Tip Sheet

ArchiCAD 11
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Graphisoft New Zealand
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DWG Translator

In Architectural practice you often send and receive content from co-working Structural, Mechanical or Electrical Engineers. Because they use their own design software, Architects use mostly DWG/DXF format for this data exchange process. ArchiCAD has five default DWG/DXF Translators designed for different purposes.

For as is output. . . . . . Use this translator to save ArchiCAD layouts/views in DXF/DWG format if you plan to output them "as is" without further editing after conversion. E.g. to submit a Plan for Approval or to send to a plotter service.

For editable import . . . . . . Use this translator to open DXF/DWG content to continue editing them after conversion in ArchiCAD.

For further editing . . . . . . Use this translator to save ArchiCAD layouts/views in DXF/DWG format if you plan to continue editing them after conversion.

Keep Pen Index Number . . . . Used this translator to save ArchiCAD layouts/views in DXF/DWG format if you plan to continue editing them after conversion with keeping pen index numbers.
Note: using this translator Pen Colors and Lineweights will not be retained.

Special Built-in Translator . . Built-in translator for ArchiCAD 10. This is locked and cannot be edited, it is used by ArchiCAD when all other translators are unavailable

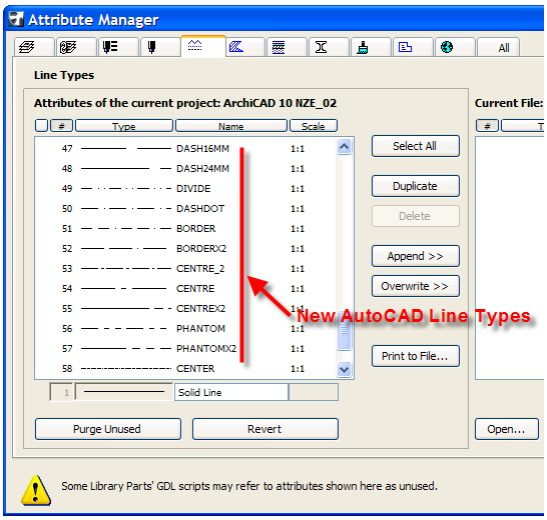
Creating your own Translator

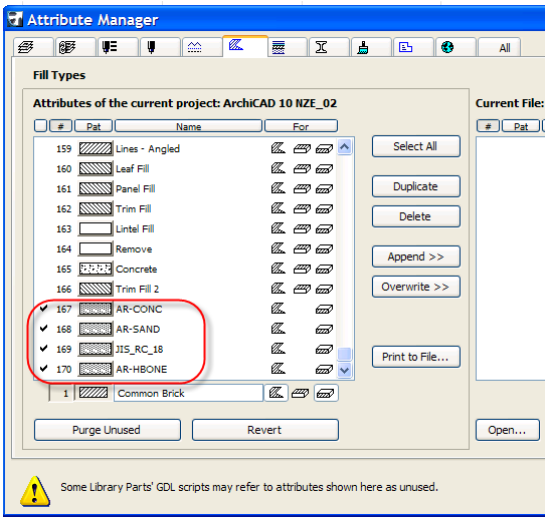
If you find that these default Translators are not giving you the desired Output/ Input then you can create your own.

You can start with one of the default Translators and modify the specific fields or you can start from scratch.

Note: The most important file required for a seamless translation from ArchiCAD to AutoCAD is an AutoCAD template file (in DWG format) This file shall have all the necessary AutoCAD layers, Hatches and additional base information, Units etc.

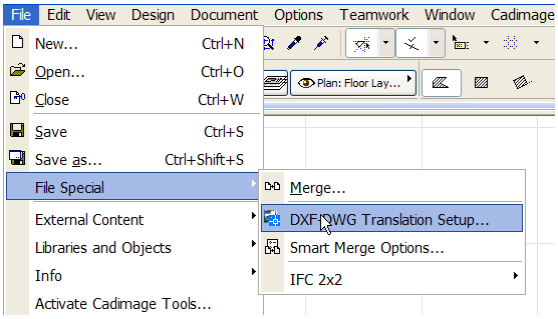
If the translation from ArchiCAD to AutoCAD is a normal occurrence it is necessary to have all the AutoCAD linetypes and Hatches (Fills) within your ArchiCAD template, and these must be used so that they will convert exactly. This can be achieved easily by merging your AutoCAD template DWG into your ArchiCAD template. The Hatches and Linetypes will now be visible in your Attribute Manager.





