypes as shown below:

To create a new linetype click the **Add** button. This will add a new entry to the bottom of the list where you can type the new linetype **name**, **description**, and **pattern** definition. The pattern definition syntax is the standard AutoCAD linetype pattern syntax.

The software also allows the administrator to load linetype defined in an AutoCAD drawing. Just use the **Load from Drawing** option.

Note: For custom linetypes with shapes the appropriate shape files must be in the support path on individual user's systems. The Standards Admin Interface contains the linetype definitions; therefore, you do not need to include the acad.lin file in the support files for all users.

Layer Assemblies

Layer Category Components

In a discipline with multi-category layer names begin entering category components by clicking the **Edit** button at the bottom of each category column.
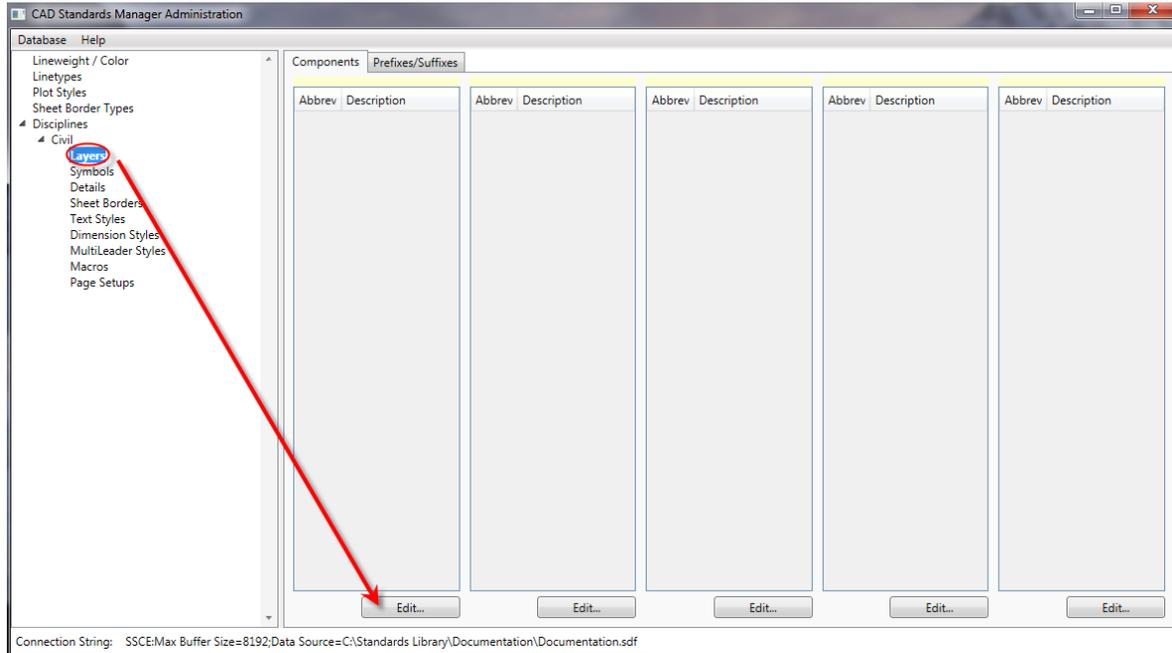

This will open the dialog shown below.
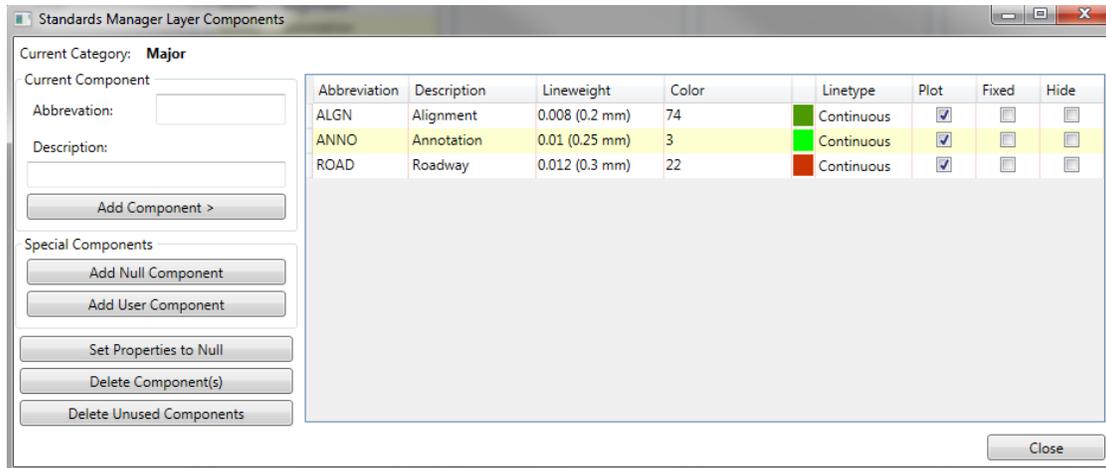
Enter an abbreviation in the field. This will be the component displayed as part of the layer name. Hit <tab> to move to the description field and type a description for the abbreviation. Hit <tab> to move to the **Add Component >** button. Hitting <Enter> a second time will add the abbreviation to the component list and return to the abbreviation

field to continue the process of component entry. This method allows for rapid entry of each abbreviation and description to complete the list of components for a category.
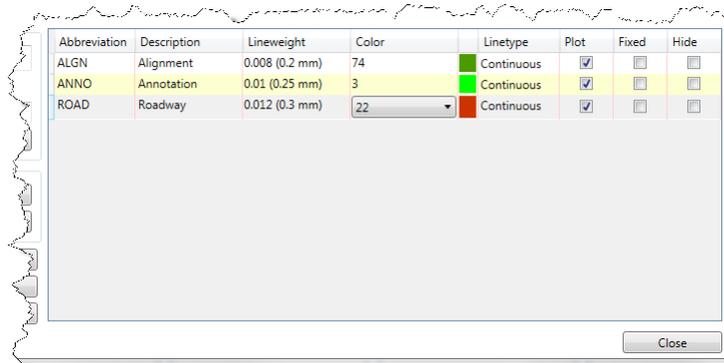
Once the component is entered, the layer property default should be added. This sets the default for any layer created from the rightmost layer component other than ^, none/null, which is ignored. If setting up a standard for the first time, it is highly recommended that you use this feature to help when creating the layers.

Though conflict resolution is present, it is better to set the default lineweight followed by the default color. The admin module will filter it so that only colors that match that lineweight are shown.

Below is an example of the components for the NCS Civil discipline layers.

Use of the NULL component

Using the NCS as a layer standard, there are five categories: Discipline and Major are required; Minor 1, Minor 2, and Status. Minor 1, Minor 2, and Status are optional. Therefore, to create a layer group with the following components…

| Layer Name	Description
C-ROAD	Roadways
C-ROAD-ASPH	Roadways: asphalt surface
C-ROAD-CNTR	Roadways: centerline
C-ROAD-CURB	Roadways: curb
C-ROAD-CURB-FACE	Roadways: curb: face
C-ROAD-CURB-BACK	Roadways: curb: back

… The following components strings must be made.

Discipline	Major	Minor 1	Minor 2	Status
C	ROAD	**NULL**	**NULL**	**NULL**
C	ROAD	ASPH	**NULL**	**NULL**
C	ROAD	CNTR	**NULL**	**NULL**
C	ROAD	CURB	**NULL**	**NULL**
C	ROAD	CURB	FACE	**NULL**
C	ROAD	CURB	BACK	**NULL**

Therefore, in the above example the "^" or NULL component must be a part of the Minor 1, Minor 2, and Status categories.

Use of the User Defined Component

This feature allows the end user to define a category of his/her choosing when adding a layer. To expose this feature the administrator must add a component of "*" (Shift + 8) in the desired category.

For example, a company uses the NCS layer scheme, but wishes the 5th category (or Status category) to have the ability to allow user input. Navigate to the proper discipline and add the "*" component in the 5th category (see figure below).


To expose this feature to the end user the "*" components must be added to a layer group, like any layer component.

Creating Layer Groups

Once the layer names or components for multi category layer names have been entered you must create groups of layers to set **Edit Properties**. Organizing layers into groups allows for easy manipulation of layers that share common properties such as linetype and color. The process of creating groups within a five-category discipline is described below.

In the **Layers** section under the discipline right-click on Layers and choose **Add Group**. Highlight the created group, and this will display all the components for that discipline in the category columns. In the example below the categories are *Discipline*, Major, Minor 1, Minor 2, and *Status*. Select or highlight at least a single component from each category.
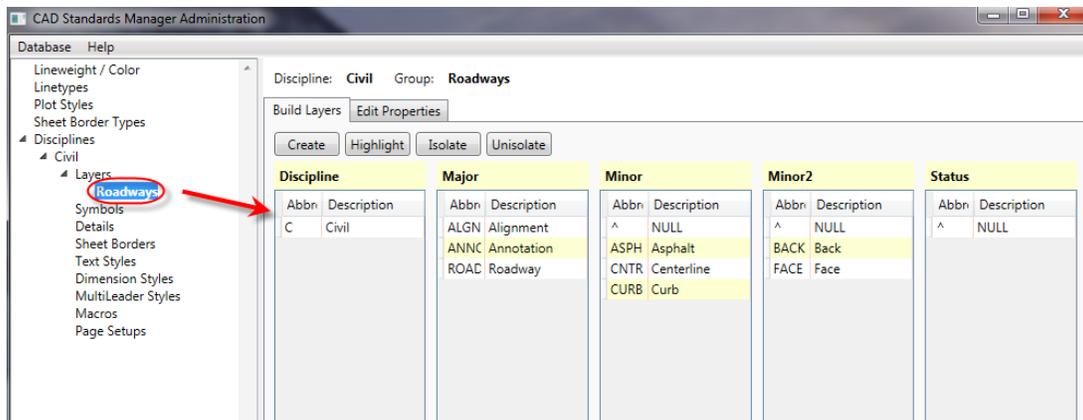

Once all the components are selected click the **Create** button in **Layer Group Commands** and enter a name in the dialog to save the new group.

