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**FLUG**

**Fall 2007**

# Convert AutoCAD to MicroStation V8

Presented by:

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**Jeanne Aarhus** is known for keeping her training sessions fast-moving and fun while still providing a thorough understanding of the topic. She has been working with various CAD systems and applications since the early 1980's, when she began using Intergraph's VAX-based IGDS system. She has gained experience in many CAD related fields that have included production drawing, coordination, end-user support, programming, and training for PC and UNIX based CAD applications.

Her specialty is in providing users with the necessary tools to increase productivity and get the job done as efficiently as possible. She has 20+ years of experience using MicroStation and AutoCAD in the Mapping and AEC environments, and she continues to focus on maximizing the users time and productivity using these constantly changing tools. She is certified in all levels of MicroStation and AutoCAD which enables her to assist users moving from one CAD environment to another easily and proficiently.

She has conducted seminars and workshops on CAD productivity for managers and users in both corporate and college settings. Jeanne has provided training workshops and been actively involved in International, National and Local CAD Users Groups, and is known for her "real-world" approach to learning. Here are a few comments from previous students:

*... Presentation was exactly what I was looking for!*

*...Jeanne is a great instructor!... Lots of energy!... Made learning fun again!*

*...Jeanne is very knowledgeable!...and was very pleasant and patient when I needed help!*

*...Excellent knowledge from instructor, able to answer any questions with real life experience!*

*...Jeanne Aarhus is one of the best instructors I have ever had*

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### **Autodesk Products**

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- Architectural Desktop 2006 Update
- Architectural Desktop Fundamentals
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- Architectural Desktop for CAD Managers/Power Users
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... *Mechanical/Electrical/Piping*
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- AccuDraw & Smartline
- Cool Tools for MicroStation
- Cool Tools for AutoCAD
- What's NEW in MicroStation v8
- MicroStation "Interesting Occurrences"  
... *ie. (Dirty Tricks)*
- Using Styles in V8
- Migrating to V8
- V8 Tips for Users
- V8 Tips for CAD Managers
- What's NEW in MicroStation V8 2004
- Automate Your Standards  
... *MicroStation or AutoCAD*
- Manage Your Standards  
... *MicroStation or AutoCAD*

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## Learn to Use DWG Data Effectively

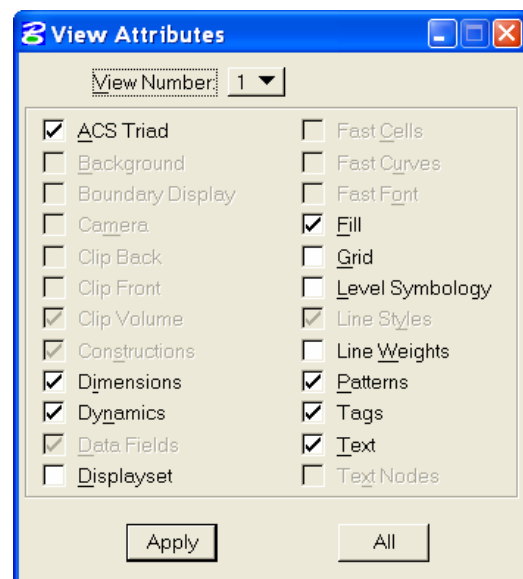
Are you still struggling with converting those AutoCAD files to MicroStation? If so, you need to find out about the “pitfalls” that still linger out there. Remember, not all file formats are alike. Find out how to control your entire DGN/DWG environment, what to look for, and what to avoid when moving CAD files between MicroStation and AutoCAD.

### *DWG or DGN.....What is the difference?*

Using DWG file will automatically place you in “DWG Workmode”. This workmode is the best solution when maintaining DWG integrity is critical. If you are only using the file as a reference file you don’t have to limit yourself to the DWG workmode restrictions. Using DWG workmode is the best way to maintain the data integrity of DWG files in their native format and is advisable if the file is moving back and forth between MicroStation and AutoCAD.

Some of the DWG Workmode restrictions are listed below:

- Auxiliary Coordinate Systems disabled
- Some Raster Image restrictions
- Tint and Transparency related tools are disabled
- Annotation Flag Tools are disabled
- Normal Cells are disabled and Shared Cells are required
- Color Table modifications disabled
- Design History disabled
- Dimension Driven Design disabled
- Linestyles 1-7 are disabled
- Limited to a single Design Model per file
- Self-reference files are disabled
- Reference File Clip Masks are disabled
- Saved Views restrictions apply
- BYLEVEL symbology is enforced
- View Groups are disabled