Setting up a Custom Translator in ArchiCAD

Select **File> File Special> DXF-DWG Translator Setup...**

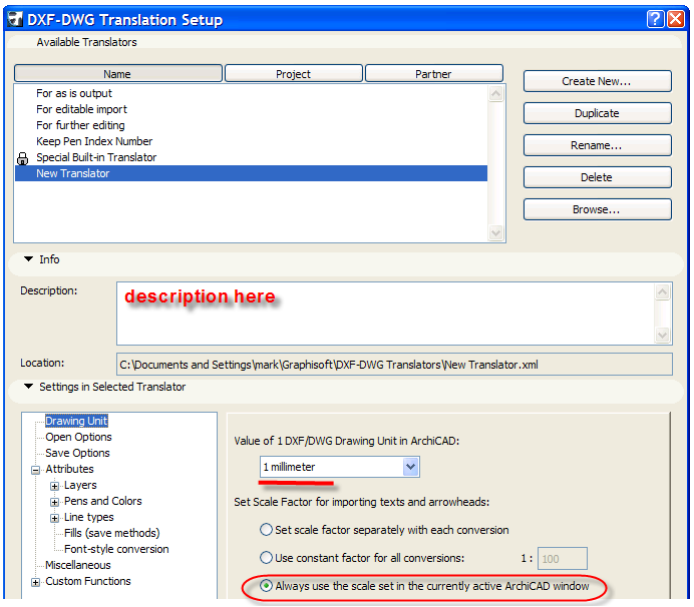


When the Translator dialog opens click on **Create New...** at top right. Enter a name for your new Translator and set save location – typically your project specific folder on your Server.

Tip: Use a suitable name e.g. Engineers Name

Your new translator will appear in the Available Translator field.

Select your new translator and modify its settings;



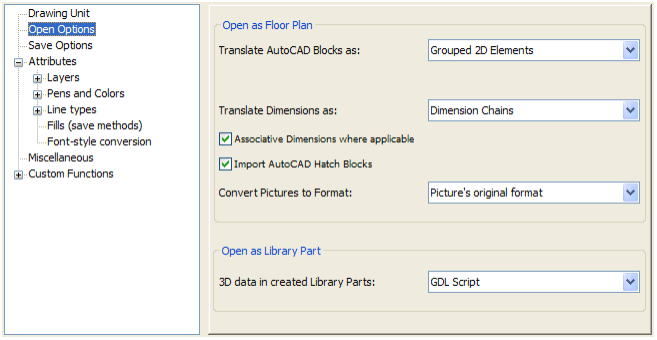
Add a description for the Translator so that other users know what it can be used for.

Under the Settings tab edit each field to your requirements.

Drawing Unit

mm in ArchiCAD = mm in AutoCAD

Tick **Always use the scale set it the currently active ArchiCAD window** – this will ensure that any text in the window will be the correct height in AutoCAD



Open Options

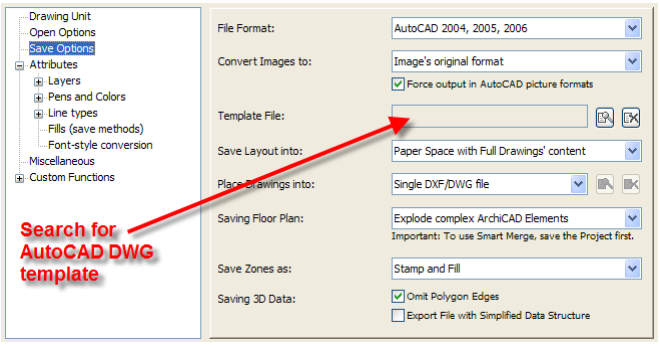
This field deals with how AutoCAD opens into ArchiCAD.