Creating a Layer Group Example

Let us create a layer group of the following layers…

<div align="center">

C-ROAD
C-ROAD-ASPH
C-ROAD-CNTR
C-ROAD-CURB
C-ROAD-CURB-FACE
C-ROAD-CURB-BACK

</div>

With the following components already created…
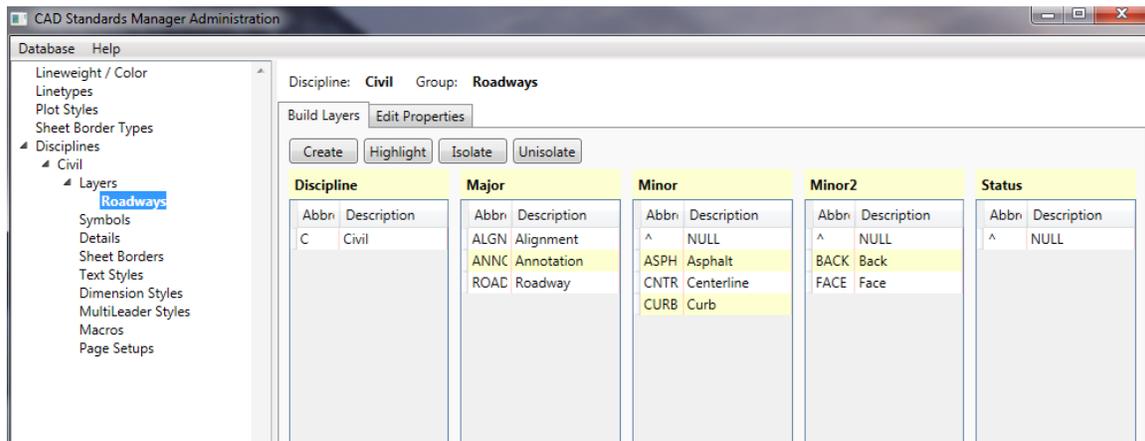
This is the selection in the first pass. After selecting the components below, click **Create**. In this example the layer group was named Road Layers.

Now click on **Edit Properties** tab to see the layer list. See figure below.
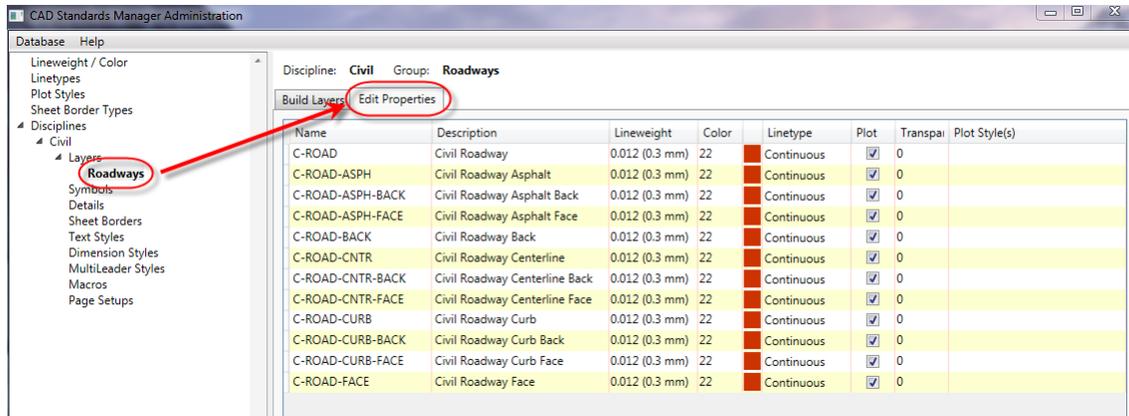
Notice that every possible layer combination from the highlighted components was added together. This interface above allows the administrator to remove layers from this group as well. Therefore, it is often more efficient to add layers to a group multiple times to get the desired effect.

Using the above example, we will do this in 2 steps instead of 1.

1. Highlight the components as follows. Notice that only NULL is highlighted in the Minor 2 and Status category.
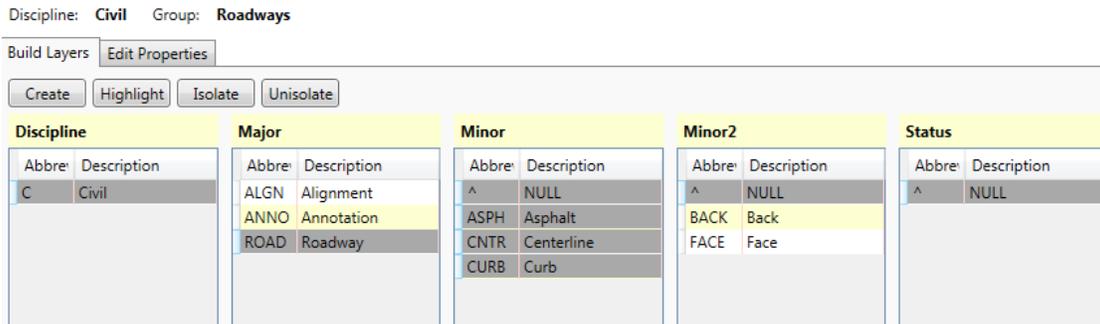
2. Clicking the Create button while highlighting the "Roadways" group creates the following layers.
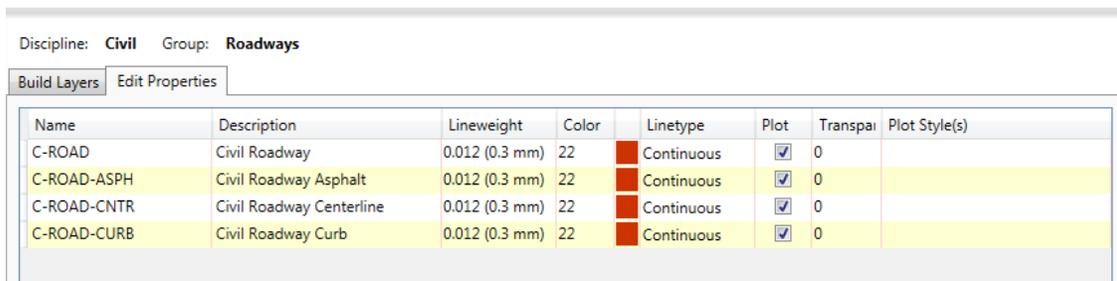
Continue onto the next section to complete the example.

Adding Layers to a Group

3. Highlighting the components below would add the additional 2 layers needed for the group in this example. To add layers, click on the **Create** button.

Discipline: **Civil**   Group: **Roadways**

Build Layers	Edit Properties

| Create	Highlight	Isolate	Unisolate

Discipline		**Major**		**Minor**		**Minor2**		**Status**	
Abbre	Description	Abbre	Description	Abbre	Description	Abbre	Description	Abbre	Description
C	Civil	ALGN	Alignment	^	NULL	^	NULL	^	NULL
		ANNO	Annotation	ASPH	Asphalt	BACK	Back		
		ROAD	Roadway	CNTR	Centerline	FACE	Face		
				CURB	Curb				

After clicking the create button, the CMI Standards Manager add the selection components into the current group.

4. Finally, here is the resulting layer group.

Discipline: **Civil**   Group: **Roadways**

Build Layers	Edit Properties

Name	Description	Lineweight	Color	Linetype	Plot	Transpar	Plot Style(s)
C-ROAD	Civil Roadway	0.012 (0.3 mm)	22	Continuous	✔	0	
C-ROAD-ASPH	Civil Roadway Asphalt	0.012 (0.3 mm)	22	Continuous	✔	0	
C-ROAD-CNTR	Civil Roadway Centerline	0.012 (0.3 mm)	22	Continuous	✔	0	
C-ROAD-CURB	Civil Roadway Curb	0.012 (0.3 mm)	22	Continuous	✔	0	
C-ROAD-CURB-BACK	Civil Roadway Curb Back	0.012 (0.3 mm)	22	Continuous	✔	0	
C-ROAD-CURB-FACE	Civil Roadway Curb Face	0.012 (0.3 mm)	22	Continuous	✔	0	

Highlight, Isolate, Unisolate

Build Layers	Edit Properties

Create	Highlight	Isolate	Unisolate
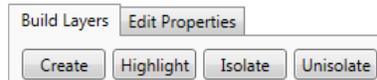
These commands can be used to view and administer the existing layer groups. **Isolating** will display only the components used in the current group. To display all the components of the current discipline, click the **Unisolate** button.

The **Highlight** command can be a useful tool in updating a layer group. For example, if you wish to add a few components to an existing layer group, instead of having to select all the components again, you can highlight them with this command and select the extra components needed to add to the layer group.

Layer Properties

After creating the necessary layer groups, the administrator must assign the desired properties to the layers (color, lineweight, etc).

Assign Layer Properties

Once you have created **Layer Groups** within your disciplines you can assign layer properties by clicking the **Edit Properties** tab. The Examples in this section describe layer property assignment based on a color to lineweight plotting standard.

Click the dropdown to choose a lineweight. The lineweights with color assignments will be displayed as bold.

After setting the lineweight, the user can select the color. The colors available (assigned) to that lineweight in the Lineweight/Color section will be available.
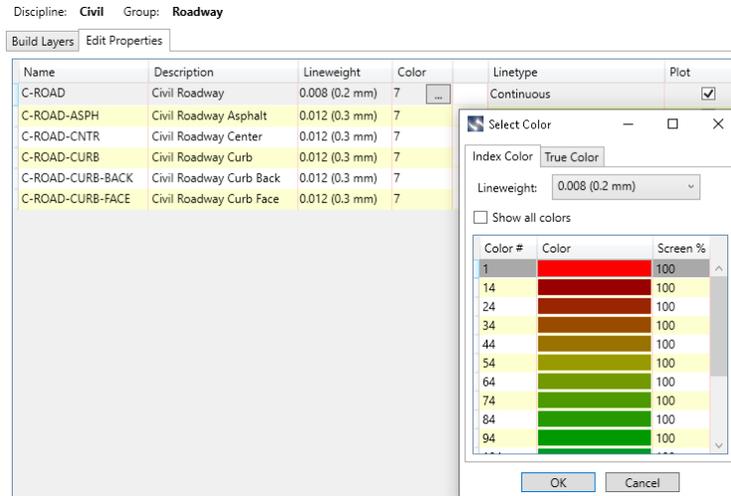
Other Layer Properties

The plot, transparency, and plot styles column are properties the administrator can control. The plot column is for plot/no plot options, if it is checked then the layer will plot.

The transparency value can be edited in increments of 10 between values of 0 and 90.

