CDOT Sheet File Creation – Multiple

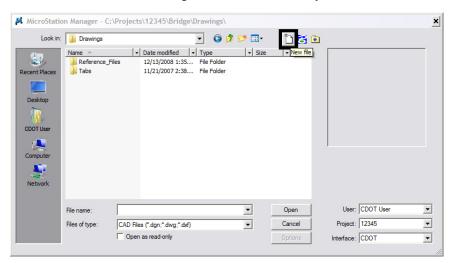
This document guides you through creating a sheet file with multiple scales. First, we will be going over placing the sheet border around coordinate based model graphics. Then, we will go over attaching and scaling additional model files. Lastly, placing text and dimensions in the sheet file will be covered. For setting up plan sheets see the CDOT Sheet File Creation document.

Note: This example uses details from the Bridge discipline. This procedure applies to any sheet file with multiple scales. If you are in another specialty, please substitute with your specialty group's information.

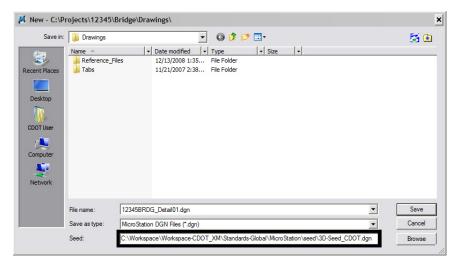
Setting up the Sheet File with Multiple Scales:

Beginning a New Drawing File

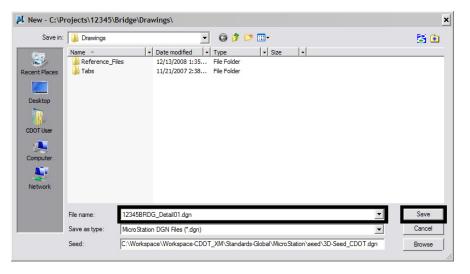
1. From the MicroStation Manager, create a new file by <D> on the New File icon.



 Verify that the correct *Seed File* is selected. If it is not, <D> Browse and Navigate to C:\Workspace\Workspace-CDOT_XM\Standards-Global\MicroStation\Seed\.



3. Enter a drawing file name that corresponds to the next consecutive sheet number. **<D> Save** to create the new file.



4. The file you created will be highlighted. **<D> Open** to open the file.

Look in:	Drawings		•	G 🦻	• 🖭 🥙	🗋 🚰 🖹		3D - V8 DGN	
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Desktop Desktop CDOT User	12345BRDG_Detail0:	.ugn	2/21/2009 1.72 PM	Bentley Mi		62 KB			
Network	File name: 1234	5BRD(G_Detail01.dgn		•	Open	User:	CDOT User	-

Attaching Model Files to the Sheet File

1. Select the *Reference* icon from the *Primary Tools* toolbar.



2. From the Reference Manager tool bar select Tools > Attach

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3. The first model file you reference should be the one containing coordinate based information. Search for that model file and verify the Attachment Method is set to Interactive. <D> OK. If you are creating a sheet file containing details only, with no coordinate based information, bring in the detail with the largest scale factor first and scale the border to this detail. Once the detail with the largest scale factor has been referenced, attach the remaining details into the sheet file following the procedure outlined below.

📕 Attach Ref	erence - C:\Pro	ojects\12345\Bridg	e\Drawings\	Reference_File	s\		×
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	File name:	12345BRDG_Model	.dgn	-	Open		
	Files of type:	CAD Files (*.dgn;*.dv	vg;*.dxf)	-	Cancel		
	•	Save Relative Pa	th		Options		
							4

In the *Reference Attachment Settings* dialog box, key in a logical name and a description. For instance, the logical name might be Plan View for the BridgeModel drawing. The other settings should not have to be edited. Coincident-World is selected by default. Verify the Scale is to set to 1:1 and True Scale is checked ON. <D> OK.

