

## MDL

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# FREQUENTLY ASKED QUESTIONS

## What is MDL?

MDL (Microstation Development Language) is a specialized "C" programming language used to create programs to run under Microstation.

## I have been given a MDL program, how do I load it so I can try to use it?

A functional MDL program can be activated within Microstation by using the key-in: MDL LOAD <MDL\_APP\_NAME>

Note that Microstation may not find the program if it isn't located in a certain folder or you enter the name with the full path name to the file.

You can also use the UTILITIES > MDL APPLICATION dialog to Browse for mdl applications and load them that way. Some MDL applications don't do anything when loaded until a key-in command is executed that lies within that MDL. This dialog is a way that you can see if the key-ins (if any) are valid for that application.

MDL programs are compiled programs that are sometimes dependent on the version of Microstation they were created in. Therefore they may not load in older or newer version of Microstation.

# MDL Program Descriptions

The MDL (Microstation Development Language) Programs listed in this section have been made available on Roadway Design's Menu Applications. The source code for these MDL Programs is not delivered with our menus system. MDL Programs are usually version specific and will not load and run on older or newer version of Microstation other than the version currently being run in Roadway Design.

All MDL programs listed below can be loaded manually with the key-in: MDL LOAD  
<mdl.ma.name>

## NAMES AND DESCRIPTIONS

**NAME: OLEADER.MA (ORIGINALLY CALLED LEADER.MA)**

**TITLE: GENERATING LEADER LINES**

**WRITTEN BY: BILL STEINBOCK**

**REVISED BY: JOHN WARD / RHEA VINCENT**

**SOURCE CODE: LEADER.MC**

**RESOURCE FILE: LEADER.R**

**MAKE FILE: LEADER.MKE**

**PAGE 77 IN THE '101 MDL COMMANDS' BOOK DOCUMENTS ORIGINAL SOURCE CODE.**

## Description

Creates leader lines. The active terminator cell is placed at the origin point of the leader line if one is active. The terminator scale determines the scale for the cell. If the cell is a point cell, it is converted to view dependent. If a regular cell is used, the cell is placed like a relative cell and the symbology is set to the active symbology.

## Commands:

Place leader 2pt

Place leader 3pt

**NAME: TEXTMOD.MA**

**TITLE: MODIFY TEXT SIZE AND ROTATION**

**WRITTEN BY: BILL STEINBOCK**

**REVISED BY: JOHN WARD**

**SOURCE CODE: TEXTMOD.MC**

**RESOURCE FILE: TEXTMOD.R**

**HEADER FILE: TEXTMOD.H**

**MAKE FILE: TEXTMOD.MKE**

**SEE PAGE 307 '101 MDL COMMANDS' BOOK DOCUMENTS ORIGINAL SOURCE CODE.**

## Description

This command modifies the rotation and size of text. Text may be scaled by the active scale factor or resized to the active text size. Text may be rotated by, or aligned, to the active angle.

## Commands

Text Align Single  
Text Align All  
Fence Text Align  
Text Rotate Single  
Text Rotate All  
Fence Text Rotate  
Text Scale Single  
Text Scale All  
Fence Text Scale  
Text Resize Single  
Text Resize All  
Fence Text Resize

**NAME: CHNGFT.MA**

**TITLE: CHANGE FONTS**

**WRITTEN BY: BILL STEINBOCK**

**REVISED BY: JOHN WARD**

**SOURCE CODE: CHNGFT.MC**

**RESOURCE FILE: CHNGFT.R**

**MAKE FILE: CHNGFT.MKE**

**PAGE 269 '101 MDL COMMANDS' BOOK DOCUMENTS ORIGINAL SOURCE CODE.**

## Description

Allow the user to change the font of the selected text node or text string to the current active font setting. The text can be selected one at a time, by a selection set, graphic group, or by a fence. There is also an option to process all text in the active design file.

## Commands:

Change font single  
Change font all  
Fence change font

**NAME: CHGJUST.MA**

**TITLE: CHANGE TEXT JUSTIFICATION TO CURRENT JUSTIFICATION SETTINGS**

**WRITTEN BY: BENTLEY**

**SOURCE CODE: N/A**

## Description

This application can be used to change the justification of text in the design file to the current active text justification settings.

