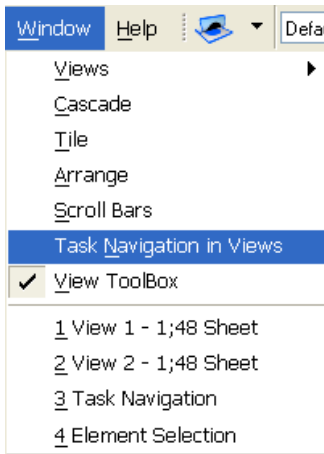

MicroStation V8 XM Edition

Delta Feature List

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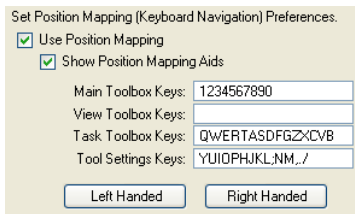
Window > **Task Navigation in Views** off by default so only one task is active at a time and if enabled, will dock the task navigation tool box to each window enabling different tasks to be started in different views.



A managed focus model is implemented with a top level called home with additional input focus status shown in the status bar. <Esc> sends focus home and positional keyboard navigation can be used.



Positional keyboard navigation maps keys to interface items and is enabled by Workspace > Preferences... > Position Mapping > **Use Position Mapping**.

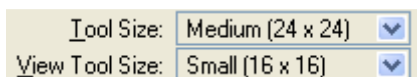


In the home state:

- <Enter> opens the command browser at the cursor
- <Spacebar> moves focus to AccuDraw
- <Tab> cycles through overlapping elements
- <Shift+position map> starts the tool shown and the menu will not be displayed

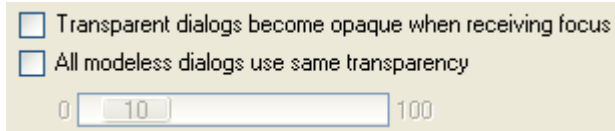
Workspace > Preferences... Look and Feel > **Tool Size** controls the size of icons in undocked tool boxes.

Workspace > Preferences... Look and Feel > **View Tool Size** controls the size of icons in tool boxes docked to open windows.

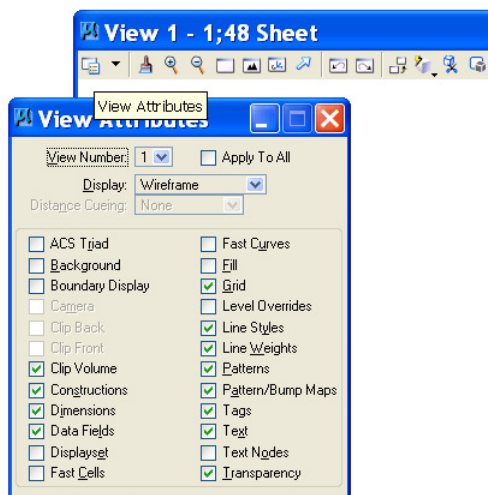


Workspace > Preferences... > Look and Feel > **Transparent dialogs become opaque when receiving focus** off by default.

Workspace > Preferences... > Look and Feel > **All modeless dialogs use same transparency** off by default.



Workspace > Preferences... > View Options > **Show View ToolBox** contains a drop-down version of View Attributes.



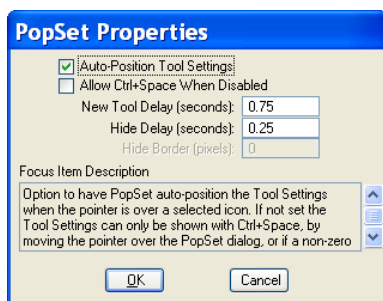
Right-click in view for context sensitive menus:

<Shift+data> pan scroll

<Shift+reset> context sensitive pop up for quickset and view control

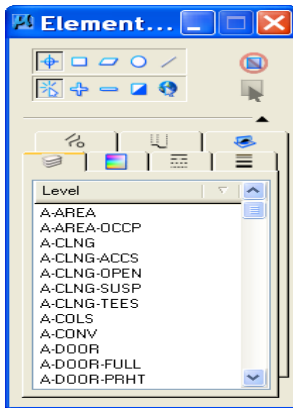
PopSet:

1. Properties > **Hide Border (pixels)** defines a margin around Tool Settings so the dialog will disappear when the cursor is within the margin.