Plot styles can be set if the administrator has imported a stb plot style table into the interface. If the cell is blank, the plot style assigned to the layer will be the default setting.
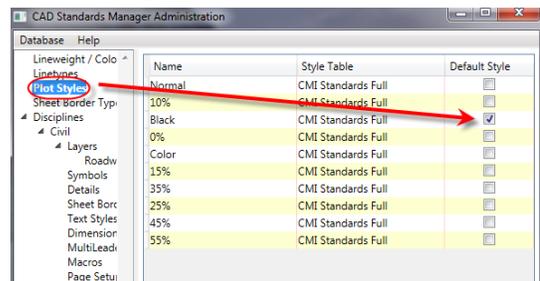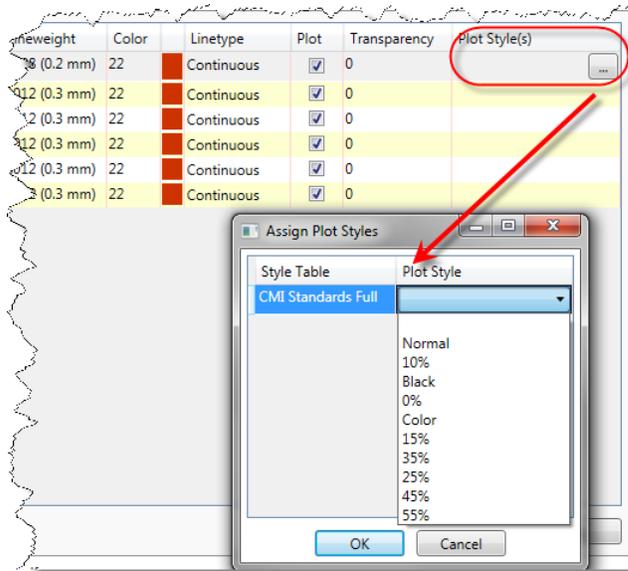
Reset Layer Properties to Component Defaults

If component defaults have been set-up (see Multi-Category Layer Names) the components can be set to use those defaults. This is like Assigning Properties to Multiple Layers. Use Microsoft Windows selection techniques to select the layer names. Once you have selected all the desired layers, click **Reset Properties**. This will set the layer properties using the properties specified for the last component of each layer.
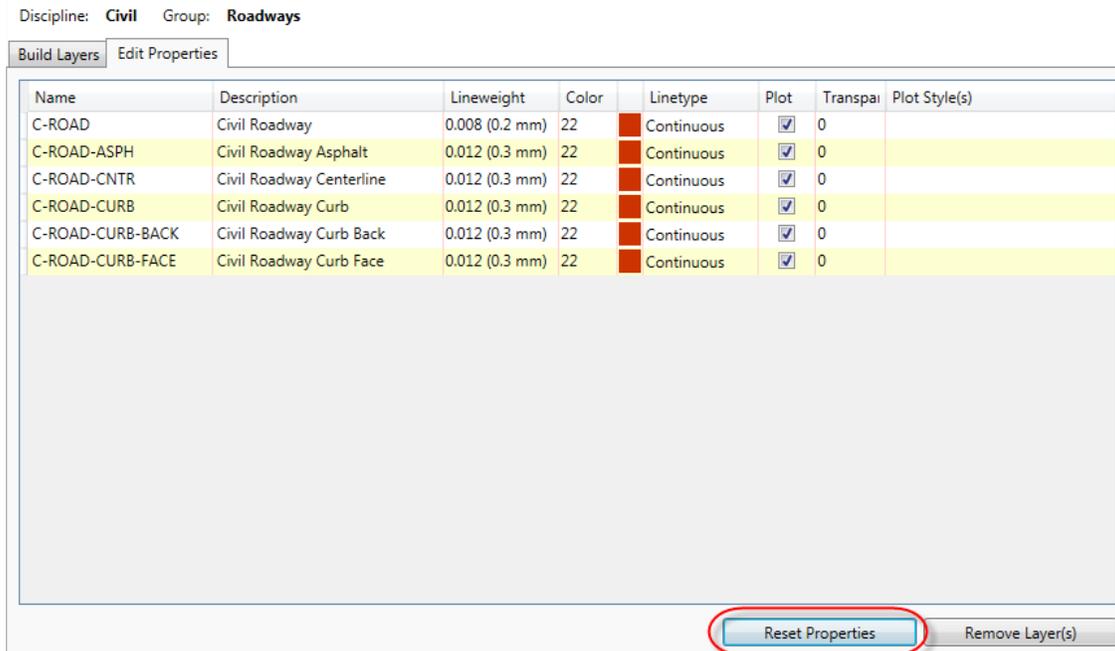
*Note: This function is currently under construction and has not been implemented yet.*

Multiple Selection Options
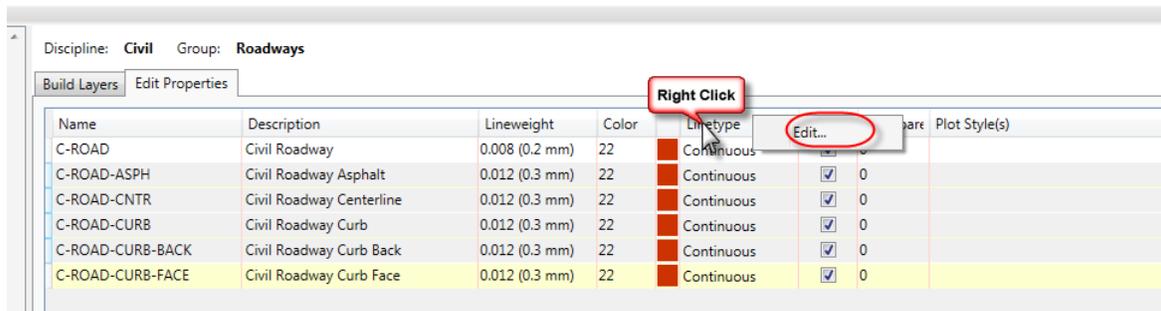
To assign properties to several layers at once highlight the desired layer names. You may use windows selection techniques or click and drag the mouse over the layer names. Once you have selected all the desired layers, right-click the desired column header and choose Edit to modify multiple layers at the same time.

Layer Prefixes and Suffixes

In addition to the 5 categories allows by a particular discipline, CMI Standards Manager allows the use of layer prefixes and suffixes. Additional layer components to be placed at the beginning or the end of a layer name.

For example, using National CAD Standards, the 5th category is status. It states that you can use phase indicators at the end of the layer name. For instance, for a subdivision there may be multiple phases in the development, separating each phase onto its own layer can be useful. Instead of C-ROAD-CNTR (Civil Road Centerline), you can use C-ROAD-CNTR-2 (Civil Road Centerline – Phase 2).

CMI Standards Manager allows you to handle these 2 ways…

1. Place the "2" as a component in the layer setup and place this in a layer group.

2. Place the "2" as a layer suffix, and let the user add the extension when necessary.

CAD Masters recommends the use of a suffix in this case because the layer names in each group would become exponentially large when adding a number at the end for each possible phase number.

Adding a Layer Prefix/Suffix

Each discipline may have its own prefixes and suffixes. Select the layer section of the appropriate discipline.
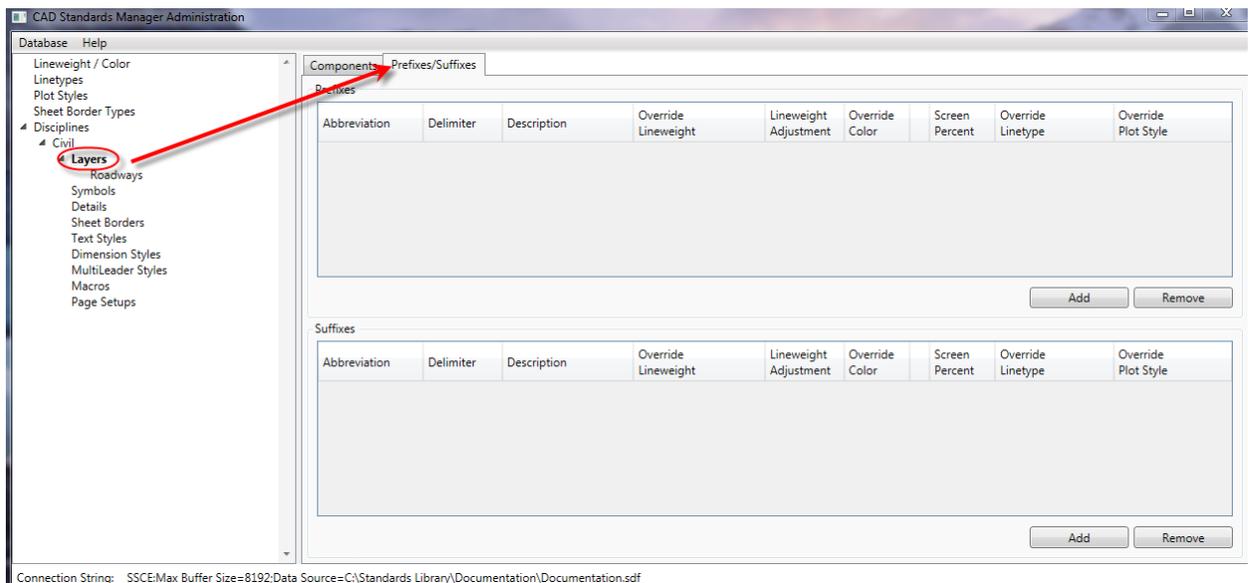
Suffixes								
Abbreviation	Delimiter	Description	Override Lineweight	Lineweight Adjustment	Override Color	Screen Percent	Override Linetype	Override Plot Style
1	-	Phase 1	☐	0	☐ 0	0	☐	☐
DEMO	-	Demolition	☐	0	☐ 0	60	☑ HIDDEN2	☐

[Add]   [Remove]

In the override section you can create layer settings overrides for any prefix or suffix. For example, in the figure above, the "-1" suffix will change the layer name but not change any of the properties of the layer. If the user adds the "-DEMO" suffix, it automatically overrides the current linetype and changes it to HIDDEN2 and adds a screen percent of 60%.

For National CAD Standards compliance place a suffix of "-1" through "-9" and the user may add these suffixes at any time. Keep in mind these suffixes are discipline specific and would need to be added to all disciplines in the NCS compliant standard.

Importing/Exporting Layers to Excel

Creating and modifying layer is possible the most time-consuming portion of standards. Therefore, CAD Standards Manager has created a function to export layers to a file that can be edited and reimported to add or modify the database.

