Adjusting Level Display in Plan Sheets

A better understanding of how MicroStation handles **new levels** and the level display of nested references with **display overrides** is needed in order to determine how to change the level display in sheet models when the source data is attached as a nested reference. When drawing boundary seeds are used to automatically create drawings from data attached as a nested reference, an additional type of level display control is used called **Synchronize View**.

Sheets can be manually created using reference attachments and when manual reference attachments are made, the default settings for reference attachments allow the level display to be controlled entirely in the sheet model (master file).

The display of information on new levels is controlled globally through a configuration variable, MS_REF_NEWLEVELDISPLAY. When elements are added to new levels in the source data, those referenced levels will be toggled on for display in the sheets automatically. The automatic turning on of new levels makes it easier for downstream users of referenced design files to be aware of additional design work that has been drawn in a file.

When working in the OregonDOT Workspace and using the ODOT preference seeds, *level display in the sheets is most easily controlled from the Default model of the container file*. As it is explained below, the Synchronize View setting, for the reference to the source data, is set to display the levels that are turned on in the design model (Default). Any changes to the displayed levels in the sheets are temporary. This is by design. The level display can be reset and saved in individual sheets, but the reference attachment settings that synchronize the view will need to be modified in the drawing-type model first.

Definitions

Master – The *model* that contains your assembled sheet; the model that you print from. This will be a sheet-type model.

Parent – The *model* that contains the direct reference attachments to the source data that appears in your assembled sheets. This will be the Default model of an OPNP file.

OPNP – ORD-generated Plan and Profile file. The OPNP file is a container file, very similar to a CAD Base File for References that drafters have used to assemble plans. The Default model contains references to source data and named boundaries for production of drawing- and sheet-type models.

MS_REF_NEWLEVELDISPLAY is a variable that controls whether you automatically see additional information on previously unused levels in any reference file – direct attachment or nested reference. In the OregonDOT WorkSpace, this variable is set to true. It is critical for new information drawn in a design to automatically be shown in the sheet. When designers update their source data, and use new levels, that information will automatically display in the assembled sheets.

Reference Display Overrides affect <u>nested</u> references only, and sets where the level display takes place when you are using a container or CAD Base file for references. Because it is important that the level display be able to be controlled from the sheet (master), the default preference for reference attachments is set and locked to "Always", so that the sheet level display *always* overrides the source or parent. If it is your intention to control the display of levels in the sheet from the original reference to the source data, you may change the sheet nested reference attachment setting to "Never" after the attachment has been made. A setting of "Never" makes level display changes in the sheet temporary – they can *never* permanently override the display of the levels from the source data.

Synchronize View and Adjusting the Level Display in OPNP Sheets

When sheets are automatically created using named boundaries, the *drawing-type* **model** that is created uses a setting on its reference attachment to the parent model, called Synchronize View and it is set to "Settings From Design Model". This setting prevents level display changes *in the sheet* from being permanent. **To permanently change the level display in the sheet, the level display in the Default (design-type) model must be changed and those level display settings will propagate through the drawing-type model to the sheet.**

*Note: When Synchronize View is set to "Settings From Design Model", changes to the level display in the Default model will affect the level display of **every sheet** created from a named boundary in the Default model.*

When level display changes need to be made to just one sheet model, the Synchronize View reference attachment setting in the drawing-type model that is the source for the sheet, can be changed to "Presentation Only" or "Volume Only". "Presentation Only" allows the levels to be controlled from the sheet model, the setting of "Volume Only" allows both the level display and the clipping boundary to be modified in the sheet.

How Synchronize View Settings in Drawing Models Affects the Sheet Model

Settings From Design Model	In the sheet model, the clip boundary commands do not function; level display changes are temporary. Adjustments to level display or named boundaries must be performed in the design model (Default).
Presentation Only	In the sheet model, the clip boundary commands do not function; adjustments to named boundaries must be performed in the design model (Default). Level display changes that are made in the sheet are saved. Level display changes in Default do not affect the sheets whose drawing models use Presentation Only.
Volume Only	In the sheet model, the clip boundaries may be reclipped or removed. Adjustments to named boundaries in Default do not affect the sheets whose drawing models use Volume Only. Level display changes that are made in the sheet are saved. Level display changes in Default do not affect the sheets whose drawing models use Volume Only.

Level Display with Nested Referencing using Display Overrides - Synchronize View Set to Presentation Only or Volume Only

The following information is valid only when *not* using Synchronize View set to Settings From Design Model.