📕 Reference Attac	hment Settings for 12345DES_Model.dgn					
File Name: 1234	5DES_Model.dgn					
Full Path:\Drawings\Reference_Files\12345DES_Model.dgn						
Model: CDOT	Default					
Logical Name: Plan	View					
Description: Globa	al Origin aligned with Master File					
Orientation:						
View	Description					
Coincident	Aligned with Master File					
Coincident - World	Global Origin aligned with Master File					
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Named Fences (non	e)					
1	True Scale					
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Global LineStyle Scale:	Master 🔻					
	OK Cancel					

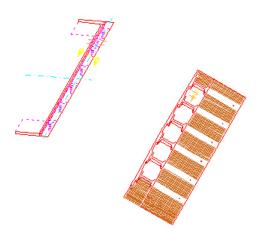
Note: When *Coincident World* under *Orientation* is selected and a *Scale* factor of 1:1 is entered, plan graphics are being referenced to the sheet file with the true coordinate information. All other attachment methods will not maintain the true coordinate values.

5. The file will be shown in the **References** dialog box.

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Tools Settings				
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- **Note:** Whenever you make graphical model file changes, your sheet file will automatically update.
- 6. Fit View using the icon so the graphics for the first model file are displayed.





7. Select File > Save Settings from the Primary toolbar.

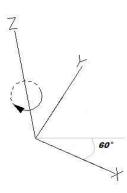
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File	<u>E</u> dit	Element	<u>S</u> ettings	<u>T</u> ools	<u>U</u> tilities	Wor <u>k</u> space	<u>W</u> indow	<u>H</u> elp	CDOT H
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Rotating the View

- 1. After the references are attached, you may need to rotate the view depending on the layout of the sheet.
 - **Note:** You are not rotating the reference file(s). You are only rotating the view. The coordinate system will not change.
- 2. One option to rotate the view is to Key-in rv = x, y, z and press <Enter> or <Tab>.



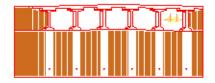
Note: x = 0, y = 0, and z = Rotation Angle. You are rotating the view about the z-axis. This is the axis perpendicular to the view. Otherwise, if you are working in a 2D file the key-in would be *rv = value of rotation*.



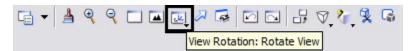
3. You will be prompted to select the view you would like to rotate in. <D> in the active view window.

Rotate View (Relative) > Select view

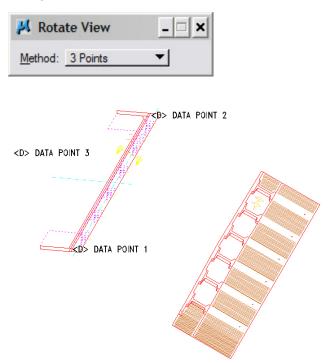
The view will be rotated.



4. Or you can rotate graphics using **3 Points**. Select Rotate View.



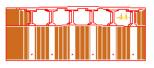
Change the *Method* to 3 Points.



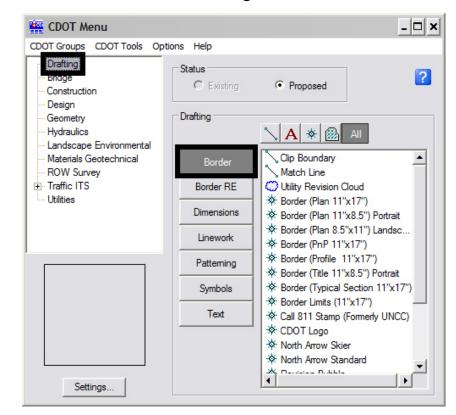
Note: Make sure you are picking a data point near the 3D element. Do not snap to 3D elements because you will be rotating along the z axis instead of just the x and y plane. Turn Accusnap off or you can hold down the <Ctrl> and <Enter> keys down at the same time to temporarily disable Accusnap while you are locating the data points.

The view will be rotated.





Attaching the Border and Resident Engineer Cell



1. From the CDOT Menu, select Drafting > Borders.

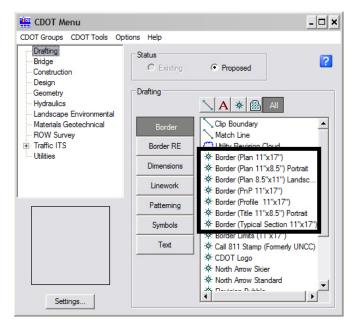
<D> Settings if the desired sheet scale is something other than 1" = 100'. In the Active Settings dialog box you can change the Active Scale and the Active Angle. In this example, the standard 11x17 sheet border is too large for the plot area when the Active Scale is set at 1" = 100'.