Element Selection Incorporates Power Selector Functionality:

1. Should be started in **method: individual** and **mode: new** so that newly selected elements will deselect previously selected elements.



2. Provides support for element templates.
3. <Right-click> on an element with element selection active provides contextual element manipulation shortcut.

Drag-and-Drop Operations with Selected Elements:

1. <Ctrl+drag> will copy an element instead of move.
2. To change the active attributes to match the attributes of an existing element, drag the element to the Attributes tool box and drop it on the icon for the setting, or drop it on the **Symbology Preview** box to change all the settings.



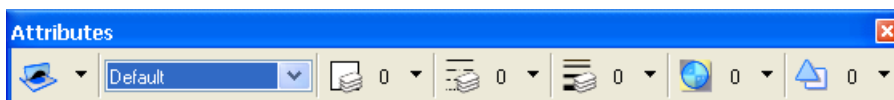
Element Manipulation Using Handles:

1. Use <Ctrl> to select multiple handles individually or with a window to lock specified handles.
2. Use handles to modify the clip boundary of a reference file.

Element Information:

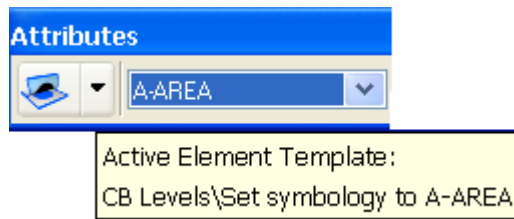
1. Dockable and stackable by dragging the title bar onto the title bar of other dockable dialogs like Level Display for tabular display.
2. Properties update as elements are selected and deselected.
3. A group of elements can be placed into a selection set and changed from non-snappable to snappable.
4. Can be customized with right-click.

Tools > **Attributes** has three additional icons, Active Element Template, Active Element Transparency, and Active Element Priority.



Element Templates:

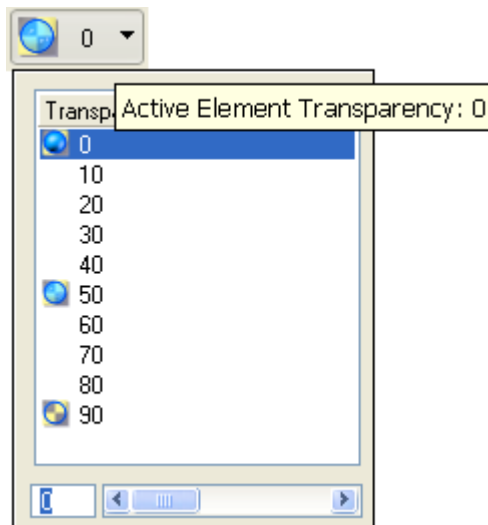
1. Define element properties that can be used to set the active settings for element placement or be applied to existing elements.



2. Elements can contain a reference to a template. Placing an element with a reference to a template adds the template to the file if it is not already in the file.
3. Combine a standard with a tool and stored in a DGMLIB.
4. Local templates will resymbolize automatically when the template is modified.

Element Transparency:

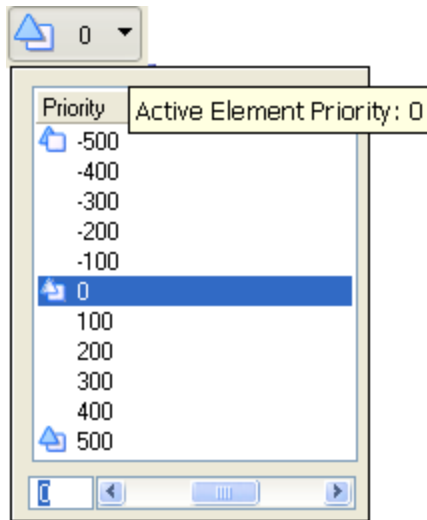
1. Applied to individual elements, references, and levels and controlled from View Attributes > **Transparency**.