Using a CAD Base file for referencing, or an "OPNP" container file, can reduce the number of direct reference attachments to a plan sheet. Another benefit is that the Reference Attachment Settings provide the ability to choose where to control the level display of the nested base references. The Display Overrides allow you to set which model controls the level display - either the plan sheet itself, or the reference container file.

A default reference attachment setting currently sets the Display Override value to "Always". When the initial reference attachment is made, the levels in the sheet display the same as the levels in the model that is attached as a reference (parent). The setting of "Always" lets you perform level display changes in each individual sheets.
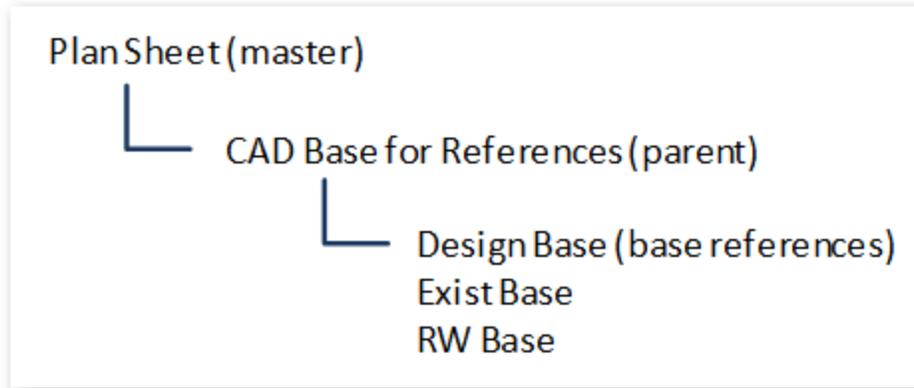
Hierarchy of Plan Sheet Assembly using a CAD Base and Live Nesting, Depth=1

Display Overrides

Allow	Parent (CAD Base) is **allowed** to override the Master (Plan Sheet) until settings are changed or saved in the Master. *After Master settings are changed or saved*, the **Master settings always override the Parent**.
Always	Master (Plan Sheet) settings for level display of reference levels **ALWAYS OVERRIDE** the Parent (CAD Base) - **Plan Sheet (Master) rules**
Never	Master (Plan Sheet) settings for level display of reference levels **NEVER OVERRIDE** the Parent (CAD Base) - **CAD Base (Parent) rules**

Note: Save Settings (on Exit) – The use of the command File>Save Settings in the Master (Plan Sheet) or setting your workspace preference "Save Settings on Exit" effectively reduces the Display Overrides to just two: Always or Never. After settings are saved in the Master file, Allow acts just like Always.

| **Allow** with Save Settings on Exit **/ Always**	**Never**
I want to control the level display from the plan sheet file.	I want to control the level display in all plan sheets from the CAD base file.
If I use a CAD Base file, I will set the level display up for my plan sheets in the CAD Base file before I attach it as a reference.	I will set the level display up for my plan sheets in the CAD Base file before I attach it as a reference.
Adjustments to the level display in each plan sheet will be performed in the plan sheet file on that specific reference attachment.	When I need to change level displays in a plan sheet, I open the CAD Base file and make the change there.
If I open the CAD base file and make level display changes there – those changes will NOT be seen in my plan sheets.	The CAD Base file level display will now be seen in all of the plan sheets.
Plan Sheet rules.	CAD Base rules.

## Changing the Display Overrides

Display Overrides may be changed from **Always** to **Never** on any nested reference attachment(s) to dynamically see level display settings in the CAD Base file. If you wish to keep the new choice, save the settings before exiting the file. Also, be aware that **Never** passes reference display on/off toggles to the Master file and reverting to **Always** does not reset a display toggle change. If a nested reference was toggled off while changing the Display Overrides, you will have to manually toggle it back on.