Translate AutoCAD Blocks as **Grouped 2D Elements**, a block is also a group of 2D objects

Translate Dimensions as **Dimension Chains** – this will convert AutoCAD dimensions into typical ArchiCAD chain dimensions

Tick Associative dimensions, so if a line moves the dimension will also (if it was associative in AutoCAD)

Tick Import AutoCAD Hatch Blocks



Save Options

File Format – Choose the necessary AutoCAD format

Template File – search for your DWG template file. If you transfer DWG's often to the same consultant, getting a template file from them will allow you to create a more structured file.

Save Layout into – depending on what you want to do with the exported DWG file choose from

Paper Space as flattened drawing (Paper Space is AutoCAD's equivalent of the Layout Book) This will save the DWG into AutoCAD's Paper Space at the scale it was placed on the Layout, i.e. if you have a floor plan at 1:50 on a A1 layout the layout will be 841x594 mm and the drawing will be scaled at 1:50 of full size.

Model Space as Flattened drawing (Model Space is AutoCAD's equivalent of the View Map) This will save the DWG into AutoCAD's Model Space at a scale of 1:1 but with the text and dimensions scaled as they would have been on the Layout

Paper Space with Cropped Drawings' content This will save the DWG into AutoCAD's Paper Space with the Title block information and the drawing cropped as it appeared on the Layout in a separate file. This is similar to Paper Space as flattened drawing but activates the **Place Drawings into:** field which allow you to save the drawing information into the DWG file of into a separate Linked (Attached) Xref file

Paper Space with Full Drawings' content This will save the DWG into AutoCAD's Paper Space with the Title information and the full un-cropped drawing as a separate Linked (Attached) Xref or as part of the DWG.

*We suggest to use **Paper Space with Full Drawings' content**, and **Single DXF/DWG file** but only if you are saving the DWG from the Layout Book. If you are saving the DWG from the View Map these settings won't take effect.*

Saving Floor Plan - **Convert complex elements to Blocks**, This will create AutoCAD blocks for ALL ArchiCAD Walls, Slabs, Roofs etc. And all other ArchiCAD Objects will be converted to blocks.

Note: AutoCAD blocks are similar to ArchiCAD grouped elements or an ArchiCAD Object

Explode complex ArchiCAD elements, This will turn all ArchiCAD Walls, Slabs etc into lines or polylines and fills but keep doors, windows and other ArchiCAD Objects such as chairs, cars etc as blocks.

*We suggest to use **Explode complex ArchiCAD elements** as this will allow easier manipulation of walls, slabs etc within AutoCAD*

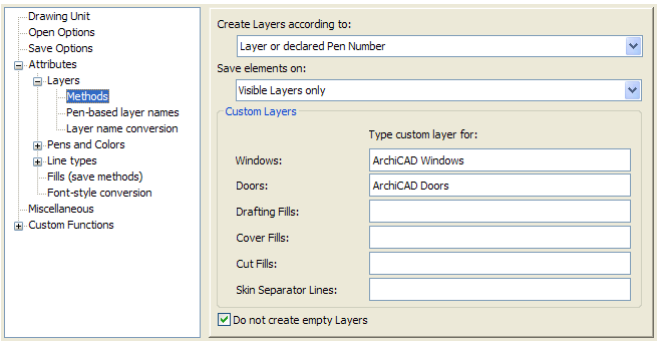
Save Zones as – Set this to **Stamp and Fill**

Saving 3D Data – Tick **Omit Polygon Edges**, un-tick **Export File with Simplified data Structure**

Attributes

The Attribute section of the Translator Settings allows you to set how ArchiCAD attributes transfer into AutoCAD. It is broken into five main categories; Layers, Pens and Colors, Line Types, Fills and Font Styles.

Layers



Methods

The options within the Methods tab are relevant for Save operations.