## DGN-DWG Terminology

MicroStation Term	Corresponding AutoCAD Term	Notes
AccuSnap	Osnap	Drafting tool for automatic snaps.
ACS	UCS	Coordinate system acronyms. ACS = Auxiliary Coordinate System; UCS = User Coordinate System.
ACTIVE LINESYLESCALE	LTSCALE	Configuration/system variable used to define the scale of line scale/linetype patterns.
Block	Rectangle	—
ByLevel setting	BYLAYER setting	Setting that controls whether color, line weight, and line style are set for each level (layer).
Callout bubble	Balloon	—
Cell libraries	—	No analogous AutoCAD term.
Cells: shared and normal	Blocks	In AutoCAD, all blocks behave like shared cells. There is no analogy to a normal cell.
Configuration variables	System variables	—
Design model	Model space	DWG workmode and AutoCAD allow only one model. MicroStation DGN workmode allows multiple models.
DGN file	DWG file	Native file format for each program.
Drop Element	Explode	Command used to demote element/object types to lower level. For example, cells/blocks can be demoted to geometry.
Element Attributes	Properties	Title for current symbology of elements/objects.
Elements	Objects	—
Fit View	Zoom extents	Command for zooming in on all elements currently in the drawing.
Global Freeze Viewport Freeze (DWG workmode only)	Freeze layers	In MicroStation, pay attention to the Mode setting in the Level Display dialog box.
Handles	Grips	Vertices on geometry that can be selected and manipulated.
Key-in	Command line	Place for entering commands/variables manually.



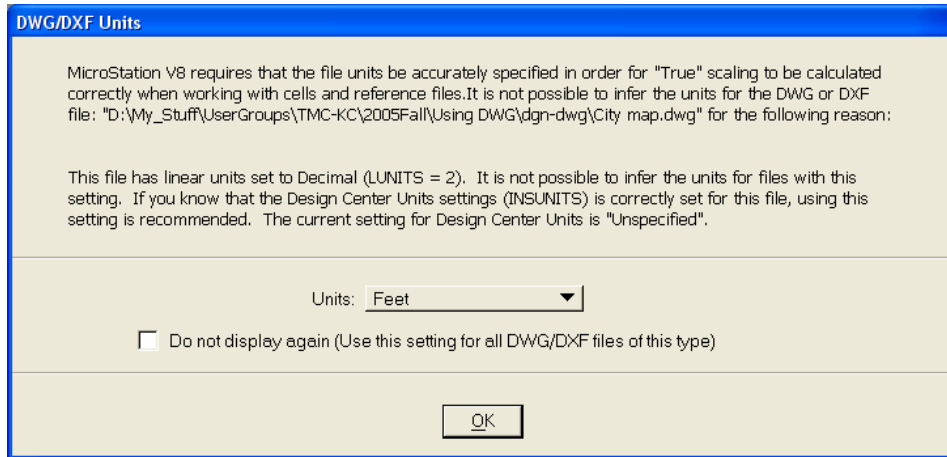
Levels	Layers	Both programs have a “Manager” style dialog box for controlling level/layer symbology. MicroStation also has the Level Display dialog box for quick on/off settings.
Line styles	Linetypes	MicroStation standard line codes are not available in DWG workmode.
Merge into Master	Bind XREF	Inserting an external reference into the current drawing.
Message Center	Text window	Place for viewing text messages of program feedback.
Nested references	Nested references	MicroStation lets you control levels of nesting; AutoCAD does not.
Parasolid	ACIS	Native 3D modeling kernel for each program.
Patterning	Hatching	AutoCAD hatching relies on predefined patterns.
Pen tables	Plot styles	AutoCAD CTB and STB files can be imported into MicroStation.
Print	Plot	—
References	References: attachments and overlays	AutoCAD references are also known as XREFs (for “eXternal REferences”).
Seed files	Template drawing files	These files are used as a starting point for newly-created files. They store standard settings.
Shape	Region	—
Sheet model	Drawing layout (paper space)	Unlimited sheet models (drawing layouts) allowed in both programs.
Smart Line	Polyline	Polylines can have variable width, as opposed to constant line weight.
Tags	Attributes	In AutoCAD, attributes must be part of a block.
View	Viewports	MicroStation views are more flexible in terms of display attributes and number.
View Attributes	(Drafting Settings)	In AutoCAD, there is no analogy to View Attributes. Some settings are found in the taskbar/drafting settings area.
Working units	Drawing units	MicroStation has a setting on the DWG Open dialog box for Design Center Units. This corresponds to AutoCAD's setting for “Drawing units for DesignCenter blocks”.



## Open DWG Issues

When you directly open a DWG file you will be asked to set the units of that DWG file. What units do you chose? Well, that depends on the content and in most cases on the “discipline” of the file.