2. Effective transparency is $(1 - (\text{element transparency}) * (\text{level transparency})) * (\text{reference transparency})$. Element Info does not report effective transparency.

Element Priority:

1. Corresponds to depth in 3D and only available in 2D.



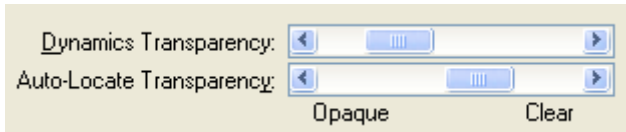
2. References with a priority of zero will appear above elements in the active file. References with equal priority will resort to level priority for sorting of graphics.
3. Levels with a priority higher than another level will appear above the element with the lower level priority. Levels with the same priority will resort to element priority.
4. Elements with the same reference and level priority, but higher element priority appear above elements with lower element priority.
5. Effective priority is $(\text{ref priority} * 1000000) + (\text{level priority} * 1000) + (\text{element priority} * 1)$.
6. In general, negative values are used to make references, levels, and elements appear under all other elements.

Display system is faster and smoother based on Microsoft DirectX:

1. Display priority specifies the front-to-back order for 2D elements and can be assigned to elements, levels, and references.
2. Transparency can be set for elements, levels, and references.
3. Levels and references can be sorted based on display priority, transparency, or any other column.
4. Immediate healing of elements when graphics are deleted.

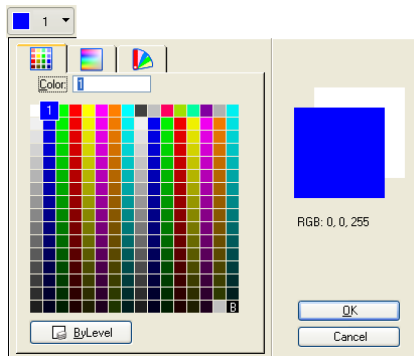
Workspace > Preferences... > View Options > **Dynamics Transparency** sets amount of transparency used to display elements in dynamics.

Workspace > Preferences... > View Options > **Auto-Locate Transparency** sets the amount of transparency in the highlight color used to flash elements for auto-locate. Opaque shows the highlight color. Clear shows less of the highlight color and more of the element color.

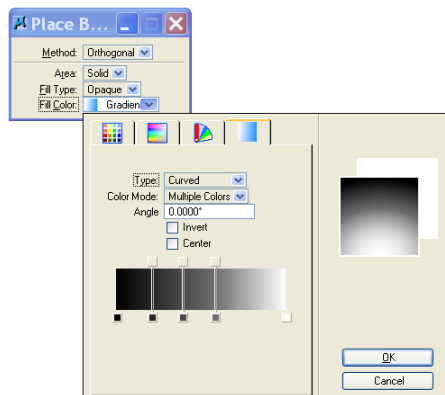


Color:

1. Active color can be specified by a standard 256 color table, true colors like RGB and HSV, and color books. A color book is a container for a collection of named colors.



2. Includes availability of PANTONE, a standard for publishing, RAL colors, and gradient fills.
3. Gradient fill is available when fill type is opaque or outlined and takes multiple colors and interpolates them across the surface of a filled element. Gradient fills can be applied directly to elements or element templates. Handles are used to adjust the gradient and are added by changing Color Mode to Multiple colors. Handles are deleted by selected the top portion and striking the delete key.

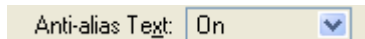


Fence:

1. Multiple named fences can now be created and recalled.
2. Array added as a Fence Manipulation and works identical to Construct Array by showing only one instance in dynamics and the rest as dots.
3. AccuSnap disabled by default for fence creation but can be enabled from AccuSnap > Settings > General > **Enable for Fence Create**.