To export layers to a spreadsheet the administrator needs to right-click on layers for a particular discipline.
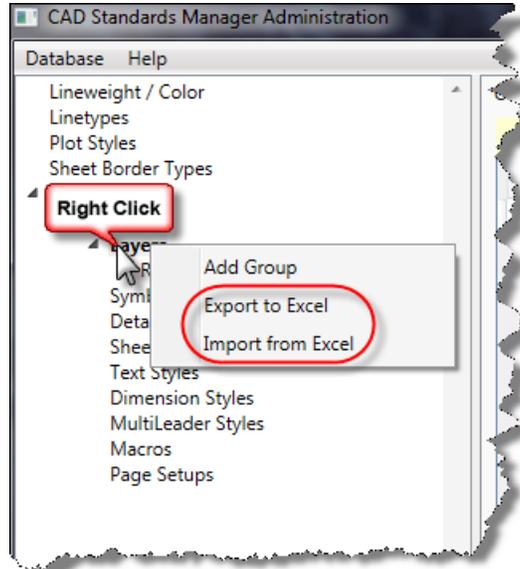
Excel Formatting

	A	B	C	D	E	F	G	H	I
1	Group	Layer	Description	Lineweight	Color	Linetype	Plot	Transparency	Plot Style:CMI Standards Full
2	Annotation	C-ANNO-^-^-^	Civil; Annotation; NULL; NULL; NULL	0.01	3	Continuous	TRUE	0	
3	Roadways	C-ROAD-^-^-^	Civil; Roadway; NULL; NULL; NULL	0.008	100	Continuous	TRUE	10	
4	Roadways	C-ROAD-ASPH-^-^	Civil; Roadway; Asphalt; NULL; NULL	0.012	200	Continuous	TRUE	20	Color
5	Roadways	C-ROAD-CNTR-^-^	Civil; Roadway; Centerline; NULL; NULL	0.012	50	Continuous	TRUE	13	
6	Roadways	C-ROAD-CURB-^-^	Civil; Roadway; Curb; NULL; NULL	0.012	66	HIDDEN2	FALSE	30	Black
7	Roadways	C-ROAD-CURB-BACK-^	Civil; Roadway; Curb; Back; NULL	0.012	78	Continuous	TRUE	50	
8	Roadways	C-ROAD-CURB-^-D	Civil; Roadway; Curb; NULL; D	0.012	66	HIDDEN2	FALSE	30	Black
9	Roadways	C-ROAD-CURB-FACE-^	Civil; Roadway; Curb; Face; NULL	0.012	36	CENTER	TRUE	60	

The most important part of the formatting is the layer description. CMI CAD Standards retrieves the component descriptions from this cell. Each component description must be separated by a semi-colon (;). The example shown in the figure above has a discipline that has been defined as a 5 category layer system with a "-" as a delimiter. Note that for the program to read the NULL component and is required to have a "^" symbol.

In the Roadways layer group, we will investigate the layer names…
- C-ROAD
- C-ROAD-D

C-ROAD has a description of *Civil; Roadway;*. The C component will automatically be placed in the first category and ROAD automatically placed in the second category. The program knows this due to each semi-colon.

C-ROAD-D has a description of *Civil; Roadway; NULL; NULL; Demolition*. Note the 2 NULLS in a row in the description. The D component will be in the 5th category due to the semi-colon locations.

Importing the Spreadsheet

To import a spreadsheet, right-click on layers for a particular discipline and choose Import from Excel.
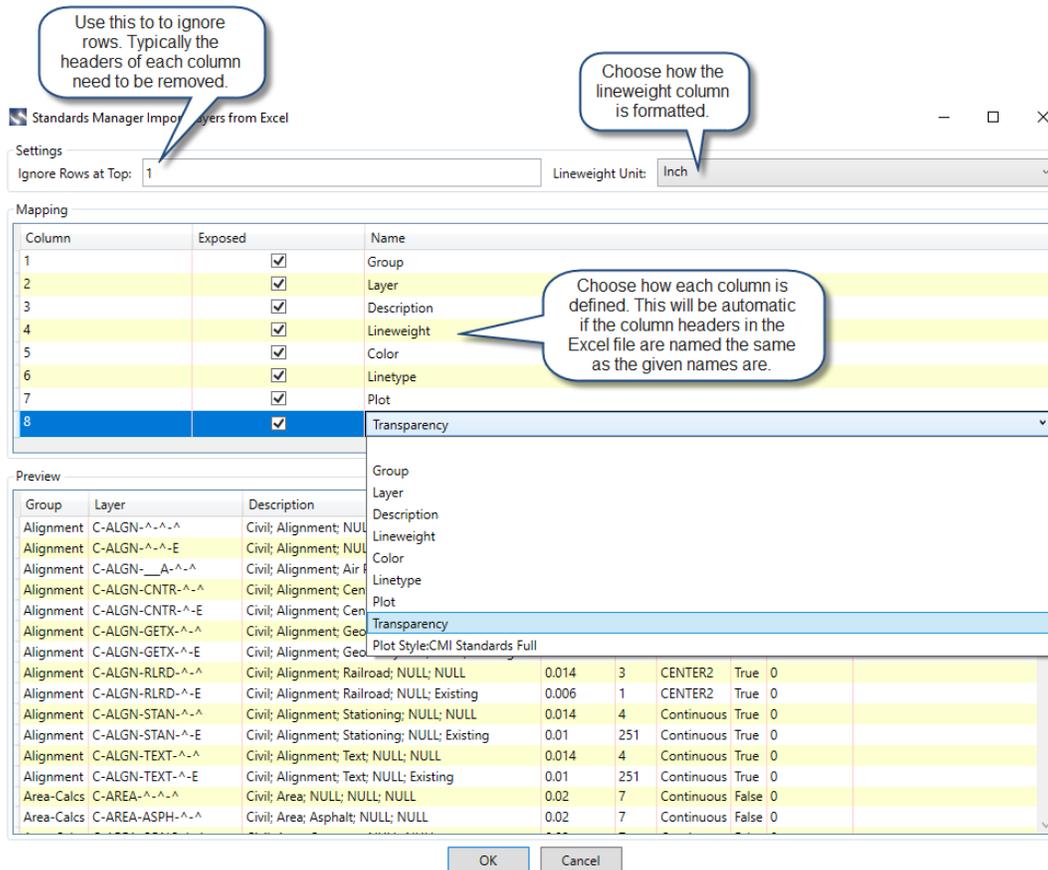
After imported, all the components and layer groups will be defined, simply click edit properties to any of the import layer groups to see the results.

Creating Symbol Groups

Adding Symbols

Once you have completed the steps described in **Getting Started** you can add your standard symbols and assign attributes such as insertion layer and object snaps, as well as activate custom macros.

Symbols, Details, Sheet Borders, Macros, Dims, Multi-Leader Styles and Text Styles all require groups to hold their entities.

Begin by right clicking the Symbols under the desired discipline to add a symbol group.
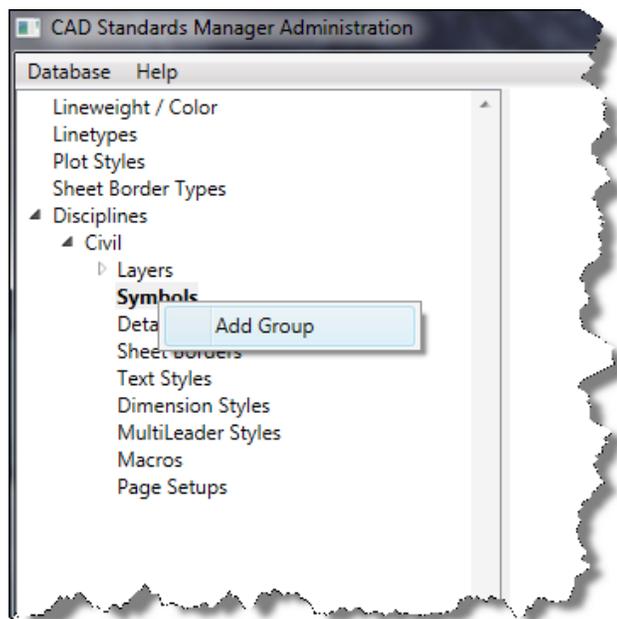
To organize your symbols for easy retrieval you can create multiple groups within each discipline, including sub-groups under any group. Highlight the created symbol group and select **Add Symbols**. Use standard Windows selection to select AutoCAD drawings. The software expects the drawing selected is a block, it does not cycle the defined blocks within a drawing.

After selecting the desired blocks, the software with prompt the administrator with the following dialog box.
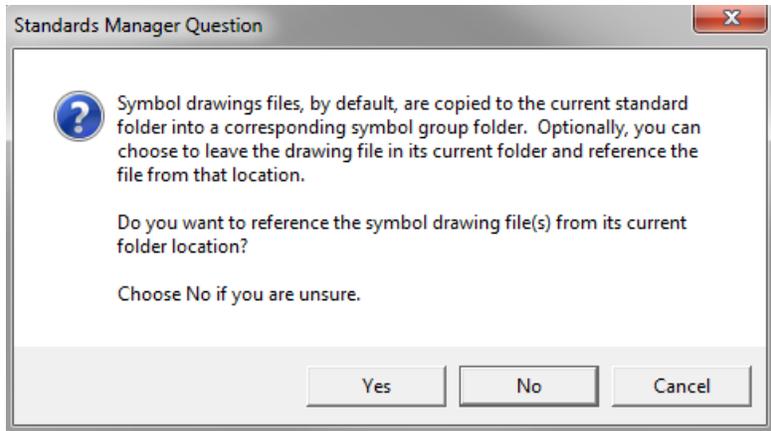
- Answering *No* to the question will copy each selected AutoCAD drawing into the standards library directory.

- Answering Y*es* to the question will leave the AutoCAD drawing in its current location and the software will use this path to insert the symbol. This choice would be for companies that have a directory structure for their symbols already and don't wish to move the location of their symbols.
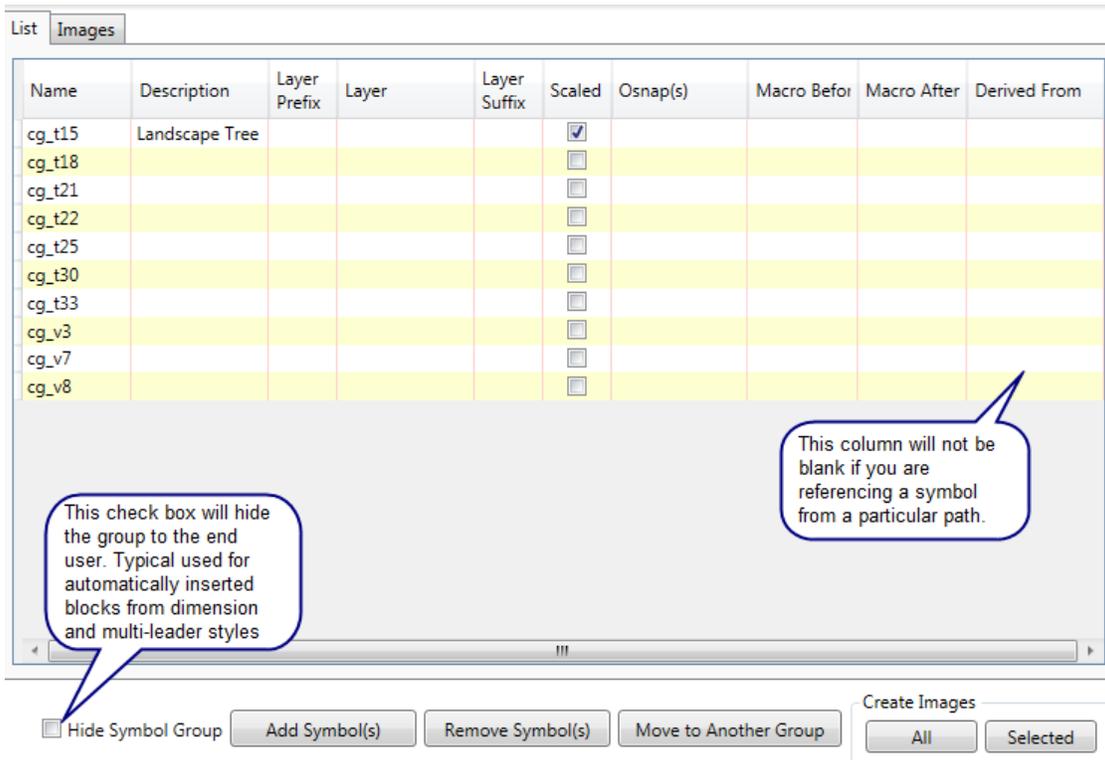
Once you have added the desired symbols to a group you can enter additional attributes in the remaining columns as described below.

