User's Guide

Global File Changer™

Make unlimited changes to multiple design files quickly and easily!

Version 3.3b (V7), 8.0b (V8)

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c:\winnt\profiles\ddirprog\desktop\changer.doc

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Chapter 1 — Introduction

Problem

The problem with most MicroStation sites is that they have more than one design file. If each site had just one design file, making system-wide changes would be easy.

If you only had one design file and you wanted to start using a new cell library, all you would have to do is bring up the design file with MicroStation and enter `RC=newlib`. Your problem would quickly be solved.

But what if you want to change the cell library (or replace a certain cell, or replace text, or re-scale all the yellow text on level 34 or…) for a project that consists of 85 design files?

Bad solution #1

Theoretically you could do "nothing". You could just tell your operators to wait until the next time they got into each design file and enter `RC=newlib.cel` at that time. But then for a period of time some of your design files would be pointing to one cell library while other design files were pointing to another. Sooner or later at least one of your operators would forget to switch to the new library, he'd modify and place cells from the old one, and presto — you'd have a time consuming disaster to sort out.

There's no getting around the following basic CAD management principle: trying to get the same change made by different operators on different design files at different times is unlikely to produce consistent results. The confusion and lost production from the resulting errors and inconsistencies can be *very* expensive to repair.

Bad solution #2

Another thing you might do, in theory anyway, would be to spend an afternoon bringing up each design file, one after the other and typing `RC=newlib.cel` for each one. That would (eventually) solve the problem, but would require $100 to $200 worth of labor and a considerable amount of patience to complete.

Good solution

Or (if you were wise) you would use *Global File Changer* to solve the whole problem in just a few minutes.

Just tell *Global File Changer* which design files you want to change `(*.dgn)` and which MicroStation command you want to execute on each one `(RC=newlib.cel)`. Without further human intervention all your design files will be changed just the way you want.

In actual practice, the changes you'll make using *Global File Changer* will probably be much more complex than simply repeating a single command over a series of design files. Whole series of MicroStation commands, even user commands and MDL programs can quickly and easily be executed on design files all over your system. Plus *Global File Changer's* built-in commands give you the power to make all kinds of changes no command that comes with MicroStation could ever accomplish.

Unless your site has only one design file, *Global File Changer* will probably pay for itself the first week you own it.

Global File Changer's element selection command takes off where MicroStation's SelectBy command leaves off

MicroStation's SelectBy command is useful for selecting elements based on their color, weight and other characteristics. It is limited though in the types of element attributes it can use as its selection criteria.

The select command built in to *Global File Changer* has no such limitations. Virtually *any* element attribute can be used to select elements in just one design file — or in hundreds.

With *Global File Changer's* selection tool, you will be able to define element-specific properties. For example: with text, you may specify fonts, justifications, text heights and widths, and the actual text string.

Sample uses of *Global File Changer*

Global File Changer can be used to make thousands of different types of changes. Any command you can type at the MicroStation command prompt can be repeated on any number of design files. Any non-interactive user command can be repeated on any set of design files. The ways *Global File Changer* can help you are limited only by your imagination.

Following is a list of just a few of the thousands of things you could do with *Global File Changer*. You may never use *Global File Changer* to do any of these things. Most of the things you will use *Global File Changer* for will be things you think of in the future, as the need arises.

The important thing to remember about *Global File Changer* is that it will do what *you* want it to. Any change that you can accomplish with a series of MicroStation key-ins on a single file, *Global File Changer* can accomplish on all your design files. Any change you can accomplish with a user command on one design file, *Global File Changer* can accomplish on all your design files.

That said, here are some examples of what *Global File Changer* can do:

- Scale a whole series of design files.
- Change the master units of a series of design files from feet to meters.
- Change the global origin of a series of design files.
- Attach a different cell library to a series of design files.
- Lock all the elements in a set of design files so that they cannot be changed.
- Unlock those same elements.
- Move all elements on level 2 to level 4 in a series of design files.
- Replace text in a series of design files.
- Turn on the display of line weights in a series of design files.
- Scale each text element in a design file about its center or insertion point.
- Scale each cell in a design file about its center or insertion point.
- Lots, lots, lots more.