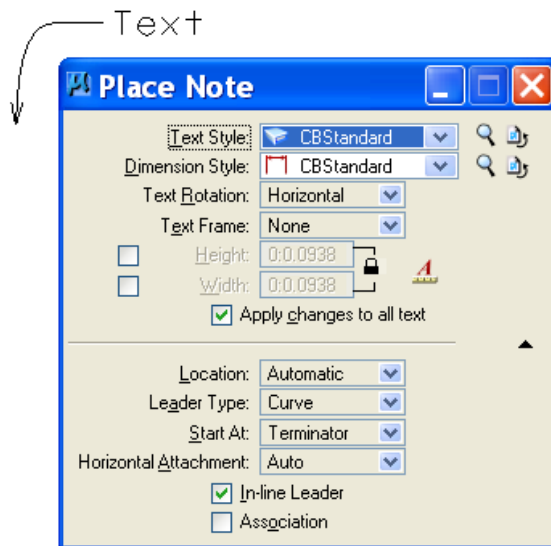
Text:

1. Right-click in the Text Editor window contains items for cut <Ctrl+X>, copy <Ctrl+C>, and paste <Ctrl+V>.
2. Workspace > Preferences... > View Options > **Anti-alias Text** controls the display of TrueType fonts at various zoom levels.

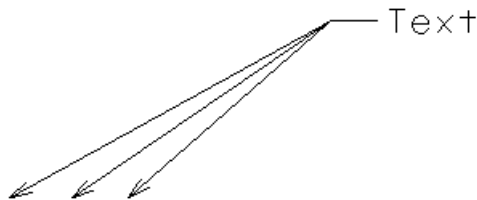


Place Note:

1. Settings are now included with Dimension Styles.
2. Leader Type: **Curve** to distinguish notes from other annotations.

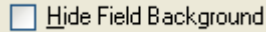


3. The same graphic group number is now assigned to all elements in the currently placed note so only one data point is needed to delete or move.
4. Use <Ctrl> for multiple leaders from a single leader location.



Fields:

1. Can be inserted as text is placed or edited with a right-click in the **Word Processor**. Field content can be derived from element attributes, properties of the active model, or properties of the open file. Fields based on element attributes are automatically updated when the element is changed. Fields based on model or file properties are updated when the file is opened.
2. Workspace > Preferences... > Text > **Hide Field Background**.



Levels:

1. All new levels inherit properties of the default level.
2. Cells created on the default level with by ByLevel attributes can then be placed relative to the active level.
3. Can now drag Level Manager dialog column headings into a different order.
4. Right-click the level map in Level Display for level on/off options and access to Level Manager.

Line Styles:

1. Custom line styles can be stored in DGNLIBS by importing resource files from the Line Style Editor.
2. Settings > Design File... Element Attributes > **Global Line Style Scale** applies to references also.

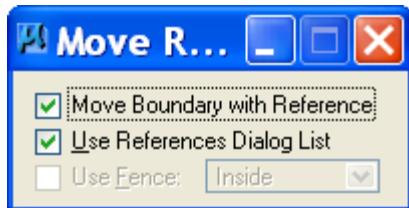
Models:

1. The active model is displayed in each view window's title bar.
2. Right-click on a model in the Models dialog to open, copy, rename, and get properties.
3. Associate border attachment with sheet model so any changes to the annotation scale will be reflected in the border attachment with key-in: **sheet set borderattachment <bordername>**.
4. Key-in: **newsession <filename>, <modelname>** to open a specified file in a new session.
5. History navigation from View Groups > Previous Model, Next Model, and All Models Visited are for the current session only.



Reference:

1. For a reference move, Tool Settings > **Move Boundary with Reference** on will move clip boundaries and masks with the reference.
2. Using an element instead of a fence for clipping operations has several advantages. If the clipping element is in the active file, it can be modified or a vertex can be added/deleted to change the clip area. If in another reference, the clipped reference may be panned behind the clip element.



3. From element selection pop-up, right-click on an element in a reference allows reference exchange and view settings are preserved if the file is attached coincidentally.