Click in the **Description** field to add additional information about each symbol. This will be important for the end user as they can query the database from these values, which tend to be easier to search rather than the symbol/block name.

The **Layer** field allows you to assign a standard layer for symbol insertion. The symbol will insert on the specified layer, if that layer does not exist in the drawing it will be added upon insertion without affecting the current layer. If no layer is assigned to the symbol it will insert on the current layer.

The **Layer Prefix** and **Layer Suffix** allow you to assign these automatically in addition to the layer name.

With the **Scaled** check box set *CMI Standards Manager* will adjust the symbol size when inserted based on the annotation scale of the drawing. Leaving the check box unchecked will insert the symbol at the size it was drawn.

In the **Osnaps** field you can set the object snaps that will be active during symbol insertion. These osnaps will temporarily override the settings in the drawing. Once symbol insertion is complete the current drawing osnap settings will resume.

Symbol Subgroups

Symbol Subgroups are used to further separate symbol groups. A Symbol Group must exist to create a Symbol Subgroup. The procedures for creating Symbol Subgroups are the same as creating Symbol Groups.

Right-click a current symbol group, right-click and choose the **Add Sub Group** option to add a new group name and clear the symbol list. Repeat the steps above to import the desired symbols for the new group.

Change Symbol Groups

Once symbols are placed into a group, they are not permanently associated with that group. The Symbol Subgroup can be changed using the following steps. Select the symbols that you want to move click **Move to Another Group**. Select the destination group or subgroup and then click **Ok**.
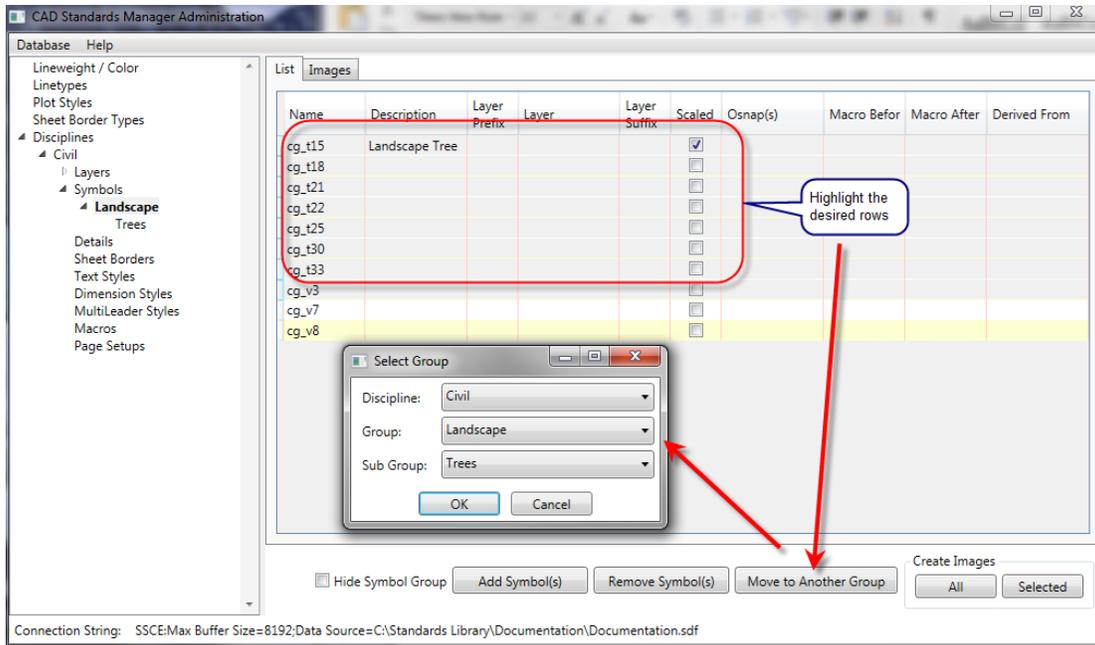
Multi-Items Edits

CMI Standards Manager includes useful editing capabilities not readily accessible from a button. The administrators can multi-select symbols, then right-click the desired column header to get to the **Edit** button.
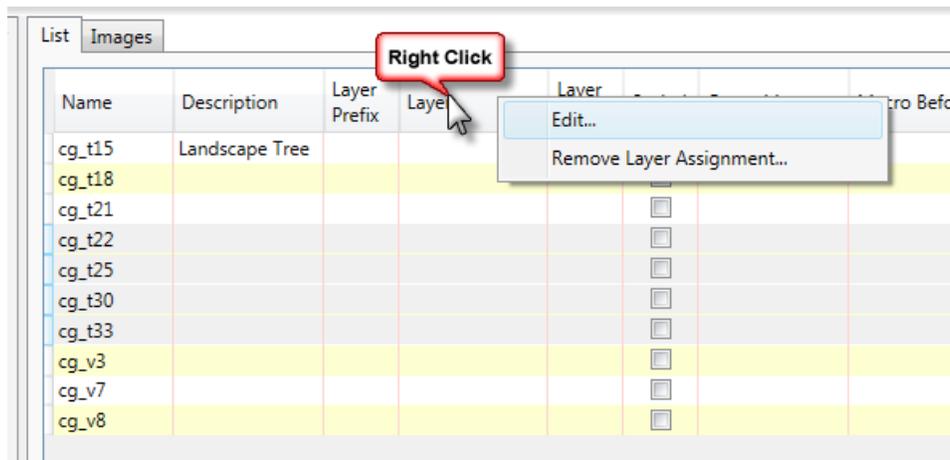
Symbol Macros

You can optionally execute an AutoCAD LISP **macro** before or after the insertion of a symbol. To add a macro set the desired row active by clicking the desired macro cell within that row.

Enter a valid LISP macro within the edit box and then press Ok. When executing a macro before the symbol insertion the AutoCAD drawing variable LASTPOINT is used as the symbol insertion point at the completion of the macro. When executing a macro after symbol insertion use the point stored in the LASTPOINT variable if you wish to begin drawing an additional entity from the symbol insertion point.

CMI Standards Manager contains some predefined macros for the administrators use:

1. **(setq symdwg nil)** – Using this code in the "macro before" would not insert the symbol. Therefore, the administrator could place a picture for the user to select but run a separate command.

Creating Images

This command is essential for viewing the symbols and placing them onto palettes for the end users. When adding symbols to a group, the program will automatically create the images from each symbol drawing.
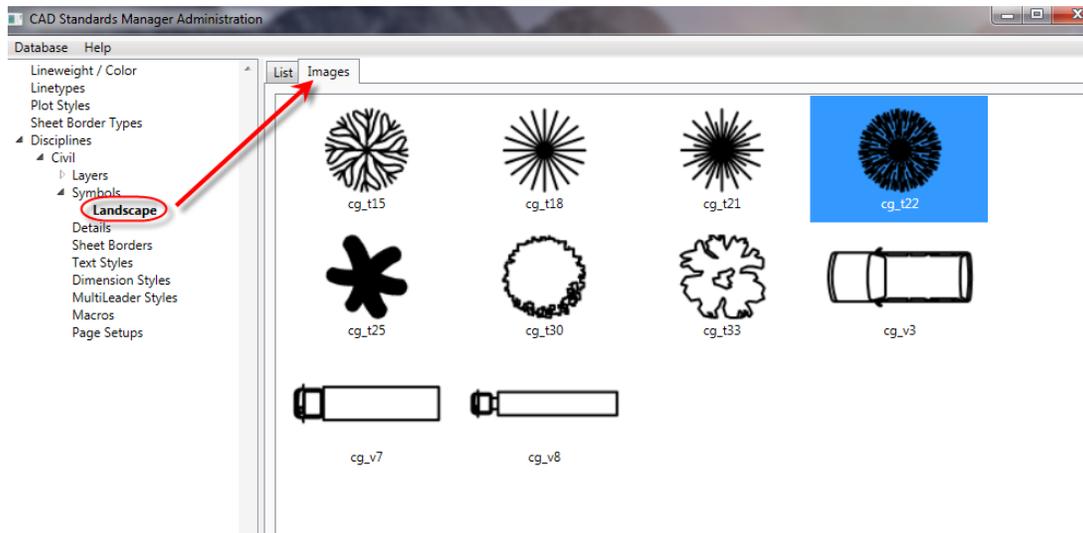
If the administrator changes symbol geometry and the image no longer reflects the current block, they can recreate the image from within the software.

Creating Detail Groups

The **Details** section allows you to organize your details separately from symbols. Details, like **Symbols** must be organized within groups and you must first create at least one group in a discipline to add your details.

Begin adding your symbols by selecting the desired discipline. Right-click Details under the desired discipline and choose **Add Group**. Click the **Add Detail(s)** button. This will open a dialog allowing you to navigate to your detail drawings, select the desired drawings and import them into your standards.
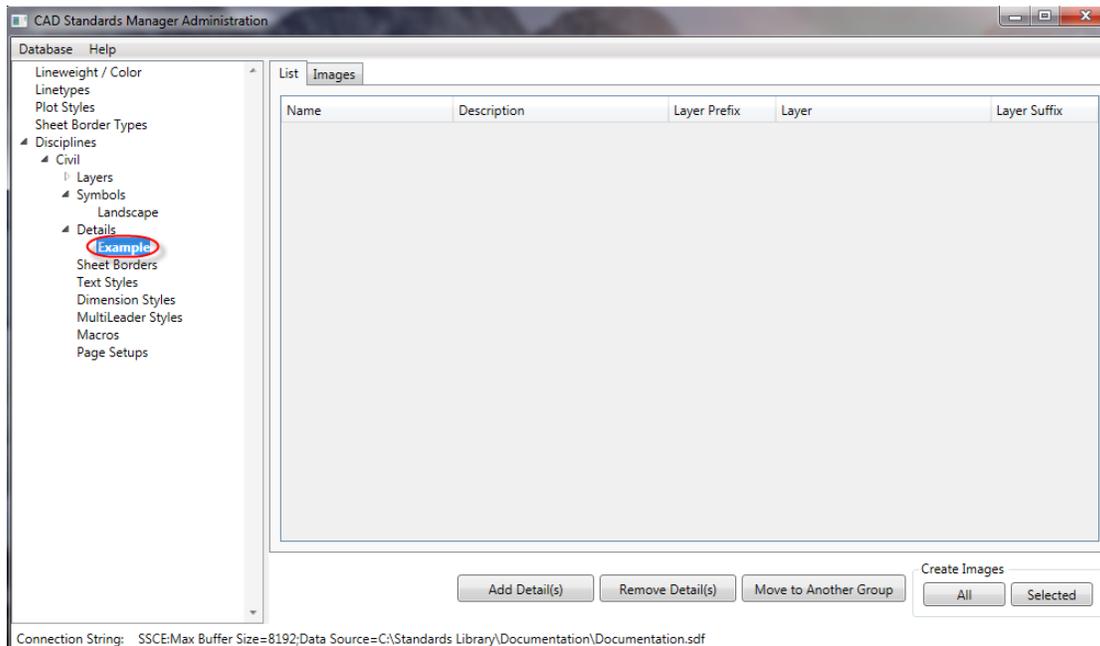
Once you have imported your details you can add a description, an insertion layer and layer prefixes/suffixes. It is important to add a description for the end user as they can query the database to locate the correct detail, this will make it faster.

