

MicroStation V8 Levels

Design Manual
Chapter #1
General Information

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Prior to MicroStation V8, each file had 63 element levels available, and only 63. The number of V8 levels is unlimited by MicroStation's definition, or limited only by agency standards. The Office of Design presently has about 300 Roadway Design levels, 150 Photogrammetry levels, and 85 levels for Soils. The Bridge and Right of Way offices, and others, have their own sets of levels. The levels for each office, or discipline, are grouped by a common level name prefix, such as "dsn" for Design, "pho" for Photogrammetry, and "sol" for Soils, as shown below.

The V8 system provides the ability to create levels in one MicroStation file, and then call on that file from a different file to have it act as a level library. This allows the standardization of a set of levels that everyone can use to get consistent results.

MicroStation can read several different level libraries at the same time, and make all of the resulting levels available to a file, (so long as none of the level numbers are repeated). The DOT has chosen to approach leveling on an office-by-office basis, with specific level number ranges being assigned to each office. Each of the offices develops and maintains their own level libraries, and they are stored in one common location on the network so they are all available to the entire agency. The Office of Design level library is named [design.dgnlib](#), and there are three main subgroups of levels contained inside of it.

A summary of the Design level number ranges and their associated names is shown below:

<u>Level No. Range</u>	<u>Level Naming Scheme</u>	<u>Total Levels Available</u>
2000 – 2124	dsn $LevelName$	125 levels
2125 – 2249	dsnInDgn $LevelName$	125 levels
2250 – 2374	dsnText $LevelName$	125 levels
2375 – 2499	dsnXs $LevelName$	125 levels
2500 – 2589	pho $LevelName$	90 levels
2590 – 2619	phoTxt $LevelName$	30 levels
2620 – 2699	phoUtl $LevelName$	80 levels
2700 – 2769	sol $LevelName$	70 levels
2770 – 2799	solText $LevelName$	30 levels
2800 – 2849	solXs $LevelName$	50 levels
2850 – 2899	dsnStd $LevelName$	50 levels (Methods Standards)
2899 – 2999	RESERVED	100 levels (Automation Development)

Design Levels – The largest group of levels is devoted to general design items used by several groups (Design squads, Geometrics, Roadside Development, Methods, etc.) The five main divisions within this group are:

- *dsnLevelName* – Roadway items that appear in the plan or profile portion of a plan sheet. Usually, these items are drawn at real-world coordinates and rotations, so they are not rotation-dependent, such as text elements would be
- *dsnInDgnLevelName* – Geopak InDGN elements, which are elements in the file that Geopak criteria refer to when drawing cross sections.
- *dsnTextLevelName* – Text elements describing roadway items that will appear in the plan or profile portion of a sheet. These elements are affected by scale and rotation, which is why they are in a separate level division.
- *dsnXsLevelName* – Roadway information on Geopak cross sections.
- *dsnStdLevelName* – Levels used by the Methods section to create the Road Standards.

Photogrammetry Levels – This group of levels is used by the Photogrammetry section to create what is traditionally known as the .PHO file. This file contains all of the existing topography, as well as contours and existing utility information. The three main divisions within this group are:

- *phoLevelName* – Existing roadway items that appear in the plan portion of a sheet. Usually, these items are drawn at real-world coordinates and rotations, so they are not rotation-dependent like text elements may be.
- *phoTxtLevelName* – Text elements describing existing roadway items that will appear in the plan portion of a sheet. These elements are affected by scale and rotation, which is why they are in a separate level division.
- *phoUtlLevelName* – Existing utility lines. There is a level available for each utility encountered on a project, so a single utility or a group of utilities can be isolated in a drawing as needed.

Soils Levels – This group of levels is used by the Soils Design section to create the collection of soils files. These files contain all of the existing soils information and the proposed treatments and designs. The three main divisions within this group are:

- *solLevelName* – Soils roadway items that appear in the plan or profile portion of a sheet. Usually, these items are drawn at real-world coordinates and rotations, so they are not rotation-dependent like text elements may be.
- *solTextLevelName* – These are text elements describing soils roadway items that will appear in the plan or profile portion of a sheet. These elements are affected by scale and rotation, which is why they are in a separate level division.
- *solXsLevelName* – These levels are used in drawing soils information on Geopak cross sections.