Remember, the power of *Global File Changer* is limited only by your imagination and your ability to write simple (or not so simple) key-in commands or user commands to do the things you want done.

Global File Changer picks up where EdG leaves off

EdG has some value *if* you're a genius with hours and hours of time on your hands. In addition, EdG suffers from the following disadvantages:

- It can't scale elements.
- It can't replace cells.
- It can't manipulate text attributes like underlining and slanting.
- It can't copy level symbology from design file to design file.
- It can't attach reference files.
- There are *lots* of things that EdG can't do.

Global File Changer can do all the above and *lots* more. Plus *Global File Changer* is easy to use. Most changes, in fact, can be accomplished using simple, MDL-dialog boxes.

(Almost) Free custom programming

Once you own *Global File Changer* we can implement custom changes for you at a fraction of what it would cost to have an MDL programmer write a separate program.

Just call 727-442-7774 and tell us what feature you'd like added. High priority changes can frequently be implemented in just days.

Owning *Global File Changer* is like having a brilliant, yet low priced MDL programmer on your staff at all times waiting to satisfy your custom programming needs. Except instead of paying him year-round, you only pay for the few days each year when you really need him.

Technical note

Despite its conceptual simplicity and ease of use, *Global File Changer* has been a very time consuming program to develop. The primary reason is that the program is a hybrid of two different programming techniques.

Event driven programming is a type of programming wherein the program responds to various user actions (events) which can occur in any sequence.

Sequencing is a type of programming wherein the program executes instructions one after the other — always in the same order.

Most MDL programs use event driven techniques. The MDL routines that support event driven programming are very well tested and debugged.

MDL programming using sequencing is less common, and moderately less well tested.

Hybrid programs — those that use both techniques — are rare. Many MDL functions that work properly when only one of these techniques is used fail, often in highly unexpected and hard to debug ways, when used in a hybrid program like *Global File Changer*.

At this point in time *Global File Changer* has been thoroughly tested and debugged. We're confident you'll enjoy 100% trouble-free use of *Global File Changer*.

Chapter 2 — Installation

Preparing for installation

Installation of Axiom products is quick and easy.

Your computer must have MicroStation up and running.

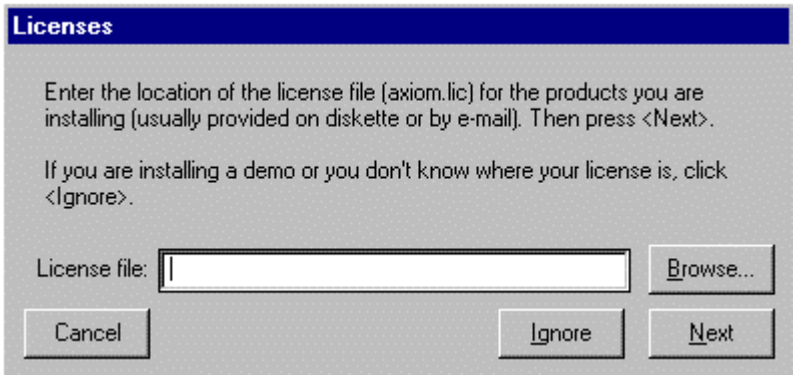
You should have a license file for the product(s) you are about to install and know the location of that file.

