LINE STYLES AND DWG FILES TECHNOTE

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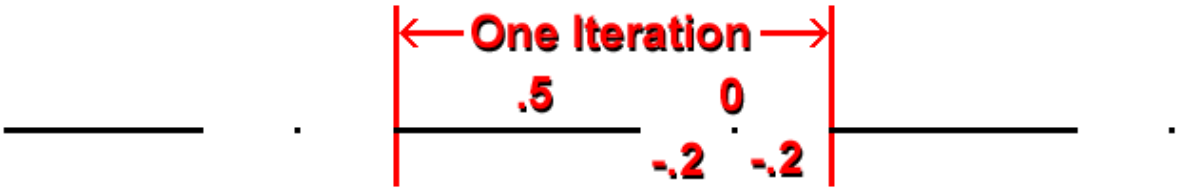
Subject:	Line Styles and DWG Files
Product:	MicroStation V8
Operating System:	Windows® 2000, Windows XP Professional, Windows XP Home Edition, Windows Me, Windows NT® 4 (SP6 recommended), Windows 98 (Second Edition recommended)
Document Number:	8240

How line styles are represented in DWG

DWG line styles are a subset of MicroStation line styles. Because of this disparity, there are a number of features in not translate directly to DWG. Some features are lost in the translation, while other line styles will not translate at a

To get a better understanding, consider an AutoCAD line style specification in a .LIN file. A .LIN file is what in used definition; these files can also be used in MicroStation by choosing File > Import in the line style editor. There are 2 represented in a .LIN file. First are dash-dots, which are roughly equivalent to MicroStation Strokes:

***DashDot,Style with dashes and dots ____ . ____ . ____ . ____ . _**
A,.5,-.2,0,-.2

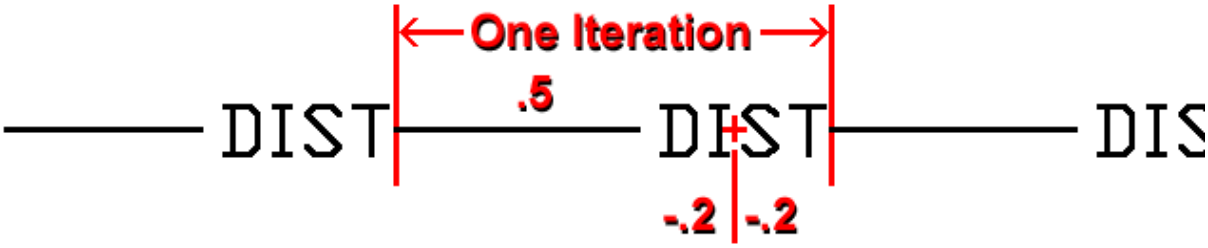


Example of Dash Dot Linestyle in AutoCAD

The first line provides the name and description, and the second line provides the definition. The A stands for "Aligr character on the line. It is followed by positive numbers to denote dashes and negative numbers to denote gaps. In (0.5) unit dash followed by a (0.2) unit gap then a dot (0 length dash) followed by another (0.2) unit gap.

A second, more complicated line style type can contain either text from a text style or shapes from an SHX file. Exa

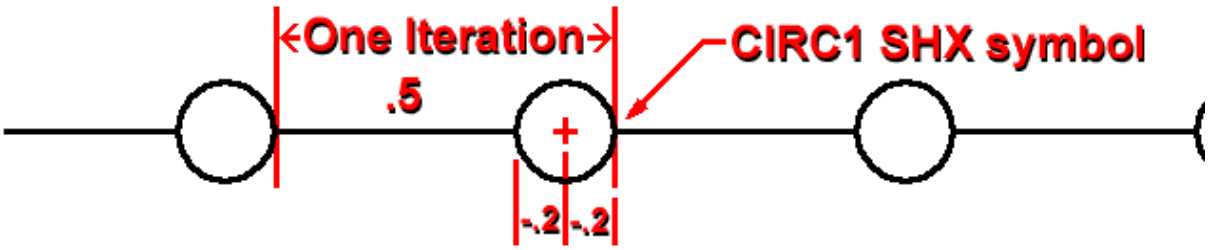
***DISTWTR,Distilled Water Line -----DIST-----DIST-----DIST-----DIST-----**
A,.5,-.2,["DIST",STANDARD,S=.1,X=-0.15,Y=-.05],-.25