The use of images is explained in the symbol section of this manual and will function the same.

Creating Sheet Border Groups

Primary versus Secondary Drawings

The **Sheet Borders** tab is organized around the concept of the border drawing being the primary insertion object and any attributes that accompany that border being the secondary insertion object. The secondary object is an optional addition to the primary object. This way the sheet border can insert as an XREF and the secondary drawing as a block. This way if any changes need to be made to the sheet border it will update for all sheets. If the administrator decides to XREF the primary border, a copy of the primary drawing is placed in a chosen folder under the project then referenced from that location, therefore keeping the integrity of the master sheet drawing. If a user selects the same locate curing the command, then the existing block will be used and not copy from the master location again. This is to ensure that the project edits to a particular border does not get overridden.

To add your borders and attributes first choose a discipline right-click sheet borders and choose **Add Group**. Click the **Add Sheet Border(s)** button to add the desired borders. This opens a dialog allowing you to select the desired drawing(s) to be included in the group.

Once you have created a group and entered the desired borders you can assign additional insertion properties in the remaining columns.
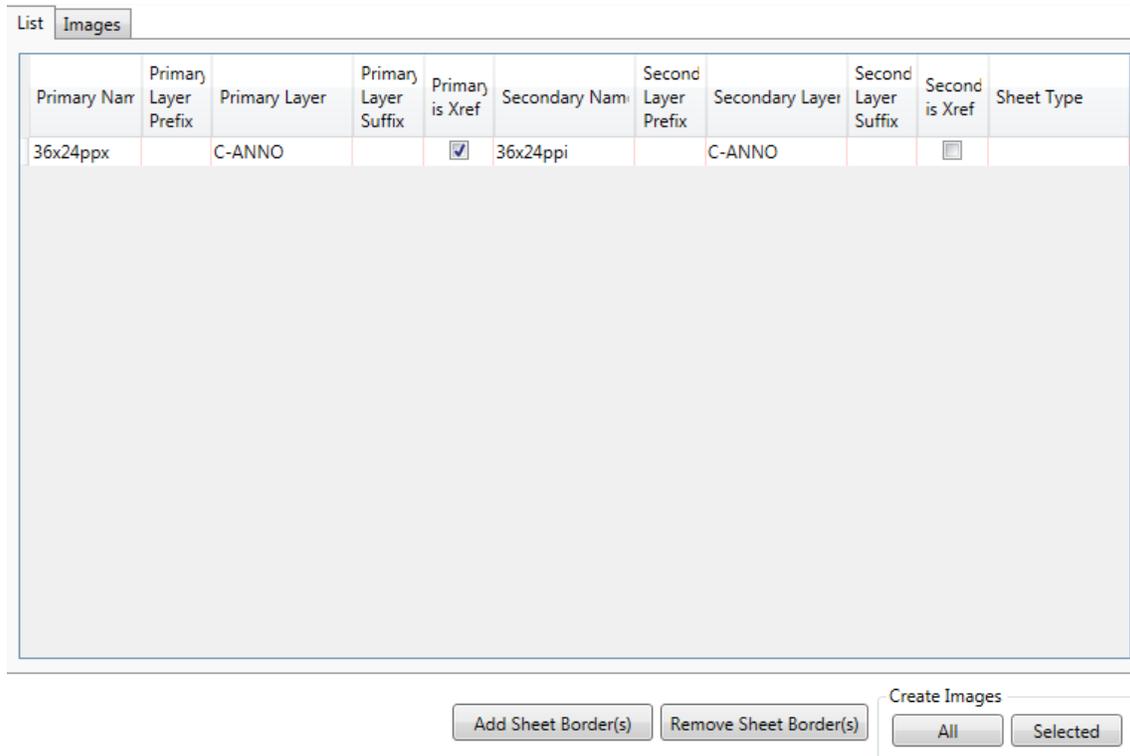
Primary Nam	Primary Layer Prefix	Primary Layer	Primary Layer Suffix	Primary is Xref	Secondary Nam	Second Layer Prefix	Secondary Layer	Second Layer Suffix	Second is Xref	Sheet Type
36x24ppx		C-ANNO		☑	36x24ppi		C-ANNO		☐	

List | Images

Add Sheet Border(s) | Remove Sheet Border(s) | Create Images: All | Selected

The first **Primary Layer** column adjacent to **Primary Name,** allows you to assign a standard layer for the border. Click in the layer field to open a dialog allowing you to select a layer from your standards.

Clicking the **Xref'd** check box will insert the border as an external reference allowing dynamic updates to the drawing. You can also set this option form the right click menu.

The **Secondary Name** column lets you include a second drawing, inserted as a block, containing attributes for the border. The **Secondary Layer** column lets you assign a different layer for the secondary drawing.

The **Create Images** section allows the creation of images to represent the detail for viewing. It is recommended that you create images for all details to increase speed and visibility for the end user.

Creating Text Style Groups

CAD Standards Manager automatically reads True Type Fonts from the current machine as well as the current font location for the last AutoCAD session on the current machine. Many companies use a centralized location for AutoCAD fonts (shx extension). Therefore, to read the fonts from a different location than the standard AutoCAD path, click the **Change** button and redirect the path. This will only influence the Admin module and not the end user settings. You still must add the font path to the Support File Search Path in AutoCAD options to ensure the correct font usage.

Text styles are organized by group within each discipline. Therefore, you must create a group prior to creating text styles.
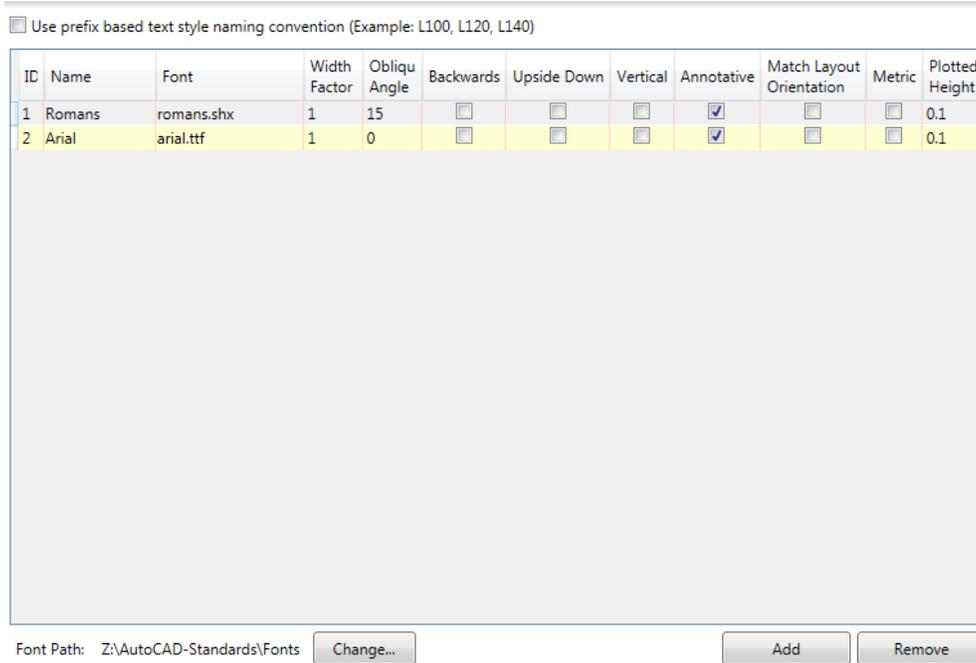
Text styles can be created based on two different naming conventions. One based on a single name for each text style and the second based on a prefix name and text height.

Each group is independent and can use either convention. Thus you could have groups using the single name convention and groups using the prefix naming convention within each discipline. The example at top shows the prefix naming convention.

The **Single** name text style lets you assign a font and a height for each unique text name. This naming convention lets you create text styles with a descriptive name based on how the text will be used, such as: sheet notes, titles, alignments, dimensions, etc.