For example: In the AutoCAD world the units of a typical AutoCAD user are not always equivalent to the units of the typical MicroStation user. That said, sometimes they are identical. I know, what a non-answer right? Check out the specific cases below:



<u>Discipline</u>	<u>MicroStation</u>	<u>AutoCAD</u>
<i>Outside of Bldg</i>		
Mapping	MU:SU:PU	Base Units
Civil	1:10:100	FT, IN
GIS	1 unit = 1 foot	1 unit = 1 foot
	1:10:1000	FT, TH
	1 unit = 1 foot	1 unit = 1 foot
	1 unit = 1 meter	1 unit = 1 meter
<i>Inside of Bldg</i>		
Arch	1:12:8000	FT, IN
Mech	<b>1 unit = 1 foot</b>	<b>1 unit = 1 inch</b>
Elec	1:10:1000	MM
	1 unit = 1 mm	1 unit = 1 mm

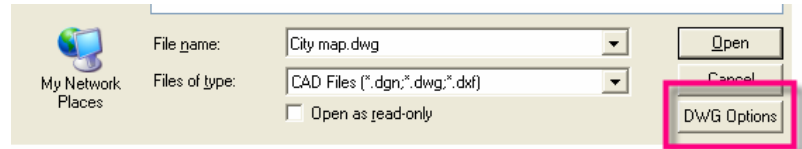
If you answer this question incorrectly you will convert the units incorrectly causing a mis-match of units in the file from this point forward.

I recommend that you do not check the “Do not display again (Use this setting for all DWG/DXF files of this type) unless you are confident that ALL DWG files you receive of EXACTLY of the SAME type.

### Option 1:

If you do check this and later regret it, you can get the dialog back again by closing the file and DWG OPTIONS settings prior to opening it again.

**STEP 1:** Using MicroStation access the DWG OPTIONS button



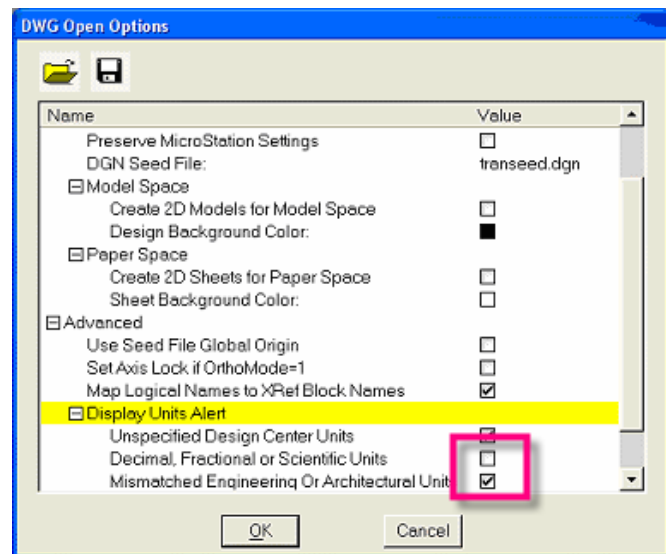
**STEP 2:** Expand the ADVANCED section

**STEP 3:** Expand the DISPLAY UNITS ALERT section and locate the units setting that is disabled.

Enable the alert dialog box by placing a check in the appropriate box.

**STEP 4:** Pick OK and re-open the DWG file.

You should see the units alert dialog again.



### Option 2:

Another method for correcting this error is to delete the resource file DWGSETTINGS.RSC and re-starting MicroStation. MicroStation will create a brand new resource file. Remember, this will also delete other DWG settings so you may have to do a little more work to do to recover all your preferred settings using this option. By default, this file is located in the folder listed below:

C:\Program Files\ustn85235\Home\prefs\dwgdata\dwgsettings.rsc

No, you cannot edit this file directly.



### Option 3: For CAD Managers

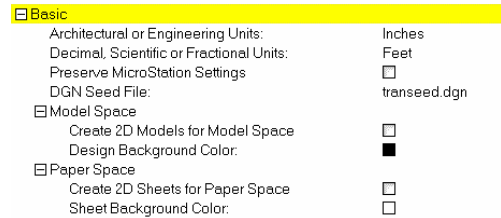
For you CAD Managers out there, you can set this file up “the right way” and place it on a server in read-only mode. Then just point your corporate workspace to the appropriate file using MS\_DWGDATA. This will prevent users from answering the question “the wrong way” by avoiding the dialog box completely.

Be sure to set the file to READ-ONLY or the users will be able to make whatever changes they want to the preferred settings.

## Setting DWG Options

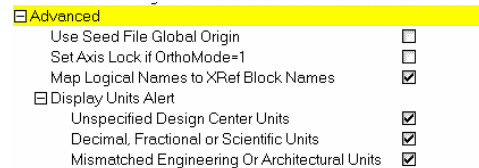
### Basic

Most of the basic settings are relating more to personal choice on behavior. The default settings are very logical.