To load the application manually: **MDL LOAD CHGJUST**

## Commands:

Change Just Single

Change Just All

Fence Text Justify

**NAME: SQUARE.MA**

**TITLE: PLACE SQUARE**

**WRITTEN BY: BENTLEY SYSTEMS, INC.**

**REVISED BY: JOHN WARD**

**SOURCE CODE: SQUARE.MC**

**HEADER FILE: SQUARE.H**

**MAKE FILE: SQUARE.MKE**

## Description

Allows the user to place a square in a design file. This command will only allow you to place an element in the shape of a square (all four sides being of equal length). The square element will be placed using the current active symbology and angle. It will be placed adjusted to the current active angle.

Commands: Place square

## **ELEMENTS > CELLS**

**NAME: CELLALNG.MA**

**TITLE: PLACE CELLS ALONG LINEAR ELEMENTS**

**WRITTEN BY: BILL STEINBOCK**

**REVISED BY: JOHN WARD / RHEA VINCENT**

**SOURCE CODE: CELLALNG.MC**

**RESOURCE FILE: CELLALNG.R**

**HEADER FILE: CELLALNG.H**

**MAKE FILE: CELLALNG.MKE**

**PAGE 173 '101 MDL COMMANDS' BOOK DOCUMENTS ORIGINAL SOURCE CODE.**

**CALLED BY COMMANDS: 1WCMK, 1WYMK, CSMK, DBLYMK, DRCMK, DRUMPLAC, RCMK,**

**TWCMK, TWYMK, TYPGRSS, WJIGMK, YCMAR, YJIGMK**

## Description

Allow cells to be placed along a linear element at defined spacing. Once the command is initiated, the user may key in a placement distance in working units.

The command operates in a similar fashion to Microstation's **construct points along** command. The cells are placed relative to a tangent vector to the element its being place along. An additional feature is that the active angle is used to orient the cell. It also uses the current active cell and scale settings.

Commands: construct cell along

**NAME: CELLWIZ.MA**

**TITLE: MANIPULATE CELLS BY ACTIVE ANGLE OR SCALE**

**WRITTEN BY: UNKNOWN**

**SOURCE CODE: UNAVAILABLE**

**CALLED BY: LCELLWIZ.BA**

Description

Allows the user to modify cells placed in a design file. The options for the command display in the tool setting dialog prompts the user to identify a cell. The modifications that can be done are shown below:

MODES:

ALIGN TO AA - rotates the ID'd cell to the current active angle.

ROTATE BY AA - rotates the ID'd cell by the current active angle.

RESIZE TO AS - resizes the ID'd cell to the current active scale.

RESIZE TO TS - resizes the ID'd cell to the current active terminator scale.

SCALE BY AS - scales the ID'd cell by the current active scale.

FENCE: The command allows usage in a Fence, with all the fence lock modes available.

ANGLE or SCALE boxes display the active angle or scale and are available for adjustment.



Commands: cellwiz

**NAME: CELLMOD.MA**

**TITLE: MODIFY CELL SIZE AND ROTATION**

**WRITTEN BY: BILL STEINBOCK**

**REVISED BY: JOHN WARD AND RHEA VINCENT**

**SOURCE CODE: CELLMOD.MC**

**RESOURCE FILE: CELLMOD.R**

**HEADER FILE: CELLMOD.H**

**MAKE FILE: CELLMOD.MKE**

**PAGE 181 '101 MDL COMMANDS' BOOK DOCUMENTS ORIGINAL SOURCE CODE.**

## **Description**

This command modifies the rotation and size of cells. Cells may be scaled by the active scale factor or resized by the active scale. They may be rotated by, or aligned, to the active angle.