More right-click support:

1. Right-click an attachment in the References dialog for open, attach, and detach options. Show/Hide columns of information by right-clicking the column for heading. The logical column is either the master or the reference logical name.
2. Reference dialog now includes reference tools and a drop-down list. All icons have equivalent right-click options when the reference is highlighted.
3. Any nested reference (i.e. a reference that is not attached directly to the active model) can be promoted to a top-level reference by right-clicking the nested reference in the References dialog box and selecting "Make Direct Attachment" from the pop-up menu.

Attachment Settings:

1. **Manipulate as Element** allows references to be manipulated as elements with move, rotate, copy commands.
2. Attachment settings for orientation include named fences.

Raster Manager:

1. Raster attachments are automatically assigned to the active level.

Generating PDF:

1. File > Print > Bentley driver > ..\workspace\system\plotdrv**pdf.plt** to create PDF output.
2. Edit > Insert Object > Create from File and browse to PDF to embed PDF.

Standards Checker:

1. Can generate a report listing differences and interactively walk through the file with the option to ignore, fix, or skip non-compliant elements.
2. Settings can be defined for levels, text styles, dimension styles, element templates, and line styles.
3. Can be run on individual files or as a batch process.

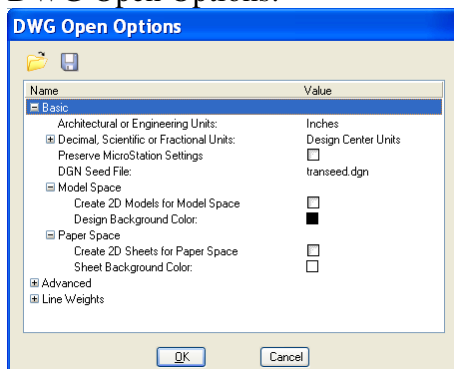
Project Explorer:

1. File > Project Explorer supersedes Engineering Links and shows link sets that are used to organize project data.
2. Link sets are stored in the DGN file and contain links to DGN files, DWG files, design and sheet models, references, saved views, and documentation in other formats like PDF, Word, and Excel.

Working with DWG:

1. Direct read, write, and reference of DWG is extended to AutoCAD 2006.
2. All Open and Save As... options are stored in **DwgSettings.rsc**.

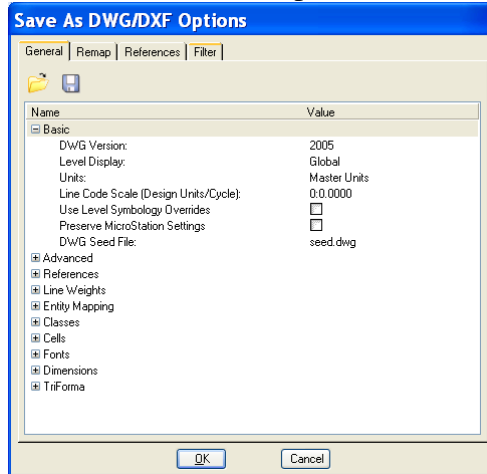
DWG Open Options:



1. Basic > **Architectural or Engineering Units**: LUNITS are the closest concept to working units. This setting specifies how MicroStation handles different units or either defers the units to a seed file or Design Center Units.
2. Basic > Decimal, Scientific or Fractional Units: **Design Center Units** will use the value of INSUNITS.
3. Basic > Decimal, Scientific or Fractional Units > **Unspecified Design Center Units** value used if INSUNITS = 0.
4. Basic > **Preserve MicroStation Settings** on will save active angle and active scale to an XRECORD if the file may be opened again in MicroStation.
5. Basic > **DGN Seed File** will use MS_TRANSEED, the default translation seed. MicroStation converts DWG to DGN using this seed file in the background and then saves it back to DWG when it is closed.
6. Basic > Model Space > **Create 2D Models for Model Space** on will open DWG as 2D.
7. Basic > Model Space > **Design Background Color** sets the background color for model space.