### Advanced

Other than the settings previously discussed, the default settings are generally adequate.



### Line Weights

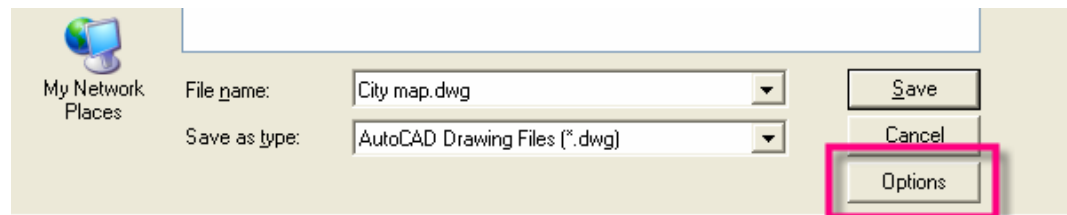
The line weight settings are actually exactly correct in the V8 release. The default settings match the AutoCAD environment exactly! I don't recommend changing any of these settings.

Line Weights	
DGN Weight	DWG Weight (Milli)
0	0.00
1	0.13
2	0.30
3	0.40
4	0.53
5	0.70
6	0.80
7	1.00
8	1.06
9	1.20
10	1.40

## Saving to DGN

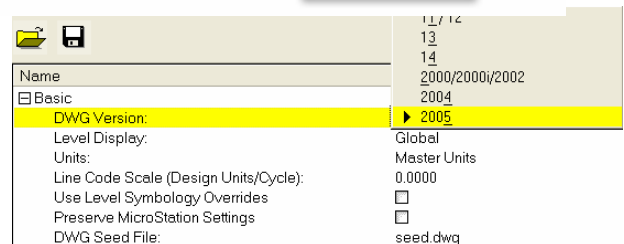
First, don't convert a DWG file to DGN if not necessary. In most cases leaving the file as a DWG format file and using it as a reference file is the easiest and best solution. If you have to convert it to DGN, here are some settings that I like to point out that can make a difference.

**STEP 1:** Select **File** → **Save As** → **File type DWG**



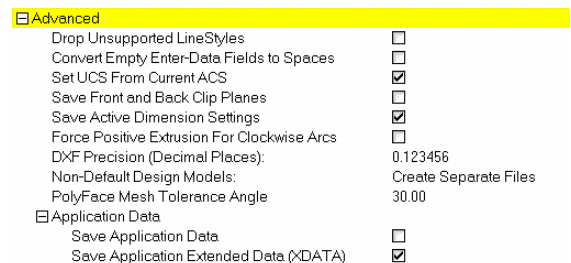
**STEP 2:** Pick the **OPTIONS** button and select the **GENERAL** TAB

**STEP 3:** Expand the **BASIC** section and verify that you are saving to the correct version of AutoCAD.



**STEP 4:** Expand the **ADVANCED** section and review the following settings. I am not recommending a modification, however, if a problem occurs you need to know these settings exist.

- Drop Unsupported LineStyles (default = NO)
- Convert Empty Enter-Data Fields to Spaces (default = NO)
- Non-Default Design Models (default = Create Separate Files)



**STEP 5:** Expand the **REFERENCE** section and review the following settings.

- Save Path (default = Relative to Master File)





**STEP 6:** Expand the **FONTS** section and review the following settings.

I recommend changing the following setting so that the text styles in MicroStation and AutoCAD are identical.

- Text Style Name Template  
(default = Style-%s)

Modify setting to read

**Text Style Name Template = %s**

Fonts	
Code Page for Dwg File	English - 1252
Text Style Name Template	Style-%s
Convert MicroStation fonts to AutoCAD fonts	<input checked="" type="checkbox"/>
SHX Output Directory:	C:\Autodesk\acad2002\Fonts

I recommend changing the following setting so that your AutoCAD font installation remains clean and uncluttered. You do not want to use a MicroStation font in an AutoCAD file. The key is to keep both applications in an as delivered state so that no problems creep in over time.

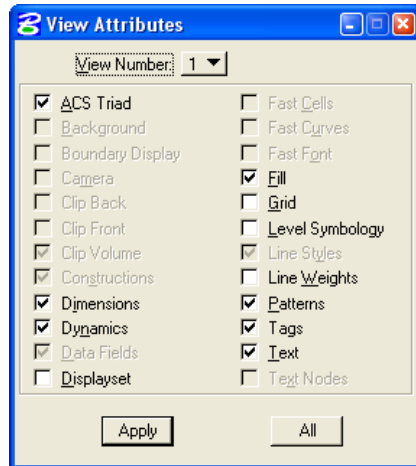
- Convert MicroStation fonts to AutoCAD fonts  
(default = ON)

Modify this setting to OFF

**Convert MicroStation fonts to AutoCAD fonts = OFF**

## Limitations of DWG Workmode

The main purpose of the DWG workmode is to ensure that no DWG-incompatible features can be added to the DWG file while editing it in MicroStation. This is done by restraining access to certain tools and features of MicroStation that remain unsupported in AutoCAD.