Active Se	- 🗆 ×	
Active Scale:	100.00	Apply
Active Angle:	0.00	Close

3. Prior to placing the border and border information, set the Active Scale. This should be set to the largest proposed scale factor you plan to have on your sheet. For example, if you have a plan view that should be plotted at 1" = 40' and a detail that should be plotted at 1" = 5', the largest scale detail would be 1" = 40'. Choose a scale factor in even increments such as 10, 20, 30, 40, 50, 60, 100, etc. <D> Apply.

🚆 Active Set	- 🗆 ×	
Active Scale:	40	Apply
Active Angle:	0.00	Close

Note: The Active Angle is view independent and not associated with view rotation. Therefore, the x-axis is always horizontal regardless of the view rotation. You will not need to set this for correct placement of the North Arrow or other cells.



4. Select the desired sheet border cell from the list.

5. You will then be prompted to locate the lower left hand corner of the sheet border (the cell's origin). Move the cell to the desired location and *<*D*>*.

Place Active Cell > Enter cell origin

6. Select the desired North Arrow. Move the cell to the desired location and <D>.

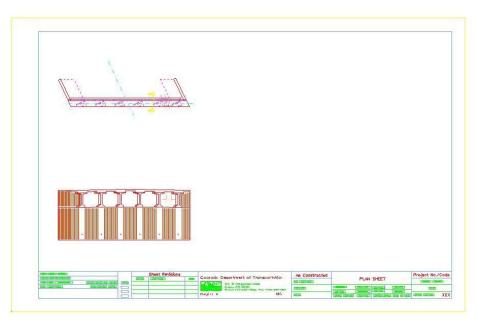
CDOT Menu		_ 🗆 🗙
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	Patterning	☆ Border (Profile 11"x17") ☆ Border (Title 11"x8.5") Portrait
	Symbols	Border (Typical Section 11"x17") Border Limits (11"x17")
	Text	★ Call 811 Stamp (Formerly UNCC) ★ CDOT Logo
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		* North Arrow Standard
Settings		

- 🛄 CDOT Menu - 🗆 🗙 CDOT Groups CDOT Tools Options Help Drafting Status ? Bridge C Existing · Proposed Construction Design Drafting Geometry A 🚸 🛞 Hydraulics Landscape Environmental * Border (PnP 11"x17") Materials Geotechnical ROW Survey Border (Profile 11"x17") Traffic ITS Border RE * Border (Title 11"x8.5") Portrait - Utilities ✤ Border (Typical Section 11"x17") Dimensions * Border Limits (11"x17") ☆ Call 811 Stamp (Formerly UNCC) Linework * CDOT Logo * North Arrow Skier Patterning * North Arrow Standard Symbols * Scale Horizontal Text * Scale Vertical Stamp FIR * Stamp FOR * Stamp Preliminary Ŧ • • Settings...
- 7. Select a Bar Scale if desired. Move the cell to the desired location and <D>.

8. Lastly, select the Border RE button, then select the desired Region Engineer cell. <T> to the location shown in the illustration below and <D> to accept placement.

Print Date: \$DATES				Sheet Revision	าร		
File Nome: #FILES#			Dates	Comments	Init	1	
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Note: Contact the CADD Manager if any edits need to be made to a Region Engineer cell. Remember, you can edit the cell with the Edit Text command until the changes are available in the next configuration.



9. Double click on any of the text fields in the border to add sheet specific information.

Adding Additional Model Files to the Sheet File

1. Once you have referenced the model file with coordinate based information and added the border, you can begin referencing additional files with various scales.

Select the Attach Reference icon located on the reference file dialog box. Locate the file you want to attach. *<*D*>* OK.

<u>File Directory</u>		
Fijes: 000000BRDG_Detail_Abutment_Reinf.dg	Directories: \Bridge\Drawings\Reference_Files\	3D - V8 DGN
00000BRDG_Detail_Abutment_Reinf.dgn 00000BRDG_Detail_Bearing.dgn 00000BRDG_Model.dgn 00000BRDG_Prof.dgn	C:\ Projects Co0000 Bridge Drawings Reference_Files	
List Files of <u>T</u> ype: MicroStation DGN Files (*.dgn)	Drives:	Attachment Method: Interactive

2. In the Reference Attachment Settings dialog box, key in a logical name and a description. Set the Orientation to Top and set the Scale. When you set the Scale, key-in the scale factor of the border sheet into the first field. In this example it is 40. In the second field, key-in the scale factor you want the detail to be plotted at. In this example 5 represents 1"=5'. The overall scale factor for the detail is 40/5 = 8. MicroStation will calculate this for you.