Create Layers according to – this has five choices;

- **ArchiCAD Layers:** Create layers in the DXF/DWG file based on the layers used in ArchiCAD.
- **Pen Numbers:** This option places elements having the same color in a common layer.
- **Element types:** Places common element types into a corresponding layer, such as a WALLS layer.
- **Layer or declared Pen Number:** Creates AutoCAD layers according to ArchiCAD Layers, but definitions in Pen-based layer names take precedence over ArchiCAD Layer conversion.
- **Layer extended by Pen Number:** Creates AutoCAD Layers according to ArchiCAD Layers, but out of one ArchiCAD Layer it may create several Layers in the resulting AutoCAD drawing, because it will place elements located on the same Layer but using different Pens to different Layers in AutoCAD.

Our suggestion is to use **Layer or declared Pen Number**, this will ensure that there are no duplicate layers with different Pens. It assumes that you have used a similar layering system to that in AutoCAD

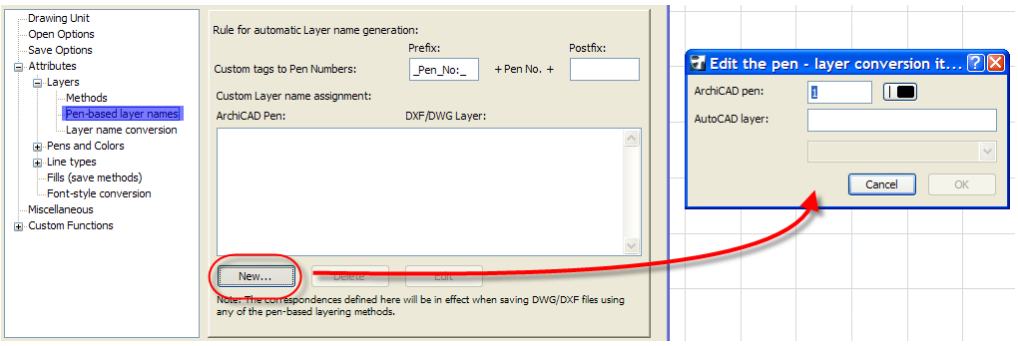
Set Save Elements to **Visible Layers only**, this will only output layers that contain elements

Custom Layers

These fields allow you to assign Windows, Doors, Drafting Fills, Cover Fills, Cut Fills and Skin Separator Lines of Walls to separate layers, instead of remaining on the same layer as the construction element they belong to.
If you enter a layer name into the **Windows** edit field, all the Windows will be part of that layer instead of the layer of the Wall containing those Windows. If you clear it, Windows will go to their default layers (the layers of the Walls containing them). The same rules apply to **Doors**.
Drafting Fills will go to the layer specified in the **Drafting Fills** edit field.
Fills (if any) belonging to Slabs, Roofs, Meshes and Zones and Fills having the **Cover Fill** category will go to the layer specified in the **Cover Fills** edit field.
Fills showing to cut surfaces or sections of construction elements and Fills having the **Cut Fill** category will go to the layer specified in the **Cut Fills** edit field.
Skin Separator Lines of cut composite structures, plus Lines having the **Skin Separator Line** category will go to the layer specified in the **Skin Separator Lines** edit field.

Do not create empty Layers: If you check this checkbox, only those layers that have elements in them in the DXF/DWG file will be exported. If you leave it unchecked, every layer gets exported.