## **Commands**

**Cell Align Single**

**Cell Align All**

**Fence Cell Align**

**Cell Rotate Single**

**Cell Rotate All**

**Fence Cell Rotate**

**Cell Scale Single**

**Cell Scale All**

**Fence Cell Scale**

**Cell Resize Single**

**Cell Resize All**

**Fence Cell Resize**

**NAME: CELLUTIL.MA**

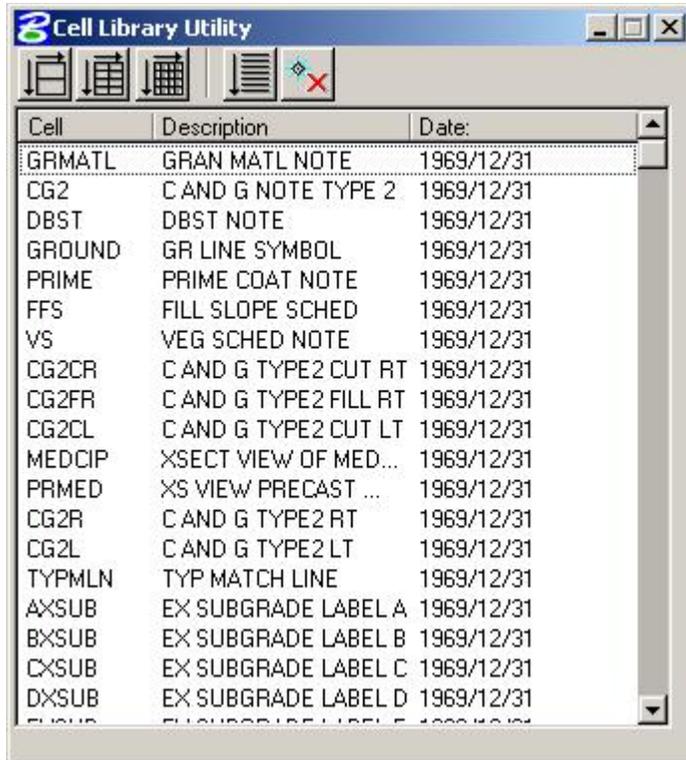
**TITLE: CELL LIBRARY UTILITY**

**WRITTEN BY: BENTLEY**

**SOURCE CODE: NONE**

## **Description**

This MDL application is designed to give users the ability to modify and maintain an attached cell library from within a design file. When the application is loaded a dialog box will be displayed. The user can tag cell names by clicking its name in a list box. Holding down the CTRL key will allow you to select multiple cells or type CTRL A to identify all the cells.



Once you have tagged the cell names you can use the icons following functions:

1. Plot the tagged cells into a design file.

This option allows you to plot the tagged cells into a design file. The three icon options: 2, 8, and 32 determine how many cells are plotted on an 8.5" x 11" sheet. The plots will contain the cell names, plotted scale, description, and the cell itself. Except for the 8x4 option, this only plots the cell name and the cell.

2. Create a list file of tagged cells.

This option will display another dialog box. It will allow you to create a text file containing the cell names, description, and type of cell. You can use the default text file name or input your own name. The default file extension will be '.lis'. Use the 'OK' button to create the list or 'cancel' to exit the dialog box.

3. Delete the tagged cells.

This option will delete the tagged cells from the library.

4. Commands:

cellutil plot 2x1 cellutil list

cellutil plot 4x2 cellutil delete

cellutil plot 8x4 cellutil about

## MENUS

**NAME: CALC.MA**

**TITLE: ONLINE CALCULATOR**

**WRITTEN BY: BILL STEINBOCK**

**REVISED BY: JOHN WARD**

**SOURCE CODE: CALC.MC / NOT AVAILABLE**

**RESOURCE FILE: CALCDLG.R,CALCCMD.R / NOT AVAILABLE**

**HEADER FILE: CALCDLG.H / NOT AVAILABLE**

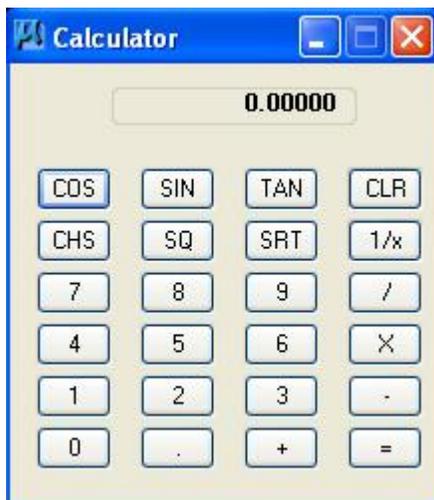
**TYPE FILE: CALCTYP.MT / NOT AVAILABLE**

**MAKE FILE: CALC.MKE / NOT AVAILABLE**

**SEE PAGE 445 IN THE '101 MDL COMMANDS' BOOK IF YOU NEED TO TYPE IN THE SOURCE CODE AND MAKE REVISIONS.**

### Description

Displays a dialog box based calculator, which provides access to basic math and trig functions while in a design file. The "calc" command that loaded the calculator has been disabled to keep it from interfering with another mdl application. The user command "lcalc.ucm" is used to activate and re-activate the calculator.