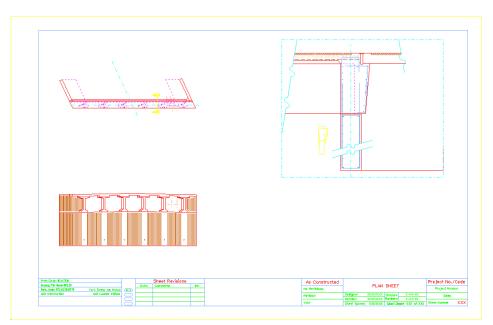
Reference Attachment Settings for 00000BRDG_Det	Formula:
File Name: 00000BRDG_Detail_Abutment_Reinf.dgn Full Path:\00000BRDG_Detail_Abutment_Reinf.dgn Model: CDOT Default	Border Scale: scale the border cell was inserted
Description: Abutment Reinforcing Detail	
Orientation: Name Description Coincident Aligned with Master File Coincident · World Global Origin aligned with Master File	Detail Plot Scale: scale for specific detail to be plotted (See Step 22)
Top Standard View Front Standard View Right Standard View	
Scale (Master:Ref) 40.000000 : 5.00000000 Irue Scale Nested Attachments: No Nesting Depth: 1	Scale Factor: model file insertion value
Display Raster References	
<u>D</u> K Cancel Options	Scale Factor = Border Scale

With the *Orientation* set to *Top*, the model file is anchored to your cursor and you can place it interactively.

References (1 of 1		ayed)			X	λ_{t}	
Tools Settings	Model CDOT Default	Description Global Orgin aligne.	Logical	Mode: Boundaries V Precentation 3 4,7 k Weehance V V V			
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CDOT Sheet File Creation – Multiple Scales.pdf

3. After the model file is positioned in the area you would like, <D> to accept the placement of the additional model in the sheet file. The model file is placed relative to your active Z. Verify the active Z by snapping somewhere in the view, prior to placing the new detail. If the Z is not correct, you can interactively key-in AZ=0, select the view, hit reset and continue with the reference attachment.



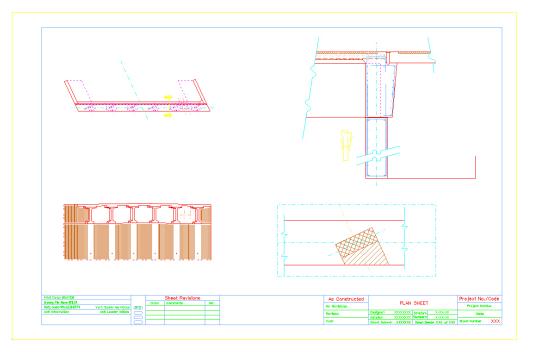
4. Attach additional model files you would like to add to the sheet file.

Look in:	Reference_	Files	- (3 🤌 🖻	•	🔁 🚯	3D - V8 DGN	
Recent Places				7 Bentle 7 Bentle	y MicroSta y MicroSta y MicroSta	. :	Attachment Method	
	▲ File name:	12345BRDG_Mo	del.dgn	•) Open		
	Files of type:	CAD Files (*.dgn;	.dwg;*.dxf)	•	(Cancel		
	-	Save Relative	Path			Dptions		

5. In the Reference Attachment Settings dialog box, key in a logical name and a description. Set the Orientation to Top and set the Scale. In this example the border cell was inserted at 40 (see Step 22 above), If you want the last detail to be plotted at a 1"=10' scale, leave 40 in the first field and key-in 10 to the second field. The overall scale factor for the detail is 40/10 = 4. MicroStation will calculate this for you.

Reference Attachment Settings for 12345BRDG_Detail_Be ×	Formula:
File Name: 12345BRDG_Detail_Bearing.dgn	
Full Path:\Reference_Files\12345BRDG_Detail_Bearing.dgn	
Model: CDOT Default	Border Scale: scale the
Logical Name: Top-1	border cell was inserted
Description: Bearing Detail	border cell was inserted
Orientation:	
View Description	
El Standard Views	
Тор	Datail Diat Capia, apple for
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Isometric	specific detail to be plotted
Bottom	specific detail to be plotted
Back	(See Step 22)
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Scale (Master:Ref) 40.000000	
Named Group;	Scale Factor: model file
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Clip Boundary Element: Copy To Master 🔻	insertion value
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New Level Display: Use MS_REF_NEWLEVELDIS	
Global Line Style Scale: Master	
<u>OK</u> Cancel	Scale Factor = Border Scale

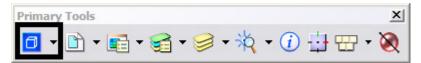
6. Place the model file interactively and *<*D> to accept placement in the sheet file.