Example of Distilled Water Linestyle in AutoCAD

Detail of "DIST" location in linestyle in AutoCAD

***FENCELINE1,Fenceline circle ----0-----0----0-----0----0-----0-- A,0.5,-.2,[CIRC1,ltypeshp.shx,x=-.2,s=-**



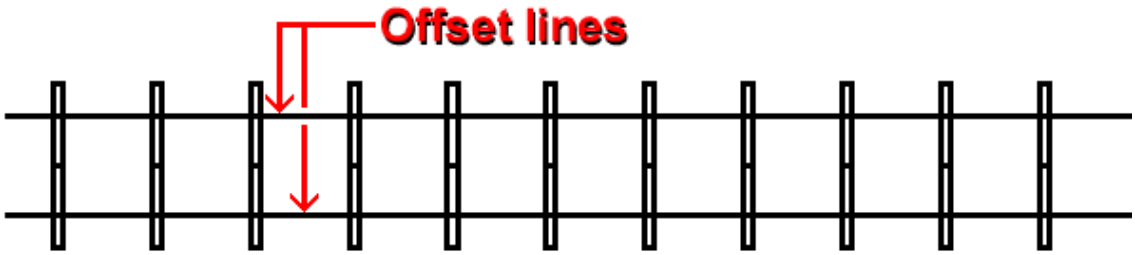
Example of Fence Linestyle

The dashes and gaps remain the same as for dash-dot patterns. The items inside the brackets [] define either a tex in DISTWTR, or a shape name and a shape file name as in FENCELINE. You can specify the X and Y offsets, the rota shape. These features are all that is available in a DWG line type; if you can't specify it in this format, then you can

Line styles that will not translate

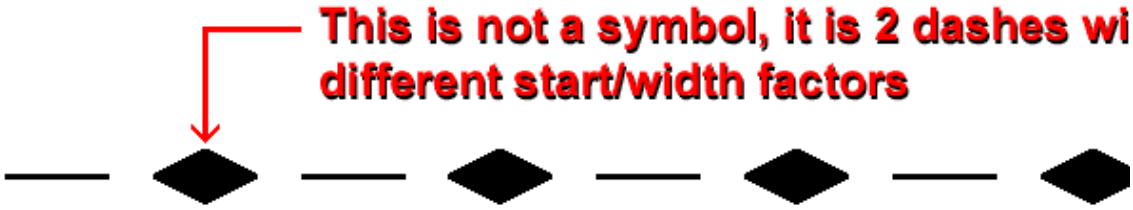
In practice, this means that line styles with the following features can not be exported, and therefore will not appea work mode:

- Any style with offset lines, such as { Railroad };



Example of Rail Road Linestyle

- Any style with non-uniform dash thickness, such as { Diamond };



Example of Diamond Linestyle in MicroStation

- Any style with point symbols at the beginning, middle, or end of the line segment, such as { Arrow }

Point symbol at "end"