Installation from CD

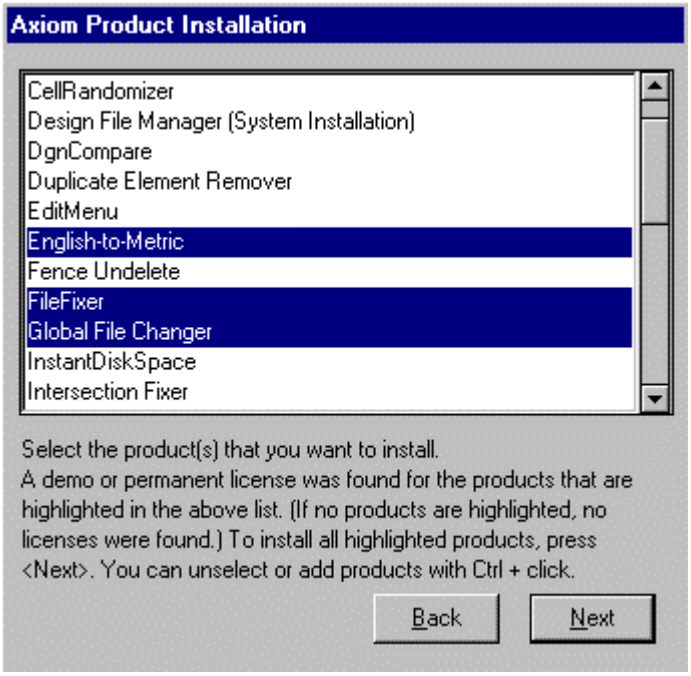
1. Insert the CD into your drive.
2. In MicroStation, enter the following:

   ```
   MDL LOAD X:\USTN\V?\INSTALL
   ```

Note: In these instructions, the question mark in "V?" must be replaced with '8' for installing MicroStation V8 products, and '7' for installing all other MicroStation products (MicroStation 95, SE and J).



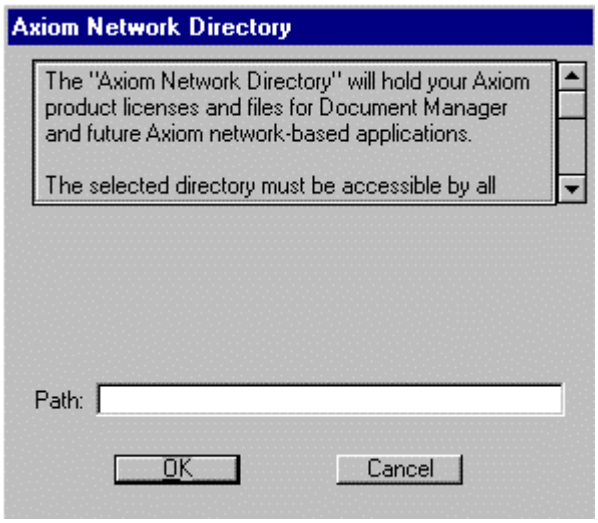
3. When you see the 'Licenses' dialog, enter the location of your Axiom license file. For example: A:\AXIOM.LIC (If you are not sure where it is, use the <Browse> button to find it. If you are installing a demo version, click <Ignore>.)
4. You will see a dialog box containing the available products to install. The products that match your license file will already be highlighted. You can install all of these by clicking the <OK> button, or you can make some other selection with Ctrl + click.



Note: You can install all of the products listed. For the ones not licensed, you can obtain a demonstration license from your Axiom MicroStation Consultant.

Tip: A readme.txt file on the CD contains the answers to frequently asked questions about installation.

5. If you have selected *Design File Manager* as one of your products to install, you will be asked to select an Axiom Network Directory.



Tip: If you are installing *Design File Manager* for demonstration purposes on a local drive, you can create any sample directory path.

Network installation from the server

If you want to install Axiom products on a network, you can copy the CD onto a server drive and let each user install from the server. Use the instructions for installing from CD, but use the path to the directory on the server rather than your CD drive.

Environment variable

A MicroStation environment variable, `MS_NOEOF_MSGFILE` will be installed automatically. When MicroStation encounters a corrupt design file a message will be displayed, “MicroStation cannot open this damaged file. Open another file, then use *FileFixer* to open and repair this damaged file.”

Chapter 3 — Uninstalling

Why you might uninstall an Axiom product

There are a few reasons you may want to uninstall an Axiom product:

1. You have run a demo and want to remove it from your computer.
2. You have moved the product to another computer and need to remove the product from the original computer.
3. You have a site or corporate license and want your users to have access to only *some* of the many Axiom products that you have already installed on their computers.

There may be other reasons.

