MicroStation V8 Models

Design Manual
Chapter #1
General Information

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A MicroStation V8 model is similar to a V7 DGN file. A model can contain active elements, reference files, etc. In V8, an unlimited number of models can reside within a single MicroStation DGN file. This is similar to the Microsoft Excel concept of worksheets; separate sheets of information and workbooks, which are a collection of worksheets merged together to form one single Excel file. With MicroStation V8, one file can contain many separate drawings, each possibly saved in a separate model within the DGN file.

The V8 design file concept is to create a separate model for each different roadway and scale required for that roadway. Each model will only contain element information specific to that model's purpose (50 scale mainline, 20 scale sideroad, etc.). If there is no need for a specific "roadway/scale combination" model, it should not be created. Plan sheets are developed by referencing all necessary models, from various files, to produce the desired product. This allows a single level name to contain the same item type in several different models at different scales for different roadways at the same time, (such as a single level for stationing text). Each model contains its own set of levels, thus each element is unique and can be manipulated as necessary to produce the desired results. Therefore, only one level name is required for any specific element type.

Simply stated, if it is necessary to differentiate between mainline, sideroad, and/or ramps, or if the same element, (such as a text element), is to be drawn at a different scale or rotation for a different sheet type, then a new model is created to contain the slightly manipulated but duplicate data. This duplicate data is placed using the same level name, but is separate and unique because it exists in a different model. (A special "Copy, Rotate, and Scale" command exists to recreate the duplicate data in the new model on the same level, but at the necessary scale and rotation for the situation.)

On the following pages of this section, there is a list of the major CADD files required by the various work-groups within the Office of Design, along with the model names that may exist within these files, and a brief summary of how they would be used.

In some cases, the model name will contain a prefix of 2 to 4 characters, followed by a number, and then additional text characters, (see next sheet for examples). The first 2 to 4 characters are part of a standard naming convention that describes the type of model. Next, the number defines the plot scale of any plan sheets this model may be referenced to, and therefore the specific scale at which the scalable elements are placed within the model, (such as 0050 for 50 scale). The remaining text characters are user defined, and allow the assignment of a unique and meaningful description. If the model name does not contain a number for scale, this implies the model is unaffected by scale, (such as "Project Overview"). The number, if present in the model name, will be accessed by design macros to determine the scale at which the elements are to be drawn.

When a new project is started, a new design-file is created by copying a specific seed-file containing only a single default model named "Project Overview". Because the model named "Project Overview" is the model MicroStation refers to as the "default" model, it has special properties within MicroStation that prevent it from being deleted or exported. As a result, no design work will be done within the Project Overview model. Instead, a macro will be accessed, from Geopak D&C Manager, to create a new model specifically for the intended purpose. The model will be automatically named according to that purpose, such as SR_0050_OakSt, for a 50 scale Side Road model for Oak Street. Approved scales for roadway design plan and profile sheets include 0100, 0050, 0020, and occasionally 0010 when necessary. A list of the standard file extensions and model naming conventions follows. Do not include blank spaces in a file name or model name if that file and/or model is to be plotted, as spaces in names often cause plotting errors. Spaces are to be replaced with the underscore character, (_), or by merely compressing the words together, separated by Capital letters. See the examples below.

File Naming convention “ccrrrppp” refers to the 2-digit county, 3-digit route, and the 3-digit project parenthesis number. A new design file automatically contains the default “Project Overview” model, explained below. All other new models should be created using the “Create New Model” tool, obtained from Geopak D&C Manager.

DESIGN SECTIONS:

File Name	Model Name	Model Description
ccrrrppp.alt	*UserDefined*	Alternatives File - This file is used as a storage location for any drawings, concepts, or alternates that are not currently being used. Each model is given a user defined name.
ccrrrppp.dsn	ML_0100_*UserDefined*	Design File – This model contains all of the information for the plan sheets of the mainline. There may be more than one mainline model if different scales of plan sheets are needed.
	SR_0100_*UserDefined*	Design File – This model contains all of the information for the plan sheets of a single sideroad. There may be many SR models.
	DET_0050_*UserDefined*	Design File – This model contains all of the information for the plan sheets of a single detour. There may be many DET models.
	RMP_0100_*UserDefined*	Design File – This model contains all of the information for the plan sheets of a single ramp. There may be many RMP models.
	INCH_0100_*UserDefined*	Design File – This model contains all of the information for the plan sheets of a single interchange. There may be many INCH models.
	INTG_0100_*UserDefined*	Design File – This model contains all of the Geometric information for the plan sheets of a single intersection. There may be many INTG models.
	INTJ_0100_*UserDefined*	Design File – This model contains all of the Jointing information for the plan sheets of a single intersection. There may be many INTJ models.
	INTS_0100_*UserDefined*	Design File – This model contains all of the Staking information for the plan sheets of a single intersection. There may be many INTS models.
	INTE_0100_*UserDefined*	Design File – This model contains all of the Edge Profile information for the plan sheets of a single intersection, and also all common elements shared among the other three intersection files. There may be many INTE models.
	STG_0100_*UserDefined*	Design File – This model contains all of the information for the plan sheets of a single stage in a project. There may be many STG models. The user defined portion of the name should contain the specific stage number.