Additional Sheet File Information

Setting up Text and Dimension Scale in the Sheet File

- 1. You must change the Annotation Scale Factor if the border cell was scaled to a factor other than 1:100. Otherwise, the text size in the sheet file will not correspond to the scale factor chosen when placing the border cell.
- 2. Select the *Models* icon from the *Primary Tools* toolbar.



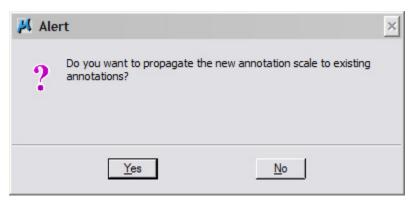
3. Select the Edit Model Properties icon

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1 🕒 😁 🗠 🤌 🗇 🗅	
Type 20 Edit Model Properties	Description
CDO I Default	Master Model
<u> </u>	

- 4. The Annotation Scale factor defaults to 1:100. Select the arrow to change the scale factor. If you try to place text before setting this, it will be too large since the drawing plot scale is at a 1:40.
- 5. From the pull down, select the **Annotation Scale** factor to match the scale factor used when placing the border cell.
- 6. In this example, an annotation scale factor of 1:40 should display. <D> OK to accept.

📕 Model Propert	ies			×
<u>T</u> ype:	Design 🔻	3D 🔻		
<u>N</u> ame:	CDOT Default			
Description:	Master Model			
Ref Logical:				
<u>A</u>	1''=40'	40.0000	1.00000	
Line Style Scale:	Annotation Sca	e 🔻		
	Update Field	ls Automatically		
Cell Properties	d as a cell	Cell Type: (Graphic 🔻	
Can be place	d as an annotatio	on cell		
<u></u>	K	Cano	cel	

7. The following Alert dialog box will be displayed. <D> Yes. The result will be the updated of any text previously placed in your sheet file.



8. Now, you can add text to the new sheet file. It will be scaled to the correct height based on the plot scale or in this case 1:40.

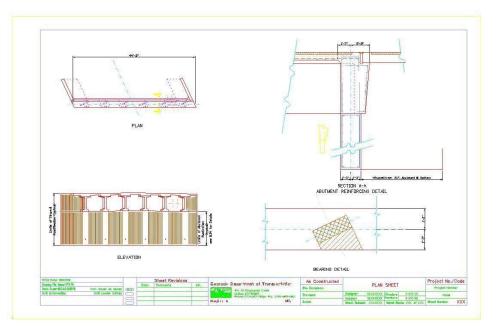
📕 Plac	ce Text	_ X
E	Method: By Origin Text Style: > .07" ENG: Active Angle: 0°0'0.00" Height: 0.070 Width: 0.070	
	Apply changes to all text	Annotation Scale Lock : ON Scale : 40.000000 : 1

Note: Annotation Scale Lock must be turned ON when placing text or dimensions for the scale factor to take affect. Verify it is ON by hovering with your cursor over the icon.

9. You can dimension the model files in the new sheet file. The dimensions will be scaled to the correct size based on the plot scale or in this case 1:40.

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Location: Automatic	
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✓ Start Extension: Image: Annotation Scale ✓ End Extension: Image: Annotation Scale ✓ End Extension: Image: Annotation Scale	
Text Alignment: Standard	
Text Frame: Box 🔻	
☐ Prefix_Text: 🖉 🔻	
Suffix Text: ø 🔻	
Association	

- **Note:** Annotation Scale Lock must be turned ON when placing text or dimensions for the scale factor to take affect. Verify it is ON by hovering with your cursor over the icon. Also, verify the Association is ON so the dimensions will dynamically update when model changes are made. This setting is turned on by default.
- 10. The Sheet file now includes text and dimensions for multiple scaled details.



11. Select File > Save Settings before you exit MicroStation.