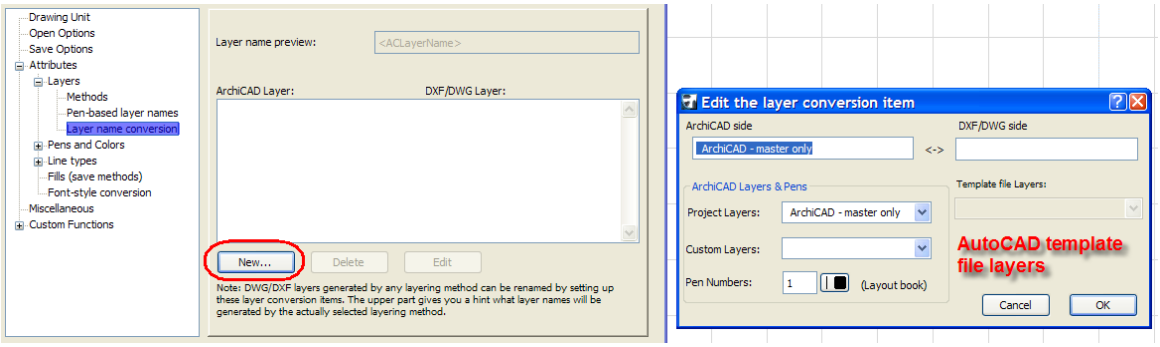
Pen Based Layer Names



If you save a DXF/DWG file with the Create Layers according to option set to Pen Numbers, the export file will contain a layer with the name PEN_<n> where <n> is a pencolor index. AutoCAD users may prefer the layer name to state the actual color name (i.e. PEN_BLUE). These options can be set here.

Pen-based layer names conversion is very similar to Layer name conversion – the only difference is that you have a standard ArchiCAD pen selection control instead of the layer name pop-up. You can write only valid pen numbers in the ArchiCAD pen field.

Layer name conversion



To create an item in the layer-name conversion field, click on the "**New**" button and assign the layers in the dialog box. When a specified AutoCAD Template file is used simply select the ArchiCAD Layer in the Left field (ArchiCAD side) and the AutoCAD layer that it will be converted to in the Right field (DXF/DWG side).

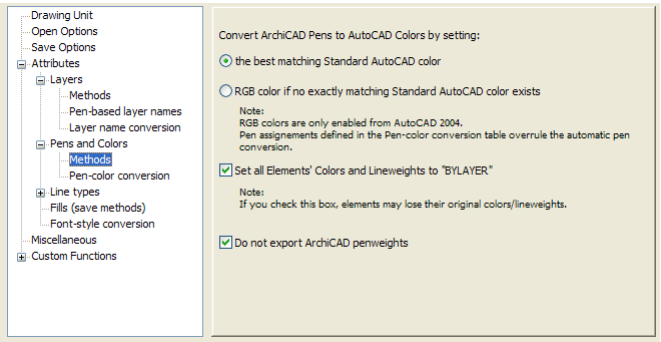
> **Note:** A problem may arise when you convert both "Exterior Walls" and "Interior Walls" to "WALLS" in AutoCAD. When converting wall layers back to ArchiCAD, the translator will not distinguish between the two types of ArchiCAD wall layers.

To modify an existing item, just double-click on it, modify it, and write it back to the conversion list.

To delete one or more items from the list, select them and click **Delete**.

Pens and Colors

ArchiCAD Pen Colors are configurable, while AutoCAD's pen number association to colors cannot be modified.
You can convert ArchiCAD Pens to AutoCAD Colors by searching for the best color match or set up a conversion list.



Pen Methods

In AutoCAD 2004 and later versions it is possible to create pen colors that are not specified by the pen index number, but an RGB (red, green, blue) value. In AutoCAD 2004 and later versions, these new pen colors get a pen index of 256 or higher. All AutoCAD pens with a pen index number of 256 or higher will have their pen index changed to 255 in ArchiCAD. A note reminds you of this in the Dialog.
*Set this to **best matching Standard AutoCAD color** to avoid 255 colors in ArchiCAD if the DWG will be brought back into ArchiCAD*

Set All Elements' Colors and Lineweights to BYLAYER

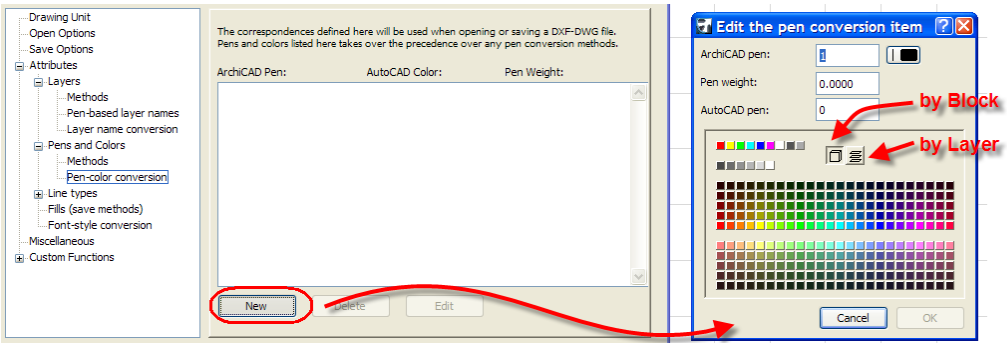
This option is used when performing Save. It overrides the **Convert ArchiCAD Pens to AutoCAD Colors by setting** during Save, but not during Open.
When it is on, every saved entity will have the color BYLAYER. When the AutoCAD user changes the color attached to a layer, everything on that layer will change its color accordingly.