- Models are restricted to a single design model, multiple sheet models
- Self-References are disabled
- There are limitations with Raster File attachments
- Annotation Flags are disabled
- Design History is disabled
- Dimension Driven design is disabled
- Construction class is disabled
- Level symbology is disabled
- Tags are available for shared cells only

This is not a comprehensive list of limitations, but a list of common limitations I run into when working in DWG workmode.

### Can I TWEAK these settings?

The answer is yes.

However, you will be adding data to a DWG file that may not be equivalent in the AutoCAD application. That being said, there are some changes that you can get away with that rarely impact an AutoCAD user.

Read on....



## Using the WORKMODE.CFG File to YOUR Best Advantage

Take a look at the all settings in this file. There are several control items in this file that help you enforce standards and eliminate common errors. This file can be found in

C:\Program Files\Bentley\Program\MicroStation\config\system\workmode.cfg

Edit the file using NOTEPAD or any Text Editor of your choice.

## Disable TRUETYPE FONTS

Have you ever trouble enforcing the standards fonts? Some “wayward” users use whatever font they want to? Well, in the past you could somewhat control this via the font resource file right? In V8 the font door swung wide-open and Windows true type fonts are available even if they are not in your font resource file. Here is how you can eliminate the use of Windows true type fonts if needed. Below is a list of the Text Justification settings found in WORKMODE.CFG.

```
# CAPABILITY_TEXT_FONTS
# CAPABILITY_TEXT_FONTS_RSC
# CAPABILITY_TEXT_FONTS_SHX
# CAPABILITY_TEXT_FONTS_TRUETYPE
```

Font	T	Arial
Width	50	UPPERCASE
Height	1	WORKING
Slant Angle	@	Arial Unicode MS
Line Spacing	@	Batang
Inter Character Spacing	@	MS Mincho
Color Value	@	SimSun
Underline Offset		Arial
Overline Offset		Arial Black
Line Offset X		Arial Narrow
Line Offset Y		Arial Unicode MS
Justification		Bank Gothic Light BT
Node Justification		Bank Gothic Medium BT
Line Length		Batang
Vertical		Book Antiqua
Backwards		
Upside Down		

For Example:

```
_USTN_CAPABILITY < -CAPABILITY_TEXT_FONTS_TRUETYPE
```

Another Example:

You might also want to exclude the use of AutoCAD fonts:

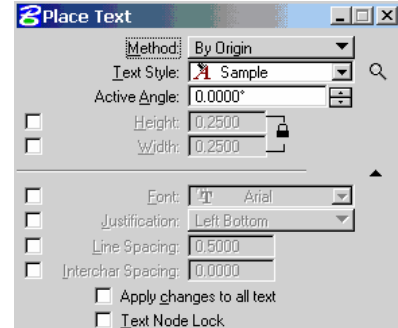
```
_USTN_CAPABILITY < -
CAPABILITY_TEXT_FONTS_SHX
```

Font	100ANSI_SYMB
Width	31 ISO_FONTRIGHT
Height	23 ITALICS
Slant Angle	43 LOW_RES_FILLED
Line Spacing	0 STANDARD
Inter Character Spacing	102 SYMB_FAST
Color Value	50 UPPERCASE
Underline Offset	1 WORKING
Overline Offset	ARCHITXT
Line Offset X	arial
Line Offset Y	arialbd
Justification	CHAR_FAST_FONT
Node Justification	complex
Line Length	dgnstyle
Vertical	ENGINEERING
Backwards	gbeitc
Upside Down	



### Enable Additional TEXT TOOL SETTINGS

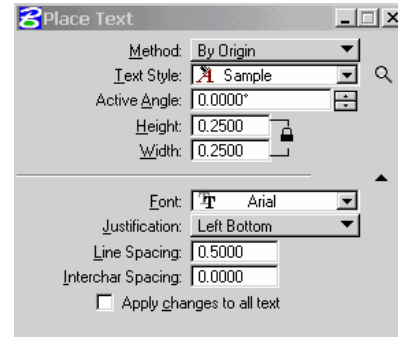
When using the new V8 text styles, you might have noticed that the text settings are always disabled by default. With this setting you can enable the height, width, font, toggles in place text tools settings when using a text style.