Example of Diamond Linestyle in MicroStation

- Any style with more than 30 total Dash and/or Gap segments

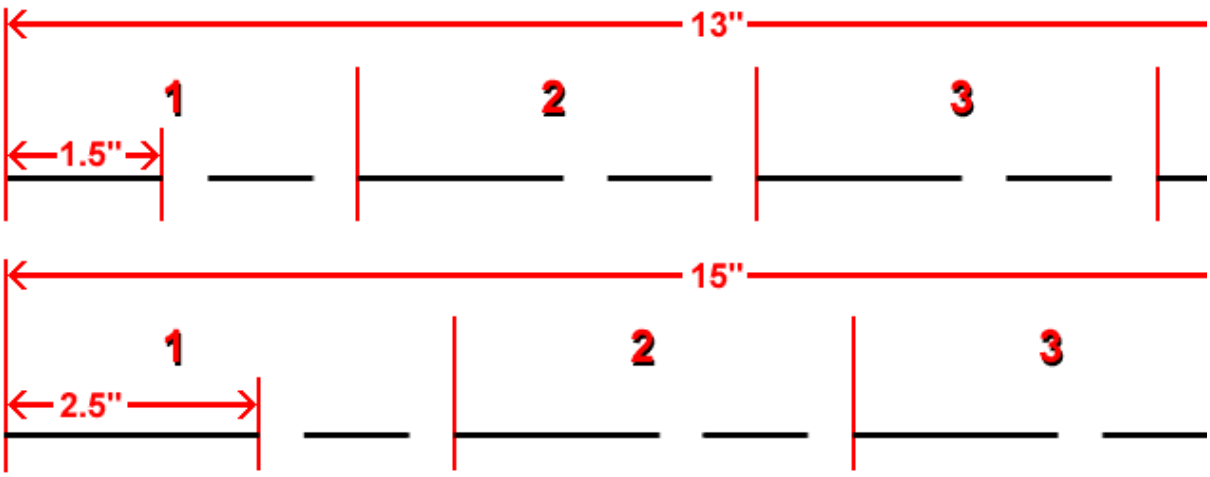
Line style location appearance in DWG

Furthermore, DWG only permits cosmetic (as opposed to functional) line styles. Although most line styles fall into t
depend on having specific symbols in specific locations. This is not possible in DWG because all line styles are displa
This algorithm does guarantee that there will be dashes on either end of a line, but the location of the symbols is ca

First, the maximum number of full iterations of the style are centered on the line segment. For example, consider t
file with inches as working units:

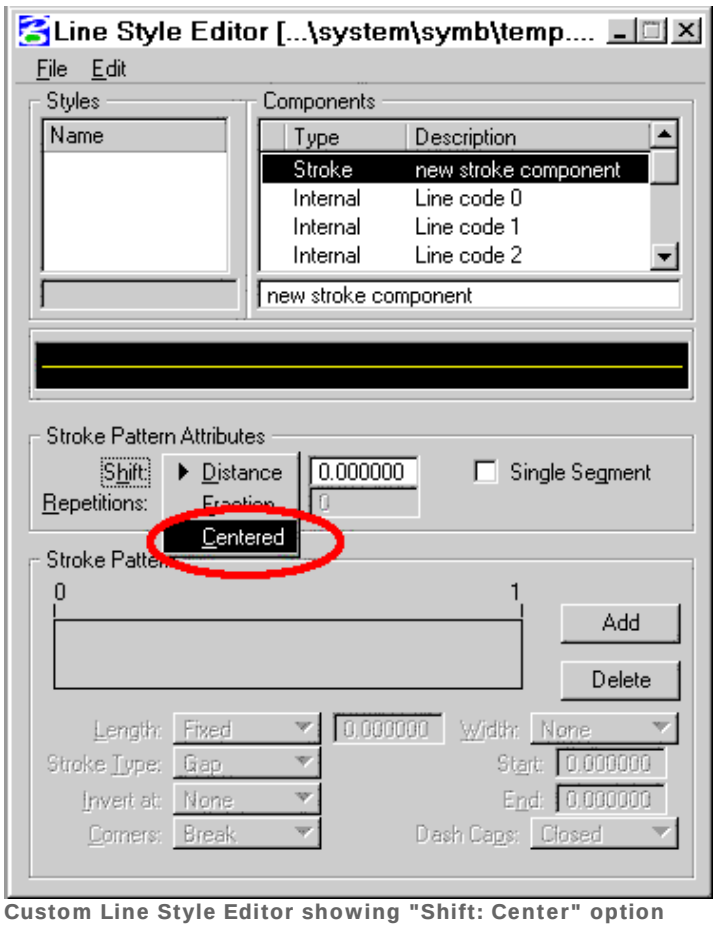
***StyleX,Set of dashes** __ _ __ _ __
A,2,-0.5,1,-0.5

This line style definition is a total of 4 inches long. If you place a line that is 13 inches long using this style, there a
remainder of 1 inch. The extra 1 inch is added to the starting dash, making it 3 inches long. The starting dash is th
beginning of the line and half at the end of the line. Now if you stretch that line to be 15 inches, the only thing that
and ending dashes, which will change from 1.5 inches long to 2.5 inches long.