Do not export ArchiCAD penweights

When this checkbox is checked, penweights of ArchiCAD Pens will not be exported to the resulting AutoCAD drawing.

Pen-Color Conversion

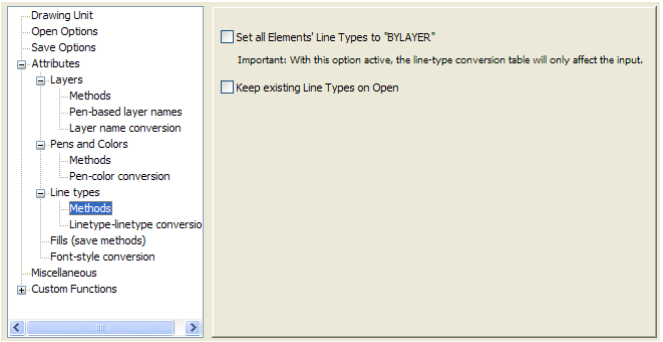
ArchiCAD Pen-AutoCAD Color pairs defined in the Pen-color conversion list will take precedence over the automatic conversion methods set in **Convert ArchiCAD Pens to AutoCAD Colors by setting** in **Pen Methods.**



Line Types

When saving files, you can either set up a line type conversion table or choose to convert all ArchiCAD line types to a single type in AutoCAD named BYLAYER.
Note that symbol line types are stored differently in ArchiCAD and in AutoCAD. Due to these differences, some of ArchiCAD's symbol line types will not look the same in AutoCAD.

Methods



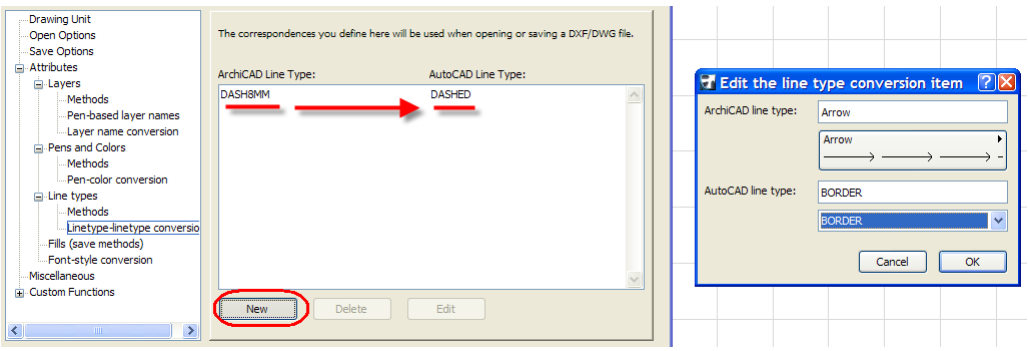
Set All Elements' Line Types to BYLAYER: This checkbox is available only during Save. It overrides the effect of the Linetype-linetype conversion list.

- When this check-box is checked, every saved entity will have line type BYLAYER. When the AutoCAD user changes the line type attached to a layer, everything on that layer will change its line type accordingly