How to do it

There are three basic stages to uninstalling an Axiom product:

1. Stopping MicroStation from trying to automatically run the Axiom product.
2. Removing the Axiom product from MicroStation's Axiom menu *or* entirely removing the Axiom menu from MicroStation's menu bar.
3. Removing the Axiom files from your hard disk.

Stop MicroStation from running an Axiom product

Some Axiom products such as *Version Manager* and *Microsoft Office Importer* may be set up to run automatically whenever MicroStation is started.

You can stop this from happening by going into MicroStation | Workspace | Configuration and looking for the variable MS_DGNAPPS. Edit the value of this variable and remove any references to the Axiom product that you no longer want to run automatically, when running MicroStation. Exit MicroStation and re-start, then check that the MS_DGNAPPS variable is clear of the Axiom product you no longer want to start when MicroStation is started.

Identifying your Axiom Base Directory

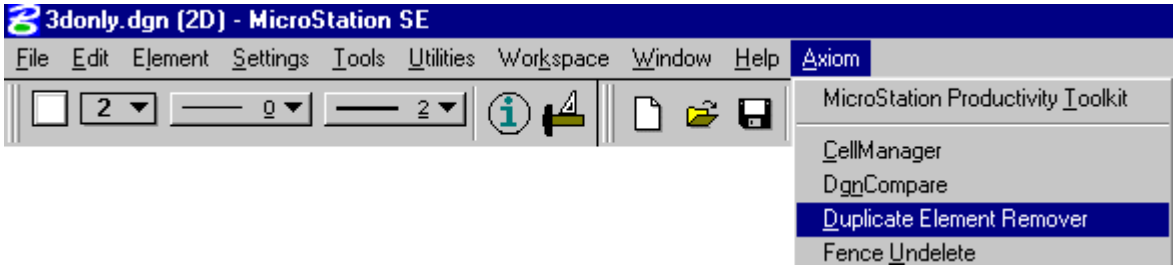
You will need to identify where your *Axiom Base Directory* is.

Go into the into MicroStation | Workspace | Configuration dialog box and look for the "AXI" configuration variable. The value of AXI will be your *Axiom Base Directory*. It is usually something simple like "c:\win32app\axiom\".

Removing products from the Axiom menu

This is an optional step. If you want to skip this step, go on to the "Removing the Axiom menu" section.

This step is included here because some customers wanted to be able to "customize" their Axiom menu to exclude some programs from some of their computers. The Axiom menu is found on the MicroStation menu bar and looks like this:



To remove a product from the Axiom menu, edit the file "aximenu.txt" (found in the *Axiom Base Directory*) and remove the number sign ("#") from the beginning of the line that refers to the product you want to remove from the Axiom menu.

A small sample from the "aximenu.txt" file looks like this:

```
#~CellManager
cellmgr
#D~GnCompare
Compare
#~Duplicate Element Remover
remover
```

and a sample of the same file now modified to show only *CellManager* is:

```
#~CellManager
cellmgr
D~GnCompare
Compare
~Duplicate Element Remover
remover
```

If you have multiple Axiom products and you only want one product to be removed, you don't *have* to remove this product's name from the Axiom menu. Just remove the program's files from your disk (see section titled "Removing files from your hard-disk") leaving the entry on the Axiom menu. When you select the program from the Axiom

menu, you will get a text-style dialog box, which will describe the product. You will *not* get any errors or failures.

Removing the Axiom menu

If you intend to remove *all* Axiom products from your computer, you would want to do this step.