The **Prefix** naming convention is an automated tool for creating multiple text styles based on a font with several text heights. The prefix name is usually based on the selected font. You can set multiple heights for that prefix to automatically create multiple text styles. When the user selects a text style from a discipline and group with the prefix naming convention, they will see a list of names based on the prefix and height using the following formula: Style Prefix + (text height * 1000). To set the desired heights for each prefix click on the **Set Heights** button (this is the gray button with three dots in the set heights column), this will open the dialog shown below.
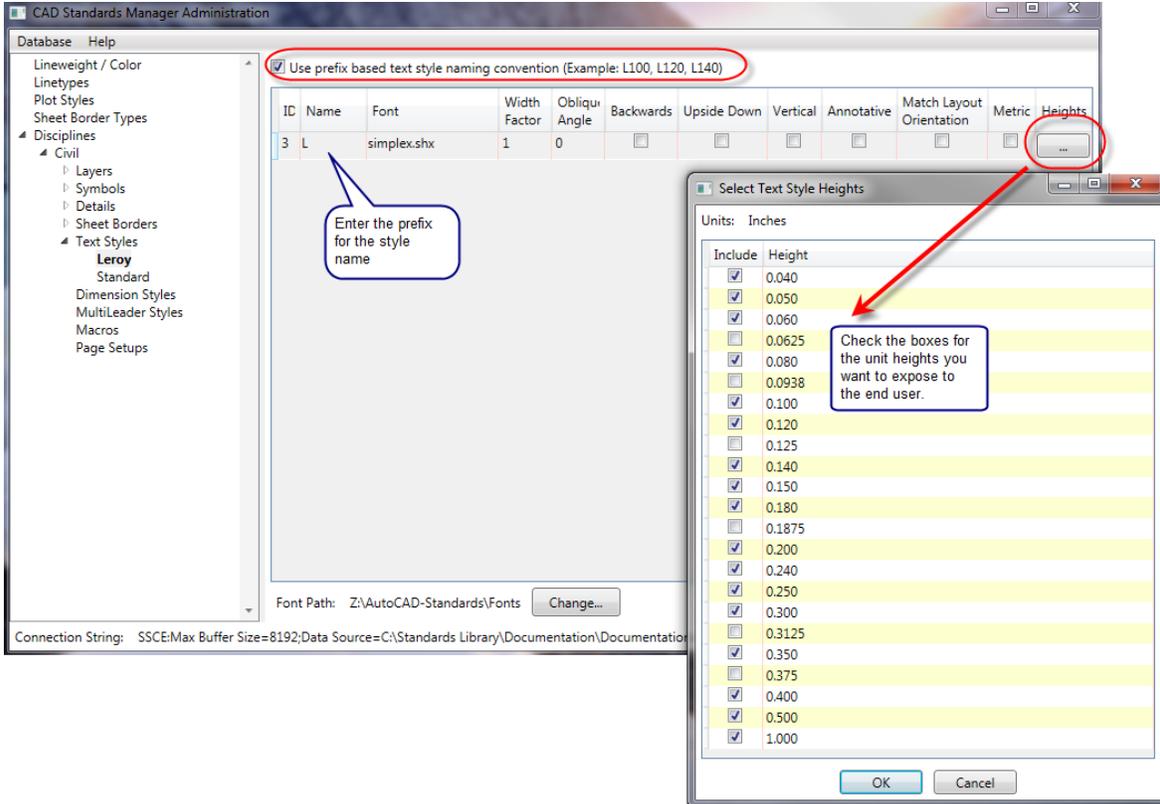
This example shows the selected heights for the L prefix from the **Text Styles** tab shown at top, where the L prefix represents the simplex font. The **Text Style Heights** dialog lets you select from a list of 17 predefined heights for each prefix.

When the user wants to insert text from this discipline and group, they will see the dialog shown below.
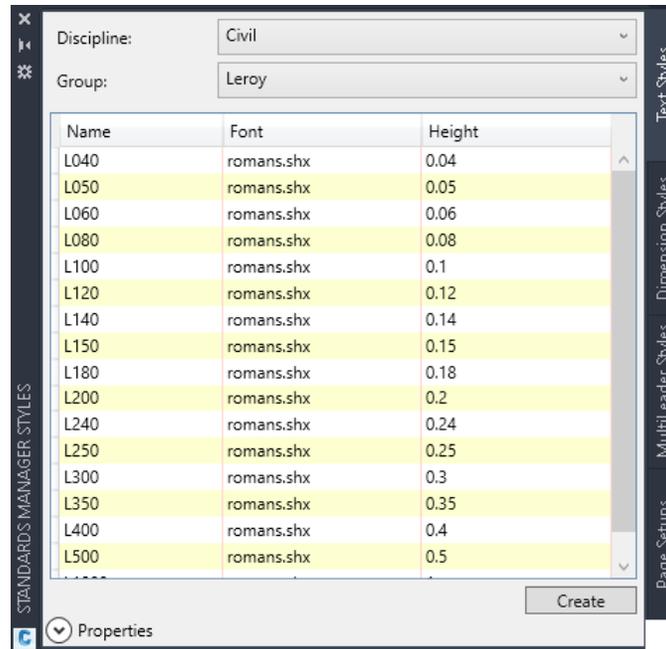
Once you have created a group and chosen the desired naming convention click the **Add** button to create your text style. You can adjust text setting by typing in the value or clicking the check boxes.

Please Note:

The individual workstation must have the true type fonts installed to use them as well as the specific AutoCAD font (shx) in the support file search paths.

Creating Dimension Style Groups

Dimension styles are organized by groups within each discipline; therefore, you must create a group prior to creating dimension styles.
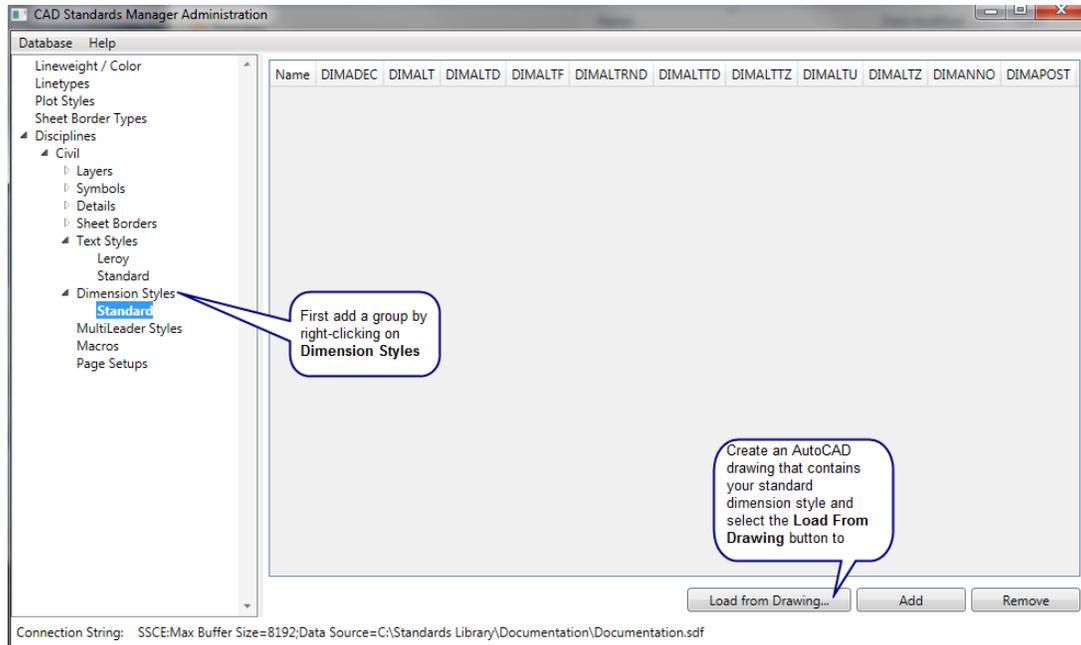
Dimension Styles are not created in Standards Manager and must be imported from AutoCAD. Therefore, you need to first create your styles in AutoCAD or simply import existing styles. It is important to remember that when creating a dimension style, you should first create a single name text style with a height of 0 for the current discipline in the text style section. Then use that text style in the drawing where you are creating a dimension style. This way the text references a style in the database and can be inserted into the drawing with the dimension style simultaneously.

Once a group has been created you can use the **Load from Drawing** button to place the dimension styles from the selected drawing.

Once the dimension styles have been imported you can edit dimension settings. The user will reflect the changes the next time they import the style into a drawing. To see all dimension settings, scroll to the right using the scroll bar at the bottom of the dialog.

Importing Page Setups

CMI Standards Manager allows the administrator to import page setups from drawings into the standards database. This, in turn, will allow the CAD Manager to house the page setups outside of a template for the users to insert at any given time. The administrator must first create the page setups in an AutoCAD drawing prior to import.

Once the page setups have been imported, the administrator may edit properties listed in the given columns.

| ID	Name	CanonicalMediaName	Centerplot	ConfigName	ModelType	PaperUnits	PlotHidden	PlotOriginX
1	17x11 PDF	ANSI_expand_B_(11.00_x_17.00_Inches)	☐	DWG To PDF.pc3	☐	0	☐	0
2	34x22 PDF	ANSI_expand_D_(34.00_x_22.00_Inches)	☐	DWG To PDF.pc3	☐	0	☐	0
3	36x24 PDF	ARCH_expand_D_(36.00_x_24.00_Inches)	☐	DWG To PDF.pc3	☐	0	☐	0

Importing MultiLeader Styles

CMI CAD Standards has allowed the administrator to import a style into the standards database for retrieval for the user.

The CAD Manager must have an AutoCAD drawing contains the desired multi-leader styles defined already. Within the desired discipline, simply right click on the *MultiLedaer Styles* and choose *Add Group*.
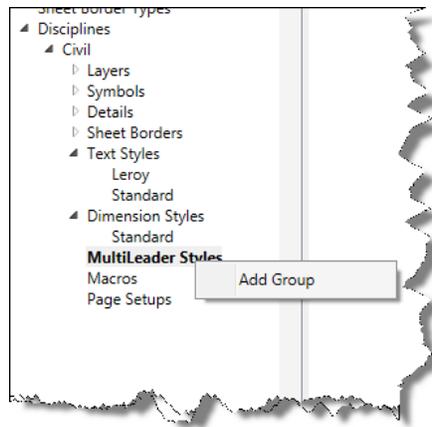

User the **Load from Drawing** button to import into the database.
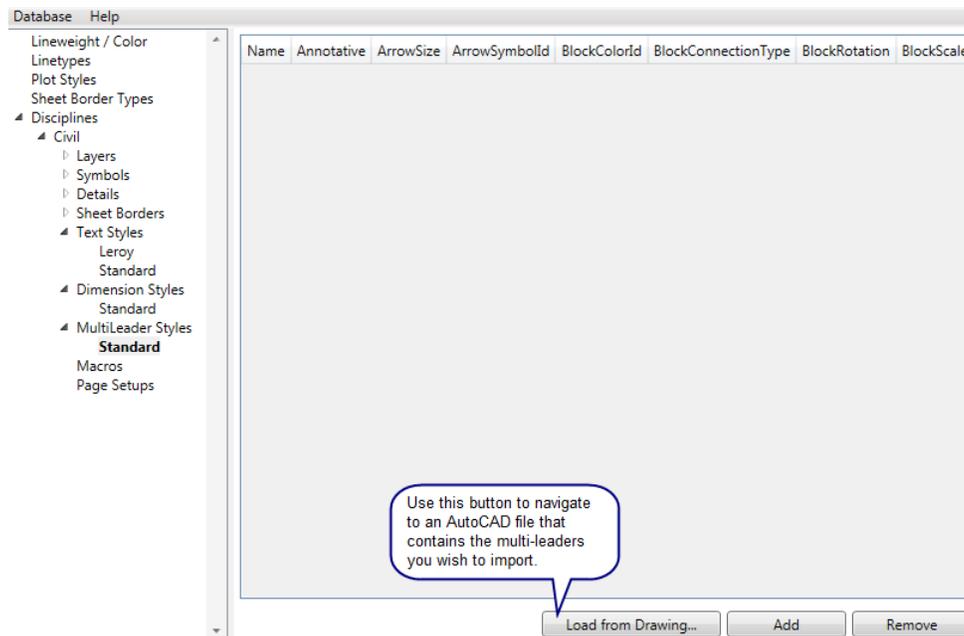
To remove a multileader style from the standards database, simply select the desired row(s) and select the **Remove** button.