It is because of the reference display toggle behavior that it is recommended to maintain a separate CAD Base file for a plan sheet assembled with a different set of discipline base files, such as a drainage plan.
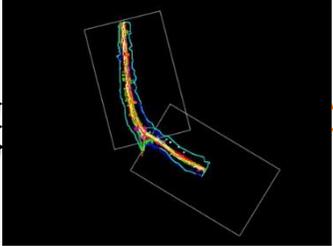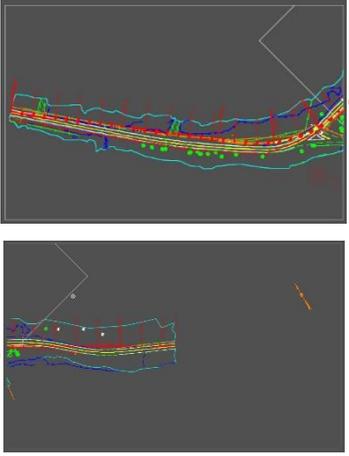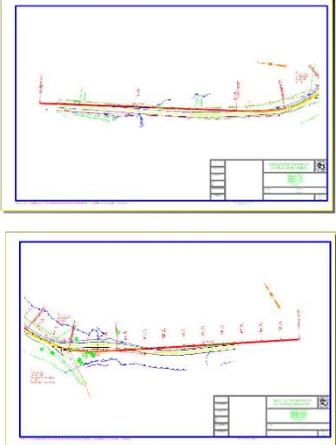
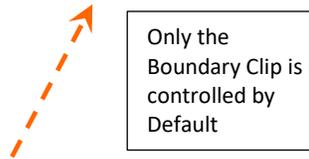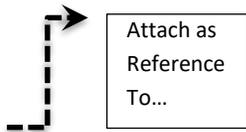OPNP File – All Drawing-type Models using Synchronize View = Settings From Design Model

As-created using Create Drawing from the Named Boundaries Manager

Source Data References	Design-type Model (Default)	Drawing-type Models	Sheet-type Models
	Level display and boundary controlled from design-type model	Synchronize View = Settings From Design Model set in drawing-type models	Boundaries not editable; level display is temporary
R_CORR_bas or R_COR_s_CF / S_TERR_e_bas or S_TERR_e_bas_F / R_GEOM_bas or R_GEOM_bs_CF			

Attach as Reference To…

Level Display & Boundary Clip fully controlled by the Default model
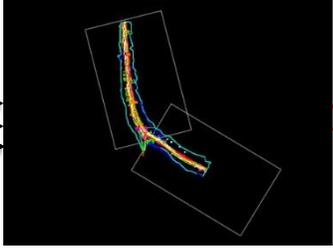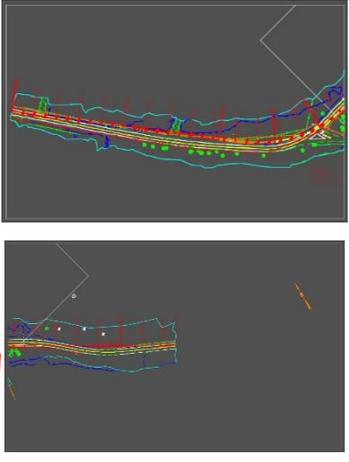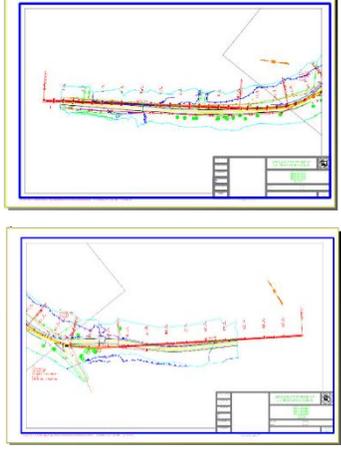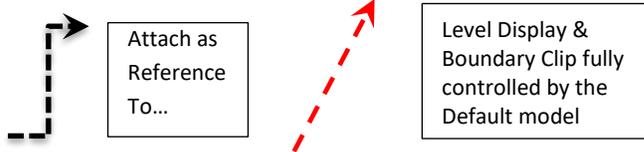
Source Data References	**Design**-type Model (Default)	**Drawing**-type Models	**Sheet**-type Models
	Named Boundary is controlled from the design-type model	**Synchronize View = Presentation Only** set in drawing-type models	Boundaries not editable; level display is controlled in the Sheet
R_CORR_bas or R_COR_s_CF S_TERR_e_bas or S_TERR_e_bas_F R_GEOM_bas or R_GEOM_bs_CF			

Attach as Reference To…

Only the Boundary Clip is controlled by Default

OPNP File – All Drawing-type Models using Synchronize View = Volume Only

Source Data References	**Design**-type Model (Default)	**Drawing**-type Models	**Sheet**-type Models
	Nothing is controlled from the design-type model	**Synchronize View = Volume Only** set in drawing-type models	Boundaries may be reclipped; level display is controlled in the Sheet
R_CORR_bas or R_COR_s_CF S_TERR_e_bas or S_TERR_e_bas_F R_GEOM_bas or R_GEOM_bs_CF			

Attach as Reference To…

Level display and boundary clips can be changed and saved in the **Sheet** model.