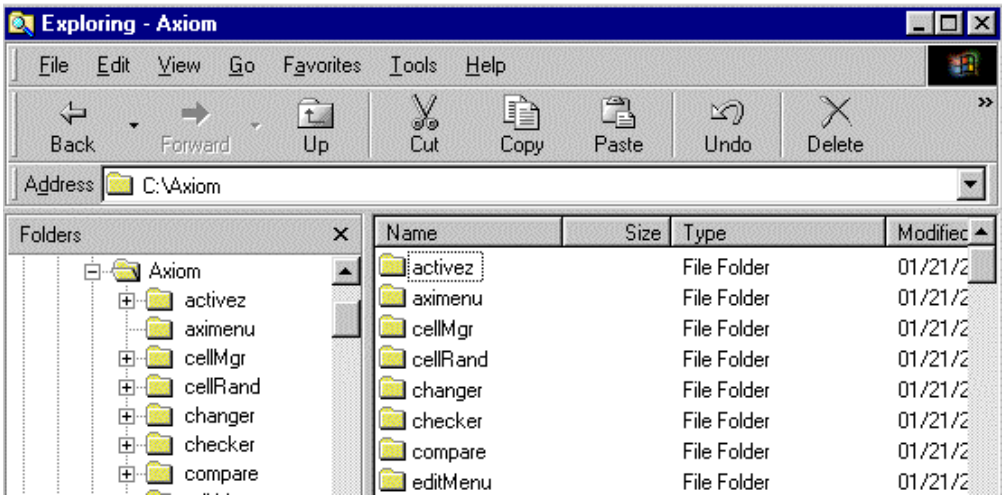
The "Axiom menu" is actually a program that is run whenever MicroStation is started up. You can stop this menu from appearing in MicroStation by going into MicroStation | Workspace | Configuration and looking for the variable MS_DGNAPPS. Edit the value of this variable and remove the entry "aximenu.ma". When you have done this, next time you start MicroStation the menu bar will look like this:

Notice that the word "Axiom" no longer appears to the right of "Help".

Removing files from your hard-disk

If you are removing an Axiom product, you'll probably want to delete that product's files from your hard-disk drive.

Go to your *Axiom Base Directory* by using Windows Explorer or File Manager or DOS or something similar. Each Axiom product is in its own directory under the *Axiom Base Directory*.



For example, *CellManager* is in the "cellmgr" subdirectory, and *Cell Randomizer* is in the "cellrand" subdirectory. To delete the files of an individual Axiom product, just

delete its specific subdirectory. To delete all the files of all Axiom products, delete the entire *Axiom Base Directory* and *all* of its product subdirectories.

If you have other Axiom products but are removing one product, you don't need to remove this product's name from the Axiom menu. If you remove that program's directory of files from your disk but leave the entry on the Axiom menu, and a user selects that program from the Axiom menu, they will get a text-style dialog box which will describe the product. You will not get any errors or failures.

Axiom.cfg file and axiom_user.ucf file

If you are removing all Axiom products from your computer, you should also delete the file "axiom.cfg" from MicroStation's ...\config\appl\ directory. This step will also delete the MicroStation AXI configuration variable.

Check for the existence of an axiom_user.ucf file in the same directory and delete this file also if it exists.

Chapter 4 — Quick Start

The following Quick Start steps will show you some of the basic features of *Global File Changer* in just a few minutes.

During installation, the files clock.dgn, clock.sel and clock.key are copied into the …axiom/changer/sample directory. This quick start section refers to those files.

- Clock.dgn is the master file that we are going to change. In this tutorial, we will modify one design file, but you can select hundreds of files to modify.
- Clock .sel is a file that describes the four different kinds of elements that we want to change.
- Clock.key contains the path to the clock.sel and the instructions for changing the selected elements.

Open the design file "clock.dgn".

Navigate to the folder containing the installed *Global File Changer* sample files to find clock.dgn. The file will be in the CHANGER\SAMPLE sub-directory.

Edit the key file.

The first thing that needs to be done is to edit the `clock.key` file. You can use any text editor, such as Notepad, to do this. Start your text editor and open `clock.key`, which is also found in the CHANGER\SAMPLE directory.