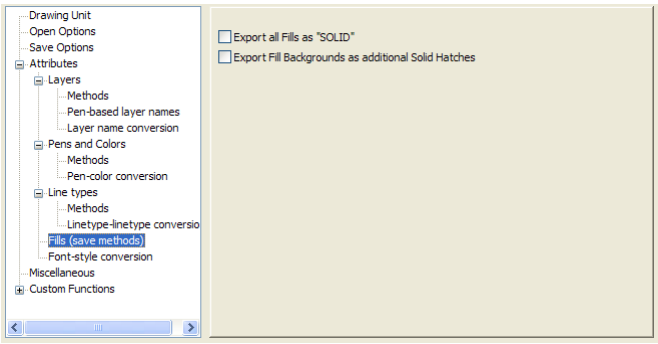
Keep Existing Line Types on Open: If you check this checkbox, ArchiCAD will keep line types currently defined and also import line types defined in the imported DXF/DWF file. In this case, if the DXF/DWG file contains line types with the same name as line types existing in the currently open ArchiCAD Project, the line types of the DXF/DWF file will not be imported.
If this checkbox is not checked, all line types from the DXF/DWG file will be imported, and none of the existing ArchiCAD line types will be kept.

Linetype-Linetype Conversion

This conversion list works exactly the same way as the layer-layer conversion except that it deals with line types. The only condition restricting its use is the option "Set all Elements' Line Types to BYLAYER.
You can pick the requested line type name from the pop-up list. Its name will appear in the **ArchiCAD line type** field. In the AutoCAD line type field, type the name of the line type you would like this **ArchiCAD line type** to be converted to in the resulting DXF/DWG drawing. Or vice-versa: from this line type, ArchiCAD will create a line type specified in the **ArchiCAD line type** field when opening DXF/DWG files.



Fills (Save Methods)



ArchiCAD fill patterns can be saved as solid fills. You can also export fill backgrounds as additional polygons (as this feature is not supported by AutoCAD).

Export all Fills as "SOLID": This checkbox will convert all fill patterns to solid fills.

Export Fill Backgrounds as Additional Solid Hatches: ArchiCAD fill patterns have a separate background fill; AutoCAD fills, in contrast, are all transparent between the pattern lines. If you want the exported file to look like the original ArchiCAD fill, check this option.

Note: The **Export Fills as "SOLID"** checkbox disables this option.

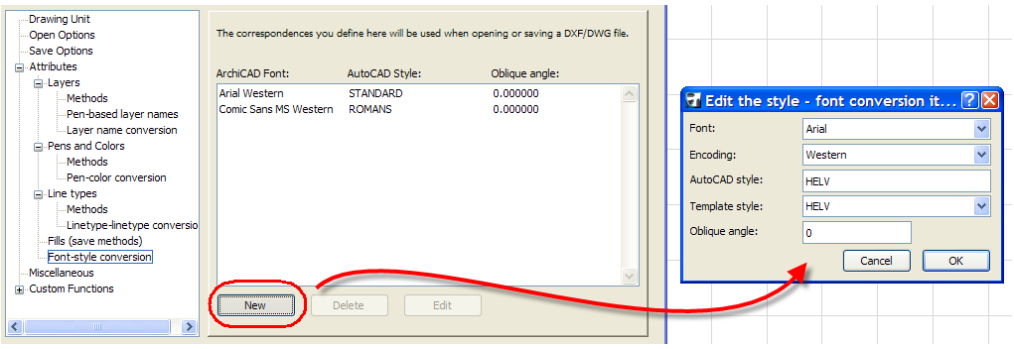
Font-Style Conversion

Font names are stored differently in DXF/DWG files and in ArchiCAD. Even when one-by-one font matching is possible, a conversion list is necessary. (On Windows, ArchiCAD supports all available fonts including those installed by AutoCAD).

During Save, texts having the font specified on the ArchiCAD side of the conversion list will be exported in the font specified on the AutoCAD side. If the slant parameter is 15 (15 degrees) or greater, the exported text will be in italics. Usually, an italic style has an oblique angle of 75 degrees. Unless a template file is selected, the style will use the AutoCAD counterpart of the ArchiCAD font. (A font conversion file specifies the best match, regardless of the platform ArchiCAD is running on).