File Name	Model Name	Model Description
	DRN_0100_*UserDefined*	Design File – This model contains all of the drainage information for a project that is generated by Geopak Drainage and by other means.
	PLT_0100_*UserDefined*	Design File – This model is customizable and can be used by the designer to set up any scroll plots that they wish to make.
	County Project Number	Design File – This model contains all of the county and project number information for all plan sheets.
	Project Overview	Design File – This model contains references from all of the other models in this file to give an overall view of the entire project. The Design File seed-file contains the Project Overview model as the "default" model for the file.
	Mass	Design File – This model contains all of the earthwork mass diagram information.
ccrrrppp.pub	*UserDefined*	Public Hearing File - This file contains any information needed to build a public hearing display. This information is contained in a separate file so that it can be locked and remain unchanged once the public meeting has occurred. There is a team working on this process, and more standards will be developed in the future.
GEOMETRICS:		
ccrrrppp.geo	RMP_0100_*UserDefined*	Geometrics File – This model contains all of the information for the plan sheets of a single ramp. There may be many RMP models.
	INCH_0100_*UserDefined*	Geometrics File – This model contains all of the information for the plan sheets of a single interchange. There may be many INCH models.
	INTG_0100_*UserDefined*	Geometrics File – This model contains all of the Geometric information for the plan sheets of a single intersection. There may be many INTG models.
	INTJ_0100_*UserDefined*	Geometrics File – This model contains all of the Jointing information for the plan sheets of a single intersection. There may be many INTJ models.
	INTS_0100_*UserDefined*	Geometrics File – This model contains all of the Staking information for the plan sheets of a single intersection. There may be many INTS models.
	INTE_0100_*UserDefined*	Design File – This model contains all of the Edge Profile information for the plan sheets of a single intersection, and also all common elements shared among the other three intersection files. There may be many INTE models.
	PLT_0100_*UserDefined*	Geometrics File – This model is customizable and can be used by the designer to set up any scroll plots that they wish to make.

File Name	Model Name	Model Description
	County Project Number	Geometrics File – This model contains all of the county and project number information for all plan sheets.
	Project Overview	Geometrics File – This model contains references from all of the other models in this file to give an overall view of the entire project.
PHOTOGRAMMETRY:		
ccrrrppp.pho	TOPO_0100	Photo File – This model contains all of the existing topography features for a project. Cells, custom line styles, and text will be placed at 100 scale (1000 if metric).
	TOPO_0050	Photo File – This model contains all of the existing topography features for a project. Cells, custom line styles, and text will be placed at 50 scale (500 if metric).
	TOPO_0020	Photo File – This model contains all of the existing topography features for a project. Cells, custom line styles, and text will be placed at 20 scale (250 if metric).
	TXT_0100	Photo File – This model contains all of the existing text for a project. This text will be placed at 100 scale (1000 if metric).
	TXT_0050	Photo File – This model contains all of the existing text for a project. This text will be placed at 50 scale (500 if metric).
	TXT_0020	Photo File – This model contains all of the existing text for a project. This text will be placed at 20 scale (250 if metric).
	Contours	Photo File – This model contains all of the existing contour information for a project.
	Legend	Photo File – This model contains all of the legend information for topography features
	Project Control	Photo File – This model contains all of the photo control information for a project
	Project Overview	Photo File – This model contains references from all of the other models in this file to give an overall view of the entire project.
SOILS:		
ccrrrppp.sol	ML_0100_*UserDefined*	Soils File – This model contains all of the information for the plan sheets of the mainline. There may be more than one mainline model if different scales of plan sheets are needed.
	SR_0100_*UserDefined*	Soils File – This model contains all of the information for the plan sheets of a single sideroad. There may be many SR models.