#### For Example:

Add the following line to the WORKMODE.CFG file.

```
_USTN_CAPABILITY = -CAPABILITY_PLACETEXT_DISPLAY_TOGGLES
```

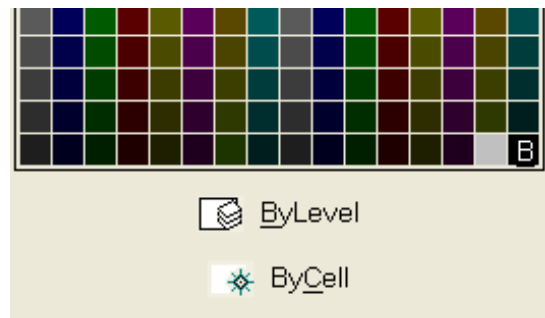


### Enable Additional LEVEL and CELL Capabilities

When using the new level capabilities in V8, you have more than likely heard of the BYLEVEL setting right? But you probably haven't heard of the BYCELL setting since it is turned off by default.

CAPABILITY\_BYCELL => allows the use of ByCell for elements

```
_USTN_CAPABILITY = + CAPABILITY_BYCELL
```



## Understanding BYLEVEL Symbology

One of the many new topics that is commonly misunderstood is the concept and benefits of BYLEVEL symbology. This concept has been in the AutoCAD world for many years and is a very efficient way to manage CAD Standard levels. It is not required however, but deserves strong consideration when moving from J to V8. This is especially important for those interacting with the DWG file format within the MicroStation V8 software.

### BYLEVEL Definition:

The term BYLEVEL or BYLAYER defines the “control” of element attributes such color, weight and linetype. The use of this setting allows the user to define the element attributes in the level manager eliminating the need for the user to set color, weight and linetype.

This setting can save tremendous learning curve time in regards to the CAD Standards for day to day users. It does create a significant need for additional levels in most organizations, but with the addition of “unlimited” levels in V8 should be an improvement to most CAD Standard installations.

### BYCELL Definition:

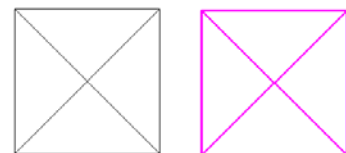
The term BYCELL or BYBLOCK defines the “control” of element attributes such color, weight and linetype according to the current attribute settings. The use of this setting allows the user to define the active or current element attributes and modify the settings of portions of the cell without the need for a different cell for attribute reasons.

### For example:

A cell definition calls for the cell to be on a single level, but I want to change the color of part of this cell. This would appear to break the rule of BYLEVEL defined previously. However, by using the BYCELL option, the rule of never hardcoding a color, weight, or linetype is upheld.

Level Settings:	Color	Weight	Linetype	<b>BYLEVEL</b>
	Magenta	1	0	

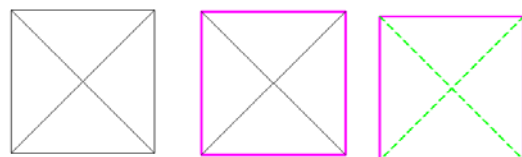
Original Cell: BYLEVEL only



Level Settings:	Color	Weight	Linetype
	Green	0	2

Modified Cell: BYLEVEL and BYCELL

### BYLEVEL and BYCELL





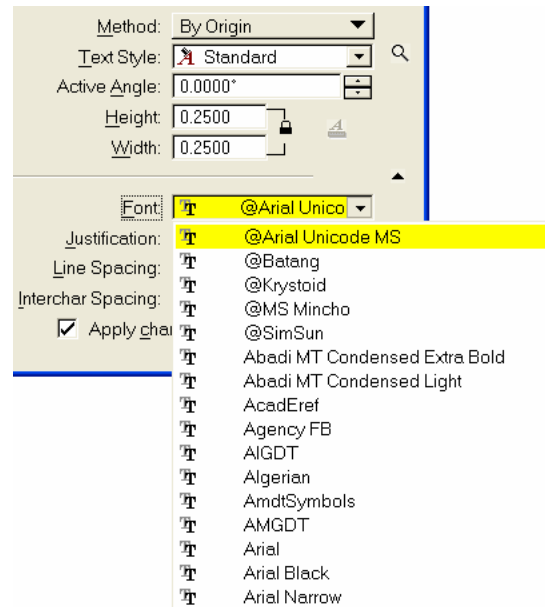
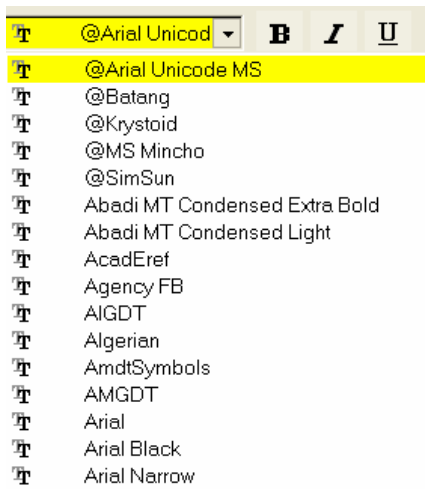
## DWG Specific Capabilities

Some of the workmode settings can be used to modify working in a DWG file only.

