Using Sheet and Drawing Models

Tine Lai Andersen, LEARNing Consultant
TineLai.Andersen@Bentley.com
Using Sheet and Drawing Models

Sheet Models are extremely powerful, but they can be intimidating. This session will reap the full benefit of their capabilities.

We’ll start from the ground-up, configuring your workspace and synchronizing settings that will simplify project setup. Step through the creation and use of sheets and drawing models in your project workflow and learn how to globally update data and print with the click of a button. When this session is over you’ll be thinking “Why didn’t I make the switch sooner?”
Learning Objectives

After this session you will be able to:

• Configure your workspace to automate model creation and simplify printing

• Setup seed files to streamline your drawing workflow

• Work with Project Explorer to build your sheets

• Print with a single click
What is a Model?

• A container for elements
• Can be 2D or 3D
• Each model has it’s own set of 8 views
• Think of a model as a deck of cards
Model Types

• Design Model – Consists of design geometry
  – Can be 2D or 3D
  – Typically has a black background

• Drawing Model – Used to apply annotation
  – Can only be 2D
  – Typically has a gray background

• Sheet Model – Serves as an electronic drawing sheet
  – Normally 2D but can be 3D
  – Typically has a white background
Determine How Deep You Want To Go

• Design and Sheet Models
• Design, Drawing and Sheet Models
• All-in (Dynamic View/Hyper Models)
Design and Sheet Models

• Simplifies sheet setup
• Allows for automated sheet numbering and sheet titles
• Allows for automated printing
Design, Drawing and Sheet Models

- Simplifies sheet setup
- Allows for automated sheet number and sheet titles
- Shared annotation
- Allows for automated printing
Dynamic Views/HyperModels

• Same features as other workflows
• Automated plan views, sections, details and elevations
• Ability of viewing 2D annotation in 3D models
• Hyperlinks to origination of details/sheet data

Image courtesy of:
Stanley Beaman & Sears (Architecture)
Nemours Children’s Hospital
Perkins + Will (Interiors Consultant)
Pennoni Associates Inc.
Other things to consider
Project Folder Structure

- General project data
  - Documentation and specifications
  - Plan grids and site layouts
  - Cover sheets

- Discipline specific data

- Shared resources
  - Borders and seed files
  - Cell libraries and DGNLIBs

- Save your setup as a template for future use
Project Configuration

- DGN search paths
- Reference file search paths
- Seed file search paths and names
- DGNLIB search paths
- Print specific settings
- Project Cell Libraries
- Don’t be afraid of using custom variables to simplify/automate your workflow
Some of the configuration variables

- MS_DEF
- MS_DNGLIBLIST
- MS_DEF
- MS_SHEETMODELSEED
- MS_SHEETMODELSEEDNAME
- MS_SAVEDVIEW_EXCLUDELIBS
- MS_PLTCFG_PATH
- MS_PLTFILES
- MS_DRAWINGMODELSEEDNAME
- MS_CELLOUT
- MS_CELL
- MS_CUSTOMSCALEDEF
- MS_RFDIR
- MS_PRINTDEF_PATH
- MS_PENTABLE
- MS_DRAWINGMODELSEED
- MS_VALIDATELIB
- MS_VALIDATELIBNAME
- MS_CUSTOMSHEETSIZEDEF
- MS_LEVELS_EXCLUDELIBS
- MS_CELLLIST
- MS_DETAILINGSYMBOLS_CELLLIST
- MS_SHEETMODELSEEDNAME
- MS_SHEETMODELSEED
Working With Seed Files

• Decide how you want your seed files structured
  – Single seed file with multiple models
  – Separate seed files for all models
  – A hybrid to accommodate your workflow

• Define your search paths

• Define which models will be used
Creating Sheets

• When creating a new sheet specify your sheet name, sheet number and other desired settings

• If properly configured, when you create a new sheet model your project sheet boundary and title block will automatically appear