**NAME: ANGLES.MA**

**TITLE: ACTIVE ANGLE CALCULATOR**

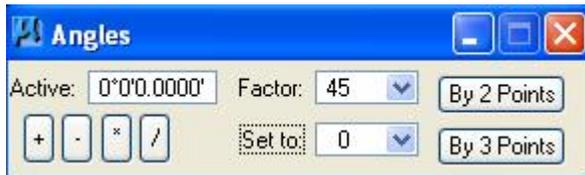
**WRITTEN BY: UNKNOWN**

**SOURCE CODE: NOT AVAILABLE**

**CALLED BY: NONE**

### Description

This application activates a dialog box that allows you to enter and set the Active Angle by key in decimals or degrees. User can enter a Factor in which to modify the active angle by mathematical functions of addition, subtraction, multiplication, and division. User can also set the active angle with a "Set To" field that has common preset angles. Button options are also available to set active angle by graphical 2 or 3 point methods.



**NAME: PIPEEND.MA**

**TITLE: DRAW BROKEN PIPE END SYMBOL ON THE END OF TWO PARALLEL LINES**

**WRITTEN BY: UNKNOWN**

**SOURCE CODE: NOT AVAILABLE**

**CALLED BY: PIPEENDX.BA, PIPENDP.BA**

### Description

Program can create a broken pipe symbol on the end of two parallel lines. The user identifies the two lines and the command attaches the symbol to the cursor and allows you to slide the symbol along the lines. The most appropriate location to place it is the end of the line or the location in which you wish to indicate the broken pipe. The mdl program by default places the symbol element on the current active level and symbology. The macros (.ba) that call this mdl program are designed to set the level symbology to place it on the current standard existing or proposed profile levels.

Commands: pipeend

**NAME: MKREFSRELATIVE.MA**

**TITLE: MODIFY ATTACHED REFERENCE NAMES TO RELATIVE PATH**

**WRITTEN BY: BENTLEY SYSTEMS**

**SOURCE CODE: NOT AVAILABLE**

**CALLS: NONE**

### Description

Microstation stores both an abbreviated (portable) path and the full path to references. The full path will be wrong if the directory structure for the projects is changed or if a different drive letter is used, as may occur over a network access to the project design file.

In the past we had tried to disable the ability to attach references with a saved full path. This is accomplished with a configuration variable (MS\_DISALLOWFULLREFPATH = 1). With that setting, the user is forced to have the files that are to be reference to be located in the same directory as your working design file. Therefore, eliminating the loss of attachment when files

were moved or accessed over the network. However, many complaints followed. User seemed to insist on continuing to spread out there design files in multiple directories or sub-directories the variable wasn't an option.

Users are now encountering several of the inherent problems with this practice. This mdl program (contributed by Bentley Developers) can change the reference attachment to a relative name, which in some cases can eliminate problems. There are a few cases where it may not. Below are instructions on its usage:

The mdl program is located in the group directory so you can enter in the key in dialog

```
mdl load mkrefsrelative
```

It will scan through your attached references and bring up a dialog box that will say something like...

"Change Slot 1 attachment filename from "border.dgn" to "..\borders\border.dgn?"

with Yes, No, and Cancel buttons.

If you say Yes, it will make the change.

Here are some notes:

There are two optional command line arguments:

```
Mdl load mkrefsrelative [y|n|h|?] [logfile]
```

'n' means do not query for each reference

'y' (or no argument) means query for each reference

'?' or 'h' shows usages message

If you start it with "mdl load mkrefsrelative n" it will change all attachments without asking you to answer yes or no for each reference file attached.

It can only make relative paths for references that it can find. If it can't find the reference, it can't calculate a relative path. If the reference already shows red in the reference dialog, it will not be able find the file and make it a relative name. A relative name is not a full path name, instead it prefixes the reference attach name with directory names that differ from you current working directory. Such as; "\borders\border.dgn" when the file is in a sub folder or by adding dots in front of the name when it is in a parent folder and sub-folder (..\Hwy49\borders\border.dgn)

If a file is attached from a different drive letter and directory, then the relative path name will contain the drive letter in the newly created relative name. Therefore, someone accessing the file over the network will still not be able to see the reference being attached.