For example:

You can disable MicroStation font availability while working in DWG.

```
_USTN_CAPABILITY_DWG < -CAPABILITY_TEXT_FONTS_RSC
```





## DWG Configuration Variables

The following list can be found in the online help provided by Bentley Systems. MicroStation includes configuration variables to help open, edit, and reference AutoCAD DWG data. The following list includes some of the configuration variables that affect MicroStation's DWG operations.

Configuration Variable	Use
MS_ACADDIR	<p>Defines the directory containing AutoCAD. It is used to find the DWG support files, such as fonts.</p> <p>When you first load MicroStation V8, MicroStation reads the registry, determines whether AutoCAD or AutoCAD LT is installed on your computer, and if present, sets this configuration variable.</p>
MS_BLOCKLIST	<p>Defines the list of DWG and DXF files available for insertion as MicroStation cells.</p> <p>You can use this configuration variable when you turn on Display All Cells in Path in the Cell Library dialog box.</p>
MS_DWGAUTOSAVE	<p>Determines the frequency, in seconds, of the auto save timer for DWG and DXF files. For example, if set to 300 (the default), an auto-save occurs approximately 5 minutes after the first change to the design. The minimum value is 30 seconds.</p>
MS_DWGAUTOSAVE_NODIALOG	<p>If set, auto-save occurs automatically, without displaying the default auto-save dialog box.</p> <p>DWG and DXF format files take longer than DGN files to save. Therefore, by default MicroStation displays a dialog box that allows you to defer the auto-save operation. When the variable is set, the dialog box is not displayed.</p>
MS_DWG_BACKUP	<p>Defines the directory for the DWG backup (.bak) files. If not set, the backup files are placed in the same directory as the DWG file.</p>
MS_DWG_COMMANDPREFIX	<p>Defines a character or string of characters that can be used as a shortcut to the AutoCAD key-in commands. See Using a Command Prefix.</p>
MS_DWG_CREATE_SEPARATE_SHEETS	<p>When a DGN file containing sheet models is saved to DWG, the sheets are usually saved to separate layouts within the DWG file. If this variable is set, the sheets will instead be saved to separate DWG files with the file name created by appending the model name to the original file name.</p>



MS_DWGDATA	<p>Points to the directory where the following files are stored:</p> <ul style="list-style-type: none"><li>• "DwgSettings.rsc" — resource file containing all of the DWG settings</li><li>• Files (*.dws) containing saved settings for opening and saving DWG /DXF files.</li><li>• "DwgDisplayColors.tbl"(Optional) — A MicroStation color table that contains the fixed AutoCAD colors used for display to the screen.</li><li>• "DwgPlotColors.tbl" (Optional) — A MicroStation color table that contains the fixed AutoCAD colors used for plotting.</li></ul>
MS_DWG_DISCARD_INVALID	<p>If set, entities that are outside the DGN design plane are discarded and will not be written back to the DWG file on the next file save. If the variable is not set, MicroStation ignores these entities. Typically these entities are not valid and will cause the AutoCAD Zoom Extents tool to perform poorly.</p>
MS_DWGFONTPATH	<p>Defines the path to AutoCAD *.SHX fonts if AutoCAD is not installed on the system.</p> <p>By default, MicroStation first uses the value of the MS_ACADDIR configuration variable to find AutoCAD support files. If this is unavailable, MicroStation uses individual variables, such as MS_DWGFONTPATH.</p>
MS_DWGINSERTLAYER	<p>Specifies the layer to which normal (unshared) cells and reference attachments are assigned when saving the open DGN file in DWG format. If this configuration variable is not defined, layer 0 is used.</p>