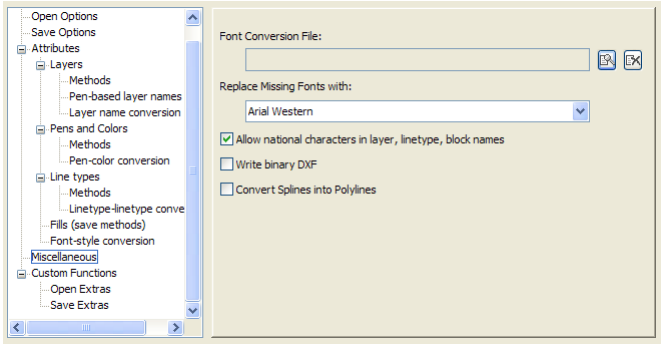
During Open, a text having a font that is listed in the conversion list will be converted according to the lists specification. The slant parameter is handled the same way as during Save.

You can pick the requested font name from the pop-up list. Its name will appear in the **ArchiCAD font** field. In the AutoCAD style field, type the name of the style you would like this **ArchiCAD font** to be converted to in the resulting DXF/DWG drawing. Or vice-versa: after opening DXF/DWG files, text elements using the style in AutoCAD will be displayed in ArchiCAD using the font specified in the **ArchiCAD font** field. In the **Oblique angle** field you can specify the angle of the font in ArchiCAD.



Miscellaneous

These settings concern character conversion including the use of national characters not in the English alphabet, font substitution rules for missing specifications and binary DXF.



Font Conversion File: Even when one-by-one font-to-style matching is possible, a conversion list may be necessary for Font Name conversion. (On a PC, ArchiCAD supports all available fonts including those installed by AutoCAD).

A default version of this conversion list is installed during ArchiCAD installation. It is country- and platform-dependent but otherwise standard. You may wish to duplicate and alter the default list.

To the right of this field there are two buttons. Click the left button to open a Dialog, where you can define a Font Conversion File (it is a file with *.xml extension).
After selecting the desired file, click Open to close this Dialog.
The other button will let you delete the selection of the Xml file in the previous dialog. Click on it and the name of the file will be cleared without having to enter the Dialog.

Replace Missing Fonts with: If you get a DXF/DWG file containing a style/font specification that does not exist in any of your style/font and font/font conversion lists, you can define a default font here.

Allow national characters in layer, linetype, block names: If the recipient AutoCAD works in the same national environment as your ArchiCAD, you can check this checkbox.

Write binary DXF: This compressed version of DXF takes up about half the space of the text DXF format.
Note: if you really want the data to be compact, it is suggested that you write to DWG format.

Convert Splines into Polylines: Check this box to convert Splines into Polylines in ArchiCAD. ArchiCAD will approximate the AutoCAD Spline using a series of connected straight line segments (that is, a Polyline). This may be useful when in some rare cases, the converted ArchiCAD Spline still looks a bit different from its AutoCAD counterpart.
If you leave this box unchecked, AutoCAD Splines are converted into ArchiCAD Splines.

Using SHX Fonts in the Conversion Process

The DXF-DWG Add-On relies on the availability of AutoCAD fonts – including the SHX fonts. The Add-On will display a message asking for these fonts during the course of a conversion.
If you do not have these fonts available, you can expect problems in text formatting (such as incorrect line breaks). It is recommended that you acquire the SHX font files, which are part of the AutoCAD package, from an AutoCAD user. (Although the fonts are not available with ArchiCAD for proprietary reasons, AutoCAD users are allowed, even encouraged, to distribute them.) True-type version of all SHX fonts are also available in the AutoCAD package.

Once you get the fonts, create a separate folder for them. When the Add-On asks for an SHX font file, select it from this collection. If you don’t have the requested one, you may select another one. (In this case the conversion results may differ.)
Once you have shown the folder to the Add-On, it will henceforth automatically search in that folder (but not in any newly created sub-folders) for the required SHX font files.

Note on TrueType fonts: You can use TrueType fonts in ArchiCAD without any problem on either Windows or MacOS. (MacOS users should copy the TrueType font files into the system drive’s Library/Font folder.)

Note on Fonts vs. Shapes: AutoCAD uses SHX files not only as fonts but for other purposes as well. Complex line types insert shapes into their patterns. The shapes may be added to the drawings as simple symbols. It may cause problems if you select an SHX of this kind instead of a font – so when the Add-On requests you to locate an SHX file, use the “Skip” option if you are not sure an SHX file you found is the right kind. The requested filename should give you a clue about which kind is needed – font or shape.