• Drag and drop your desired data from Project Explorer onto your sheet

• Use the define sheet boundary tool to move and rotate your sheet boundary and title block
Tools and features that can optimize the workflow

• Project Explorer
• Links
• DGN Indexer
• Reference File Settings
• Detailing symbols
• PrintStyles
• Print organizer
Project Explorer

• Works like a web browser for your design data
• Automatically mines project data
  – CAD files (DGN and DWG)
  – Office Documents
  – PDFs
• Will link to URLs, folders and configuration variables
• Will allow you to link data to elements in your design file
• Will allow you to drag and drop data directly into MicroStation
• Allows you to browse data in your current file
Building Links and Link Sets

• Link Sets can be added to any active file but work best in configured DGNLIBs

• A Link Set is simply a collection of links

• You can link to the following
  – File
  – Folder
  – Key-in
  – URL
  – LinkSet
  – Configuration Variable
Associating Links to Elements

- Link directly to documentation or specs
- Link directly to models or specific sheets
- Linked elements will display a special symbol
- To follow a link pick “Open Link” from mini toolbar.
- To associate a link to an element
  - Right click on the item in Project Explorer and pick “Add Link to Element”
  - Pick your element
DGN Indexer

• Service that runs on file server containing your design data

• Replaces the harvesting technique used in Project Explorer

• Dramatically improves the performance of Project Explorer

• May get push-back from your IT department over running a service on a file server
  – Runs at a low priority and will pause if the servers resources are needed for other tasks
  – Once the service has run, it will simply watch for file or file changes and process those changes
Creating Models, Sections and Details

- Detailing symbol tools automatically create sections, details, elevations, plan views, drawing titles and title text
- All the data you create will be hyperlinked
- When your hyper-model is created you’ll be prompted to select predefined seeds and settings
- Detailing symbol styles can be predefined to match your company standard
- When combined with element templates you can force what detailing symbol styles your users access
Detailing symbols
Reference File Settings

• Drag and drop your desired reference or model from Project Explorer

• You will be prompted for an attachment method
  – Recommended will interpret your settings (no options)
  – Switch to Interactive when working with civil
Printing Setup

• Create print styles to take the guess work out of printing

• Both print/plot and print organizer can take advantage of print styles

• Make sure your sheet size definitions and page sizes in your plot configuration match

• For simplicity sake, name your seed models to correspond to your sheet sizes
Print/Plot

• If properly configured, you should never have to…
  – Select a plot configuration or pen table
  – Define your printing area or sheet size
  – Select a scale factor for your output

• Just click print
Print Organizer

• If properly configured, you should never have to…
  – Select a plot configuration or pen table
  – Define your printing area or sheet size
  – Select a scale factor for your output

• Just add your files to print organizer
  – Apply a print style
  – Let them scan
  – And click print
Learning Paths: Ready-Made Training Plans

Choose from:
- Bentley recommendations
- Configure your own
  - Organizational
  - Personal

Select:
- Product(s) and version(s)
- Language
- Training type

Enroll team members in:
- One learning path
- Multiple learning paths
This session’s Learning Path:

Here’s a link to a short learning path that includes this session and recommended modules that you may share with your colleagues:

**Sheets and drawing models**

http://learn.bentley.com/app/Public/ViewLearningPathDetails?lpId=105694

Link to a learning path about the LEARN server:

http://learn.bentley.com/app/Public/ViewLearningPathWithMasterCourseExpanded?lpId=101155&mclid=100515

Other good lectures about MicroStation from Bentley LEARNing conference 2013.

http://learn.bentley.com/app/Public/ViewLearningPathDetails?lpId=104215
Assessment

• When working with Project Explorer, you don’t need folders outside of MicroStation
  – False
  – Project Explorer harvests data from your existing project folder structure

• Print Organizer will automatically create sheet models for me
  – False
  – You must use MicroStation to create sheet models, Print Organizer will only create printed output

• When I create Sheet Models, MicroStation will automatically enter my sheet name and sheet number
  – True
  – Both pieces of data are properties of the model and can be added to title blocks as fields