It skips all references attached with logical like GR: xsplot.dgn, since those are already in good shape, they can already be found when a project is moved.

It doesn't change self-attachments, they're already relative.

It reports the actions it takes to the message center. The number of messages that the message center saves is limited, so you can also have it create a log file by giving the second command line argument as a full file specification.

You can use it in conjunction with batch process to process many files. In your command file, just put something like:

Mdl load mkrefsrelative n d:\tmp\relative.log (or put 'y' instead of 'n' if you want it to ask you before it changes the attachments to relative).

## BAR MENU CREATION

### How the Bar Menus were created

The Bar Menus are made up of a MDL application (.ma) and a menu definition file (.mdf). The mdl application is handy because it allows non-MDL programmers to be able to create site specific bar menus. The mdl application (.ma) does not have to be modified to create a new menu, only the menu definition (mdf) needs to be created or modified to create new contents for the menu. The menu definition file is an ASCII text file. The default menu definition file is pointed to by the variable DZINE. Dzine.ma and Dzine.mdf are good examples of these files. Another simple sample menu file is shown below.

Be sure to check out the [rules](#) for creating a .mdf file at the end of this section.

```
;------  
  
; Sample Menu | comments are ignored - any line beginning with a ;  
|  
; menu title option |  
Title=Menu Title | The Menu Title  
|
```

; mdl commands to load as menu is activated

|

Mdl | view |

Mdl | pan |

; now begin menu entries |

Settings | Label on menu bar

{ | brace defines nest level

AA by 2Pt, "act ang pt2" | label, "keyin"

AA by 3Pt, "act ang pt3" | label, "keyin"

AS by Dist, "act scale dis" | label, "keyin"

Locks On | pull-down sub menu

{ | nest level incremented

Graphic Group, "Lock GG On" | label, "keyin"

Axis, "Lock Axis On" | label, "keyin"

-, | dividing line (must have comma)

Keypoint, "lock snap key" | label, "keyin"

Project, "lock snap proj" | label, "keyin"

Intersection, "lock snap inter" | label, "keyin"

} | nest level decrement

Locks Off | pull-down sub menu

{ | nest level incremented

Graphic Group, "Lock GG Off" |

Axis, "Lock Axis Off" |

Intersection, "lock snap inter off" |

} |

} | terminate Setting menus

| blank lines ignored

Setup |

{ |

Keyin Scale, "uc=scale" |

Arch Scale |

{ |

1/16, "uc=scale;16" | call ucm SCALE then keyin 16

1/8, "uc=scale;8" | call ucm SCALE then keyin 8

1/4, "uc=scale;4" | call ucm SCALE then keyin 4

```
} |  
} | terminate Setup menu
```

Utilities | Label on Menu Bar

```
{ |  
Plot Date | pull-down submenu  
{ |  
Place, "mdl | datstmp;place stamp" | load and execute MDL command  
Update,"mdl | datstmp;update stamp" | load and execute MDL command  
} |
```

```
AA=keyin, "m,erenterangle;t,aa=" | display prompt in error field  
} | terminate Utilities menu
```

```
;------
```

Rules:

The parser, which processes the lines of the definition file, is very primitive and does very little error checking. It is the responsibility of the author of the menu definition file to check for proper syntax. The following rules should be followed to assure success:

1. Pull-down menu labels should be on a line with no other information.
2. Curly braces { } which designate the menu's nest level should be on a line with no other information.
3. Using a "-" as a label will result in a dividing line across the width of the pull-down menu. The "-" must be followed by a comma.
4. Multiple key ins should be separated using a semi-colon (i.e., "wt=0;co=0").
5. As the commands are selected individual key-in strings are checked to see if they contain the phrase "mdl |", which is assumed to be an MDL LOAD command. If this string is found, the program name is extracted. If the program is not currently loaded, it is loaded via an MDL built-in function.
6. Putting a tilde (~) in front of a character in a (Label) will result in that character becoming a hot-key.

The first level of labels do not allow hot-keys because it will not accept the ALT key to activate it, but all the sub-labels can be assigned with hot-keys, so that you can navigate through the menu with the key board.