8. Basic > Paper Space > **Create 2D Sheets for Paper Space** creates flat sheets for paper space.
9. Basic > Paper Space > **Sheet Background Color** sets the background color for sheet models created from paper space layouts.
10. Advanced > **Use Seed File Global Origin** on will use the GO location from the translation seed file. Leave this off unless you have problems with the location of coordinates.
11. Advanced > **Set Axis Lock if Orthomode = 1** on will enable Axis lock.
12. Advanced > **Map Logical Names to XRef Block Names** on will map the reference name of the XRef to the logical name in MicroStation.
13. Advanced > **Discard Invalid Entries** on only affects a file when saved and checks for abnormally large elements and deletes them. Rarely needed and a better option is to Audit and Recover...
14. Advanced > **Hyperlink as Engineering Link** should be on only if hyperlinks need to be edited.
15. Advanced > **Graphic Group Block Attributes** on will place attributes in a graphic group and turn on Graphic Group lock so tags can be moved as one set.
16. Advanced > Proxy Objects Display Mode > **1-Show Proxy Image** default will display graphic images for all proxy objects.
17. Advanced > **Default Line Weight** sets line weight to a physical size or reads LWDEFAULT if set to From AutoCAD Registry.
18. Advanced > **Proxy Display View** sets the orientation of the proxy graphic.
19. Advanced > **Display Units Alert** allows proper units to be chosen when MicroStation cannot infer the units. If Do not display again is unchecked and causes problems, it can be retrieved by closing the file and re-enabling the option before opening the file again.
20. Advanced > Default Line Weight > **From AutoCAD Registry** is recommended.
21. Advanced > Proxy Display View > **Isometric** is recommended to maintain a 3D view in a 3D file.
22. Advanced > **Display Units Alert** all on is recommended.
23. Advanced > **Rendering** all on for MicroStation to read DWG rendering data.
24. **Line Weights** apply to both open and save and the recommendation is to match DWG weights in the plot driver.plt. All settings match the AutoCAD environment exactly. No changes recommended.

Save As DWG/DXF Options:



1. General > Basic > **DWG Version** should be the most current version.
2. General > Basic > **Level Display** specifies which view's level display will be exported. MicroStation will convert all levels regardless of whether they are on or off.
3. General > Basic > **Units:Master** is recommended and are the units written to the resulting file.
4. General > Basic > **Line Code Scale (Design Units/Cycle):0:0.000** cannot be applied globally because LTSCALE depends on the final scale of an individual drawing. Recommended value is zero and use keyin "active linestylescale <value>" which is equivalent to \LTSCALE to set final scale.
5. General > Basic > **Use Level Symbology Overrides** on will use Level Manager overrides instead of ByLevel attributes. If no overrides exist, ByLevel settings will be used even if this is on.
6. General > Basic > **Preserve MicroStation Settings** is shared by both Open and Save As and allows certain file settings to be retained when DWG does not directly support them.
7. General > Basic > **DWG Seed File:seed.dwg** uses a translation seed file to define certain settings that do not exist in the DGN i.e. linestyle scale will set LTSCALE and a sub unit value of mm will set LUNITS = 2. The translation seed should be a standard DWG/DWT file. Settings from the DGN, translation seed, and DwgSettings.rsc are all used to create the final DWG.
8. General > Advanced > **Drop Unsupported Line Styles** on will drop line style and display correctly in DWG.
9. General > Advanced > **Display True Color From DGN Color Indices** on will map colors exactly to the DWG RGB value.
10. General > Advanced > **Convert Empty Enter-Data Fields to Spaces** recommended off and converts empty EDFs to spaces " " or underscores "_".
11. General > Advanced > **Set UCS From Current ACS** on by default will rotate the coordinate system in DWG to match MicroStation's ACS. Off will still convert the ACS but the coordinate system is left as World.