2 lines placed with "Style X" one at 13" and one at 15"

The most severe consequence of this alignment style is that all MicroStation line styles will appear with this alignme
this method of generating the line style was added to MicroStation and is called "Shift: Centered" in MicroStation's
types will be translated to this style when converting to DWG.



Custom Line Style Editor showing "Shift: Center" option

Exporting point symbols

Because all point symbols in DWG line styles must be represented as shapes in an SHX shape file, the elements in t a shape during the translation. The font file is named dgnlstyle.shx and will appear in your DWG fonts directory jus file to appear in another directory, you can use the following configuration variables:

- MS_DWG_LSTYLE_FONTPATH determines the location for the font file.
- MS_DWG_LSTYLE_FONTNAME determines the name of the font file (and therefore the name of the font).

Each symbol in the font file will start with the name of the resource file, up to 10 characters, followed by an unders For instance, the example line style { Ground Line } resides in lstyle.rsc and contains a point symbol "ground". The LSTYLE_GROUND. This convention is used so that symbols can be reused for different line styles and files.

Point Symbol Behavior previous to MicroStation V8.1

In all MicroStation versions previous to 8.1 the behavior of the line style system was to reject any line style that ca a .LIN file. If this tighter limitation is desired, it can be achieved by disabling the capability CAPABILITY_ALLOW_NC

Alternative line style strategies - styles that will not export

Some line styles won't export due to the limitations in the DWG line style system. When these are encountered, the First, the Save As remap facility will allow you to change any line style to any other line style by name. The only ca in .LIN files require a text style to be present in the file. If you plan to use any of these styles, you should ensure th name appears in the file before remapping.

Another Save As option is to drop any non-exportable line styles to components. Using this facility line styles will ap but the lines will not be modifiable.

How internally stored linestyles are handled when saving to V7

Previous to V8, MicroStation did not support the internal storage of linestyle definitions within the design file. When contains linestyle definitions) to V7, a line style resource file is generated (<filename>_lstyle.rsc). This file is create file. The resource file must be placed in a folder as defined by the variable MS_SYMBRSRC in order for the V7 file to

Resolving custom linestyle definitions in MicroStation

MicroStation can resolve custom linestyle definitions from two places.

- From a MicroStation resource file (RSC).
- From a definition stored within the active design file.

MicroStation V8 can import line styles from an AutoCAD LIN file as well as from the standard MicroStation RSC file (Edition). When the line styles are imported they are written directly into the DGN, their definitions are saved intern

To import a Line style:

1. From the Element menu, choose Line Styles > Edit (The "Line Style Editor" dialog will open)
2. From the Line Style Editor dialog, choose File > Import and select either "AutoCAD Line Style File (LIN)" or " -
3. Browse to the linestyle file and choose "OK" (The "Select Linestyles to Import" dialog will open)
4. Select linestyle(s) to import and choose "Import"

Note: The styles will not appear in the Line Style Editor. They will only be visible in linestyle attribute combo boxes style(s) will only be available within the Design file that the style was imported.

MicroStation can also export linestyles that are stored within a design file, to an RSC file (new in MicroStation V8 2(

To export a Line style:

1. From the Element menu choose Line Styles > Edit (The "Line Style Editor" dialog will open)
2. From the Line Style Editor dialog, choose File > Export From DGN
3. Browse to desired location and give a name to the linestyle resource file to be that will be created

Note: The linestyle resource must be placed in a folder as defined by the variable MS_SYMRSRC and MicroStation v to use the linestyles contained within.