Custom Macros

The macros section of the Admin Module can store frequently used custom routines that can be accessed by all Standards users when needed. Macros must be stored with a group name under the current discipline. Therefore, you must create a group prior to adding a particular macro. The **Macros** section is shown below.
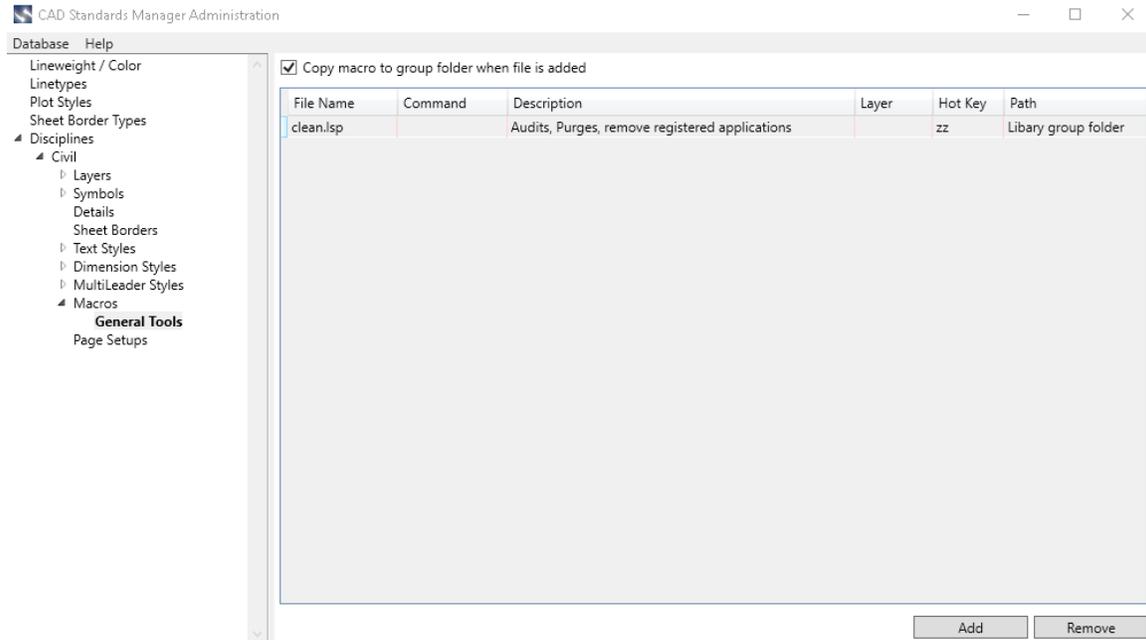
The Macros setup can deploy AutoLISP (.lsp, .fas, and .vlx), VBA macros (.dvb), or ARX (.arx) programs. To add a macro to a defined group, first set the desired group current. Check the **Copy Macro to Group Folder when file is added** if you wish to create a copy of the program file within the group folder stored beneath the current Standard. If not the path to the program will be stored within the macro database record so that it can be executed from that location. Next, press the **Add** button and navigate to the desired program file. Select the file and then click the Open button. The file name will appear in the Macros table on the tab.

If the program was designed to simply execute when loaded, you should not enter a command name. If the selected program contains internally defined functions, you do need to enter each function name that you wish to make available within the command combo box. After you have entered the command names enter a description for each command by first selecting the command from the list and then entering an appropriate description. Use the **Remove** button to remove the current command within the active row.

Optionally, you can select a Standard **layer** you wish set current when the program or program command is executed. First set to the desired command if applicable and then

press the Layer button within that same row. A layer selection dialog appears where you can navigate to the desired layer name. Once you select Ok from this dialog you will be returned to the Macros tab and the layer name will appear on the face of the button with the active row. If you later wish to remove the layer assignment simply set the desired program or command current and then right mouse click to bring up the Macros context sensitive menu. Select the Remove Layer Assignment command and the layer will name will disappear from the button indicating the layer assignment has been removed.

Additionally, you may assign **Hot Key** (a shortened command name) to program or command**.** Set to the desired program and command and then enter the keystrokes you wish to use to execute that program or command.

Project Setup and Deployment Options

Setting a Standard Database as Default

Because the company may have multiple standards, it would be a good idea to set the default standard for company use. This way, when the user launches AutoCAD, the standard is already set, and the user can get to work immediately.

A file called DefaultStandard.txt is automatically created in the root folder of the standards library path. Edit the contents of this file to include the folder name of the standard you wish to be default for all users. The content of the file is displayed below. If the administrator wished to have the standard "Company Standard" as the default the text file would look like the following.

/* Place folder name of your desired default Standard setup on the next line. */
Company Standard

The file consists of only 2 lines. Enter the name of the standard you wish to be default on the second line. This should be the exact name of the folder that contains the standard.

Migrating Database File (Convert to different formats)

To take advantage of the speed improvements and taking the database off site, the administration must create a local database file. This guarantees that the users will not connect directly to the SQL Server or a network location, but rather a file. This will dramatically increase the speed and stability of the product and is the recommend configuration. Therefore, the administrator must update this file every time a database change is made. However, this version allows the administrator to edit the sdf directly. This allows the migration from different database types.
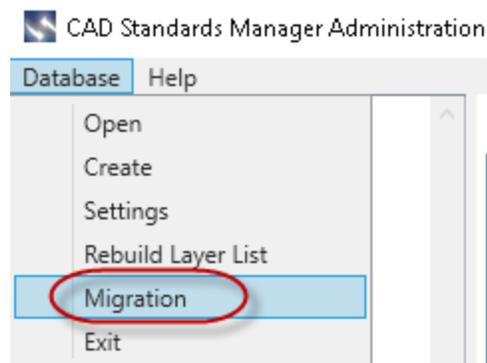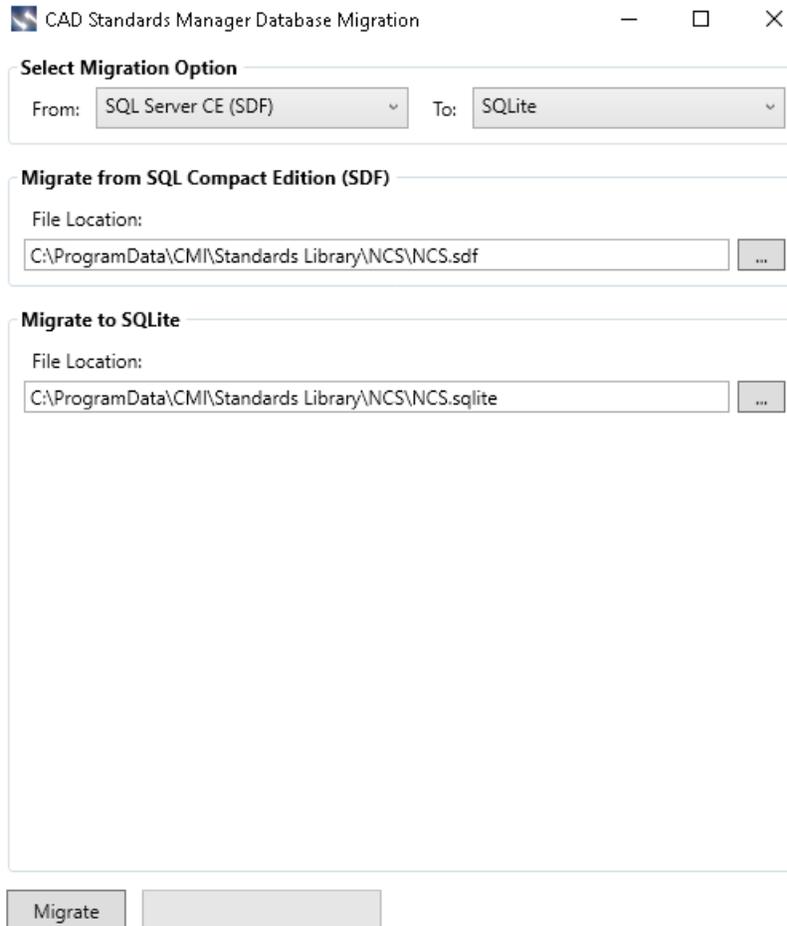
File and Folder Permissions and Registry Settings

Some companies prefer to set permissions to the standards library to read-only. This not the preferred method of use the software as the user needs to have read-write privileges to the database file to store saved conversion files.

Local Database Caching

If it is a requirement for a company to have the database be read-only, then CMI Standards allows the use of "local database caching". With this feature enabled, a copy of the database is copied under the local install of CMI Standards. Every time this user opens AutoCAD an initializes the software, the program looks for any changes made to master database and copies it locally again.

This local database cache is enabled and disabled from the registry. Create a registry file and install it to any user's computer needed to use this feature. This feature is controlled initially from the installation setup. If you wish to switch back and forth between these setups you can use the registry files below to accomplish this.

<u>Enable Local Database Caching</u>
REGEDIT4

[HKEY_CURRENT_USER\Software\CAD Masters\Standards Manager\vXX\]
"CacheDatabaseLocally"="1"

<u>Disable Local Database Caching</u>
REGEDIT4

[HKEY_CURRENT_USER\Software\CAD Masters\Standards Manager\vXX\]
"CacheDatabaseLocally"="0"

Note: the "XX" above will be the version of the software currently using. For example, if using 2022, then the XX will be 22.

Importing from a Drawing to the Database

Creating database content can be the most difficult part of maintaining the database, therefore CMI CAD Standards Manager has created a command to import data from a drawing into a discipline. Once in the discipline, the administrator can then move and edit the data into any discipline for use within the standard. From within the program, right-click on *Discipline* and choose *Create Discipline from Drawing*.
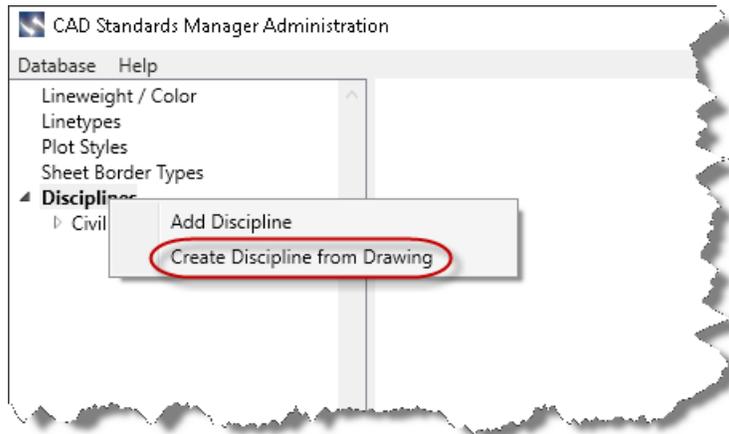
The program will allow you to select a dwg or dwt file type.