RMP_0100_*UserDefined*	Soils File – This model contains all of the information for the plan sheets of a single ramp. There may be many RMP models.
INCH_0100_*UserDefined*	Soils File – This model contains all of the information for the plan sheets of a single interchange. There may be many INCH models.
BRW_0100_*UserDefined*	Soils File – This model contains all of the information for the plan sheets of a single borrow location. There may be many BRW models.
STB_0100_*User Defined*	Soils File – This model contains all of the information for stability plan sheets.
PLT_0100_*User Defined*	Soils File – This model contains all of the information for stability plan sheets.
County Project Number	Soils File – This model contains all of the county and project number information for all plan sheets
Project Overview	Soils File – This model contains references from all of the other models in this file to give an overall view of the entire project.

OTHER USES FOR MODELS

In addition to the major CADD files used to store design work, (listed above), the plottable plan sheets are to be stored in models as well, one plan sheet per model. The model names should include the plan sheet number, such as 69085023D7.sht for the seventh D Sheet model. The sheet models are to be grouped within files by sheet type, utilizing the ccrrrppp file name format, explained above. A project may include any or all of the following file names within the project directory.

Filename	Description of Sheets	Office	Number of Sheets Available per File
ccrrrpppA01.sht	A sheets (Title Sheet Information)	Design	20 models per file
ccrrrpppB01.sht	B sheets (Typical Cross Sections)	Design	20 models per file
ccrrrpppC01.sht	C sheets (Estimate of Quantities)	Design	20 models per file
ccrrrpppD01.sht	D sheets (Plan & Profile - Mainline)	Design	Unlimited (Geopak Sheeting)
ccrrrpppE01.sht	E sheets (Plan & Profile - Sideroad)Design	Design	Unlimited (Geopak Sheeting)
ccrrrpppF01.sht	F sheets (Plan & Profile - Detour) Design	Design	Unlimited (Geopak Sheeting)
ccrrrpppG01.sht	G sheets (Reference Ties & Benchmarks)	Photogrammetry	Varies according to project
ccrrrpppH01.sht	H sheets (Right-of-Way Information)	ROW	Unlimited (Geopak Sheeting)
ccrrrpppJ01.sht	J sheets (Staging & Traffic Control)	Design	Unlimited (Geopak Sheeting)
ccrrrpppK01.sht	K sheets (Interchange Geometrics)	Design/Geom.	Unlimited (Geopak Sheeting)
ccrrrpppL01.sht	L sheets (Intersection Geometrics)	Design/Geom.	Unlimited (Geopak Sheeting)
ccrrrpppM01.sht	M sheets (Storm Sewer Information)	Design	Unlimited (Geopak Sheeting)
ccrrrpppN01.sht	N sheets (Traffic Signal & Signing)	Traffic & Safety	Determined by other office
ccrrrpppP01.sht	P sheets (Lighting Layout Information)	Traffic & Safety	Determined by other office
ccrrrpppQ01.sht	Q sheets (Soils Information)	Soils Design	Unlimited (Geopak Sheeting)
ccrrrpppR01.sht	R sheets (Borrow Information)	Soils Design	Unlimited (Geopak Sheeting)
ccrrrpppS01.sht	S sheets (Soils Stability Information)	Soils Design	Unlimited (Geopak Sheeting)
ccrrrpppT01.sht	T sheets (Earthwork Quantities)	Design	20 models per file
ccrrrpppU01.sht	U sheets (500 Series and Special Details)	Design	20 models per file
ccrrrpppV01.sht	V sheets (Bridge & Culvert Situation Plans)	Bridge	20 models per file
ccrrrpppW01.sht	W sheets (Cross Sections – Mainline)	Design	100 models per file
ccrrrpppX01.sht	X sheets (Cross Sections – Sideroads)	Design	100 models per file
ccrrrpppY01.sht	Y sheets (Cross Sections – Ramps & Loops)	Design	100 models per file
ccrrrpppZ01.sht	Z sheets (Cross Sections – Borrows)	Design	100 models per file

Models are also used to meet organizational needs. Models have been used in the creation of the new cell libraries, where each cell in the library is stored in a separate model. However, this concept can be taken a step further with other drawings, such as with typical sections (typicals), tabulations, and standard notes. Example: a single file can contain all roadway “typicals”, with each “typical” located in a separate model. This not only allows for better organization of work, but it also allows the “typicals” to be used as MicroStation cells, as well as reference files.