Controlling custom linestyle scale

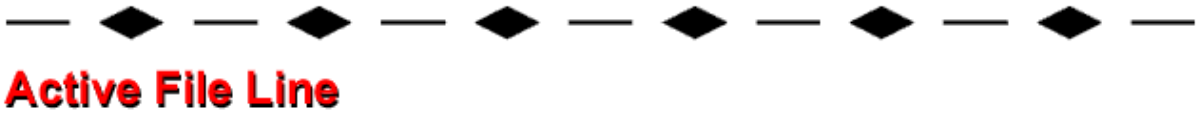
Custom linestyle scale can be controlled 3 ways:

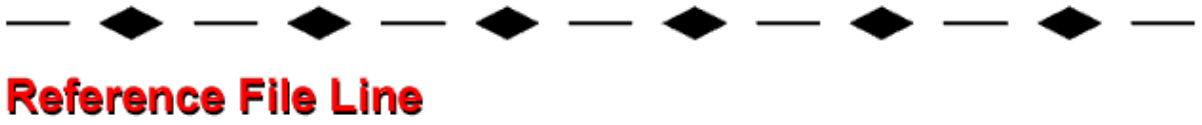
- Global scale factor
- Per element
- Per level (Bylevel or Override)

To control custom linestyle scale globally, key in: ACTIVE LINESTYLE SCALE [scale factor] or DWG LTSCALE [scale f within the active file as well as any attached references, by multiplying the global scale factor of the active design f linestyle scale factor.

This is different than the Scale Factor setting in the Line Styles dialog box, which will set the scale factor for new el design. This, unlike the global scale factor, is respected through references.

It is also possible to control custom linestyle scales per level Bylevel and Level Overrides through the Styles tab of accessible from the Level Manager Dialog (Levels > Properties). This will override the element scale but will still be factor.



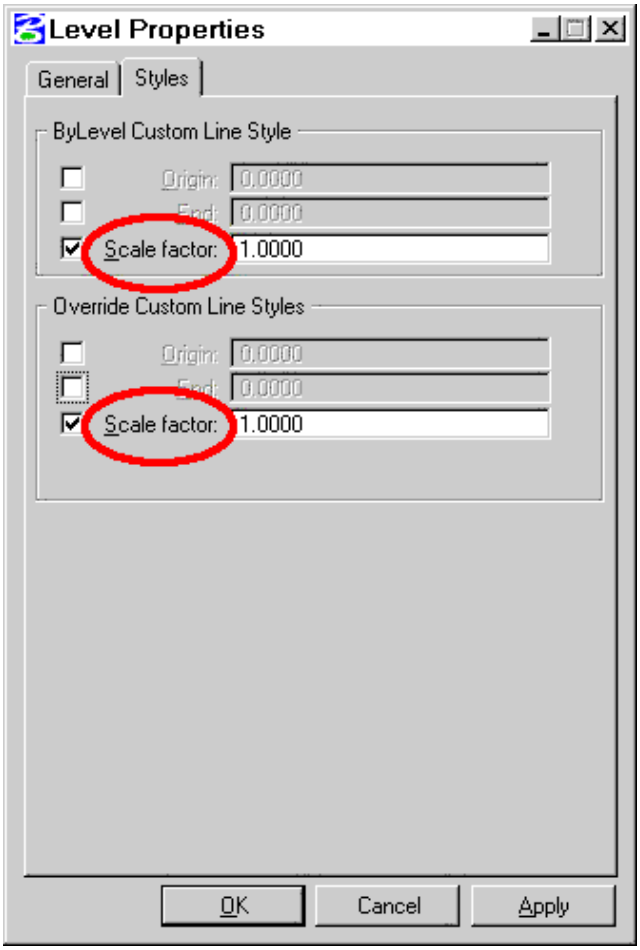


Custom LineStyle with no scales set

Custom Linestyle with ACTIVE LINESTYLESCALE set to 2 in master file

Custom LineStyle with ACTIVE LINESTYLESCALE set to 0 and Custom linestyle scale set to 2 for the eler to 3 for the elements in the Reference file.

You can also control linestyle scales in ByLevel and Level Overrides through the Styles tab of the Level Properties d Manager (Levels > Properties).



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