<p>MS_DWG_LEADER_HOOKLINE</p>	<p>If set, an inline elbow is displayed on notes that did not have an elbow when first created.</p> <p>MicroStation allows a note to be placed without an inline elbow (a hook line in AutoCAD) when the inline toggle is unchecked, but AutoCAD does not. This type of note (for instance, a leader without a hook line) saved to DWG will retain correct graphical presentation, and will operate properly in AutoCAD. However, the audit tool will generate an error (annotation ID not null). The audit error can be resolved by setting this configuration variable to 1. However, the original graphical presentation will be lost (the hook line will appear).</p>
<p>MS_DWG_LWDEFAULT</p>	<p>Controls the width of the default line weight and is analogous to the AutoCAD registry variable LWDEFAULT. The default value is 0 for un-weighted default lines. Valid LWDEFAULT values are 0, 5, 9, 13, 15, 18, 20, 25, 30, 35, 40, 50, 53, 60, 70, 90, 100, 106, 120, 140, 158, 200, 211.</p>
<p>MS_DWGNODIRECTPROXIES</p>	<p>Controls how direct proxies (Autodesk Architectural Desktop multi-view block references) are displayed. If set to 1, only the proxy entity's graphics or bounding box are displayed. If set to 0, these proxy entities are displayed as 2D or 3D representations, and they can be modified.</p>
<p>MS_DWG_OBJECT_APP</p>	<p>Lists Object Enabler MDL applications to be loaded. It is currently set to use applications that enable Architectural Desktop and AutoPlant objects (AdtDirectApp and RebisDirectapp). Users should not need to change this setting.</p>
<p>MS_DWGOMITUNIQUEEXTENSION</p>	<p>If more than one file with the same name is present in the same directory, appends the extension to the output filename when saving the file.</p> <p>For example, if the directory contains both sample.s01 and sample.s02, then the extension is included in the output filenames (sample_s01.dgn and sample_s02.dgn). If the directory does not include any files with duplicate names, then the extensions are included in the output names. For example, if the directory contains only file sample.s02, this file is saved to sample.dwg.</p>



MS_DWGPATFILE	Defines the full path file name that contains AutoCAD pattern definitions.
MS_DWG_PGPFILE	Points to a PGP file that contains shortcuts, or aliases, for AutoCAD commands. See Using a PGP File.
MS_DWG_PRE2004_COLOR_TABLE	Sets the color table for DWG files in MicroStation. In version 2004, AutoCAD began displaying indexed colors with a slightly different (generally lighter) colors. MicroStation also uses these new colors unless this variable is set.
MS_DWG_PROXYSHOW	Controls the display of proxy objects within a DWG drawing. It is analogous to the AutoCAD registry setting PROXYSHOW. Settings are: 0 – no graphics, 1 - complete graphics and 2 – bounding box display only. The default setting is 1.
MS_DWGREF_ALLOWMASTERCOLORS	<p>Defines how MicroStation uses color tables for DWG or DXF files attached as references.</p> <ul style="list-style-type: none"><li>• If MS_DWGREF_ALLOWMASTERCOLORS is set to 1, the color tables for DWG or DXF references are handled as they are for DGN references: they are controlled by the Use Color Table setting (Workspace &gt; Preferences &gt; Reference category). When Use Color Table is on, the elements in each reference are displayed using the reference's color table. When Use Color Table is off, the elements in each reference are displayed using the active design file's color table.</li><li>• If MS_DWGREF_ALLOWMASTERCOLORS is not set to any value, DWG or DXF references are always displayed using the active design file's color table. In this case, the Use Color Table setting has no effect.</li></ul>
MS_DWGSEED	Defines the DWG seed file used when opening DWG files.
MS_DWGSHEETMODELSEED	Identifies the file containing the seed model for new sheet models in DWG files.
MS_DWGSHEETMODELSEEDNAME	Identifies the seed model for new sheet models in DWG files.



MS_DWGSYSTEMDATA	<p>Identifies the directory containing the DWG settings file DWG settings.rsc. Overrides the directory specified by MS_DWGDATA.</p> <p>The display and plotting color tables (DwgDisplayColor.tbl and DWG PlotColors.tbl) can also be controlled by placing them in this directory.</p>
MS_DWG_VPORT_LAYER_FROM_CLIP	<p>Defines the viewport level in DWG files.</p> <p>Viewport entities are represented as reference attachments in MicroStation – the viewport level is extracted from the reference attachment. If no level is set for the reference attachment then by default the viewport is assigned to layer 0 . However, if this variable is set and a clip element is present, then the viewport layer is extracted from the clip element.</p>
MS_DWG_VPORT_MAP_LOCATE_OFF_TO_LOCKED	<p>If set, the Display locked status of a viewport entity is mapped to the Locate setting of the reference attachments that represent this viewport. In this case, a viewport with Display locked off will have Locate turned off – and changing the Locate status of the reference attachment will change the Display Locked status of the viewport.</p>
MS_NO_DWG_BACKUP	<p>If set, backup files (.bak) are not created when you edit a DWG or DXF file.</p>
MS_WORKMODE	<p>Defines the workmode as either DGN or DWG .</p>



That's probably more than I have time for....but hopefully not more that you wanted to know!

*Thank you for your time*  
*Hope you enjoyed the session!*

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