12. General > Advanced > **Save Front and Back Clip Planes** on saves clipping planes for a 3D file. Recommendation is to export only desired portion of file rather than save clipping planes or export a clip volume.
13. General > Advanced > **Force Positive Extrusion of Clockwise Arcs** is a redundant setting. Recommendation is off.
14. General > Advanced > **DXF Precision (Decimal Places): 0.12345** leave as default and avoid DXF.
15. General > Advanced > **Non-Default Design Models: Create Separate Files** default, safest and most flexible creates a new DWG for every model. **Ignore if Not Merged** will leave out all non-default models.
16. General > Advanced > **Create Separate Files for Sheets** off by default. If on will create separate DWGs for each sheet.
17. General > Advanced > **Polyface Mesh Tolerance Angle: 30.00** controls facet angle of surfaces in a mesh.
18. General > Advanced > **Force Zero Z-Coordinate** off by default. If on will flatten 3D DGN info to 2D at AZ = 0. Recommendation is to leave this off except when a 3D file contains only 2D info.
19. General > Advanced > **Use Level Display for Viewport Freeze Only** recommended off if using a view for export.
20. General > Advanced > Application Data > **Save Application Data** stores non-graphic info if the file will be brought back into DGN.
21. General > Advanced > **Rendering** saves materials and light sources to DWG.
22. General > References > **Create Overlays for References (No Live Nesting)** off by default. On will save the file with no nesting (overlays) and appropriate when saving V7 files to DWG or for a file with live nesting disabled for all attachments.
23. General > References > **Save Path: When Saving to Same Directory** retains the complete path only when the output directory is the same as the source DGN.
24. General > References > **Map Logical Names to XRef Block Names** on by default and will map XRef names to MicroStation logicals. Off will leave the logical blank.
25. General > References > **Set Viewport Layer from Clip Element** off by default, but when enabled the layer for a viewport will be set to match the layer of the clip element.
26. General > References > **Set Viewport Locked From Locate Off** off by default, but when enabled will lock a viewport by turning off locate.
27. General > **Line Weights** should be specified in the plot driver.
28. General > Entity Mapping > **Planar Line Strings: Polyline** default specifies the end result of a flat 2D line.
29. General > Entity Mapping > **Non-Planar Line Strings: 3D Polyline** default specifies the end result of a flat 3D line. Recommendation is to leave defaults.
30. General > Entity Mapping > **Flat Solids and Surfaces: Polyface Mesh.** Recommendation is to leave default.
31. General > Entity Mapping > **Curved Solids and Surfaces: ACIS Entity (Body or 3D Solid).** Recommendation is to leave default.
32. General > Entity Mapping > **Curves and B-Spline Curves: Spline Entity.** Recommendation is to leave default.

33. General > Entity Mapping > **Filled Elements, 2D Unfilled Elements, 3D Unfilled Elements**. Recommendation is to leave default.
34. General > Classes > **Construction Class Elements: Save to “Construction” Layer** creates layers in the DWG with the same name as the original DGN but with “Construction” added to the end.
35. General > Classes > **Pattern Class Elements: Save** default to avoid large amounts of duplicated layers.
36. General > Classes > **Linear Patterned Class Elements: Omit**. Recommendation is to leave default.
37. General > Classes > **Create Single Block for Duplicated Cells** on by default will avoid many copies of the same cell for different scales.
38. General > Classes > **Create Scaled Blocks** on by default. Recommendation is to leave default.
39. General > Classes > **Insert Layer for Normal Cells** to specify a layer for cells on the default level to be converted to.
40. General > Classes > Cells > **Create Block Entities with “ByBlock” Properties** allows cells to be converted with ByBlock properties.
41. General > Fonts > **Code Page for DWG File: English-1252** sets the DWG file to a different character set for special symbols. Recommendation is to leave default.
42. General > Fonts > **Text Style Name Template: Style-%s** default prefixes “Style-“ to the text style.
43. General > Fonts > **Convert MicroStation Fonts to AutoCAD Fonts** on by default converts fonts in font.rsc to SHX in the SHX Output directory.
44. General > Dimensions > **Save Active Dimension Settings** on by default converts active dimension settings to AutoCAD dimension style overrides.
45. General > Fonts > **Always Create an In-Line Leader for Notes** off by default. On will force notes to have a leader.