The second line in the file looks something like this:

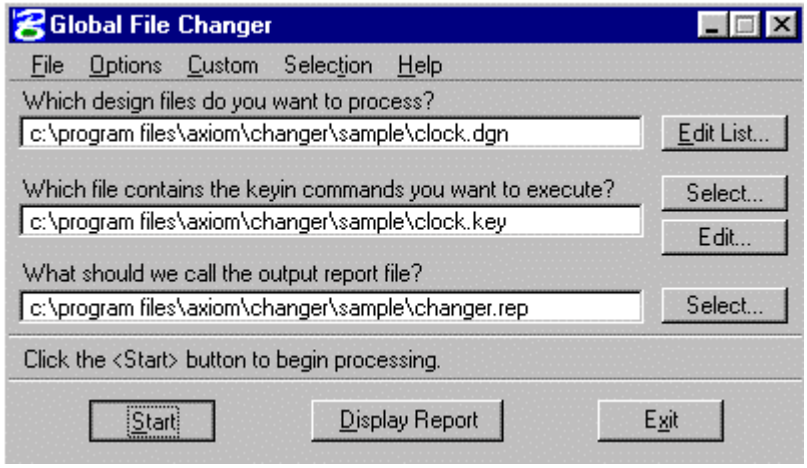
```
AXIOM SELECT OPEN c:\program files\axiom\V8\changer\sample\clock.sel
```

Change the file path to point to your 'changer\sample\clock.sel file, and save the file.

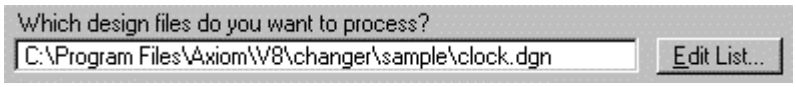
If you look over the contents of the file, you will notice it is composed of mostly standard MicroStation key-in commands, with a few specialized AXIOM commands (such as "AXIOM SELECT OPEN") at various points. The specialized AXIOM key-ins will be described in full later in this document.

Start *Global File Changer.*

Load *Global File Changer* by selecting it from the "Axiom" pull-down menu in MicroStation.

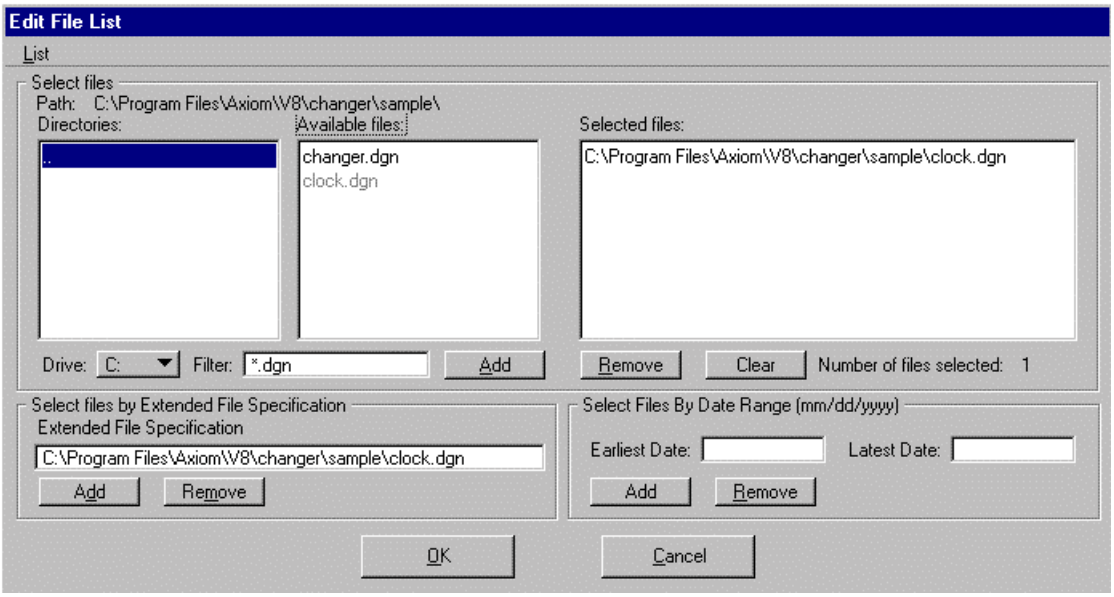


Select the file to be processed.



The "Which design files do you want to process?" field will contain the name of the active file when you loaded *Global File Changer*. If clock.dgn is not the active file, Select `it` by clicking the <Select…> button.

This will bring up the Axiom "Edit File List" dialog box:



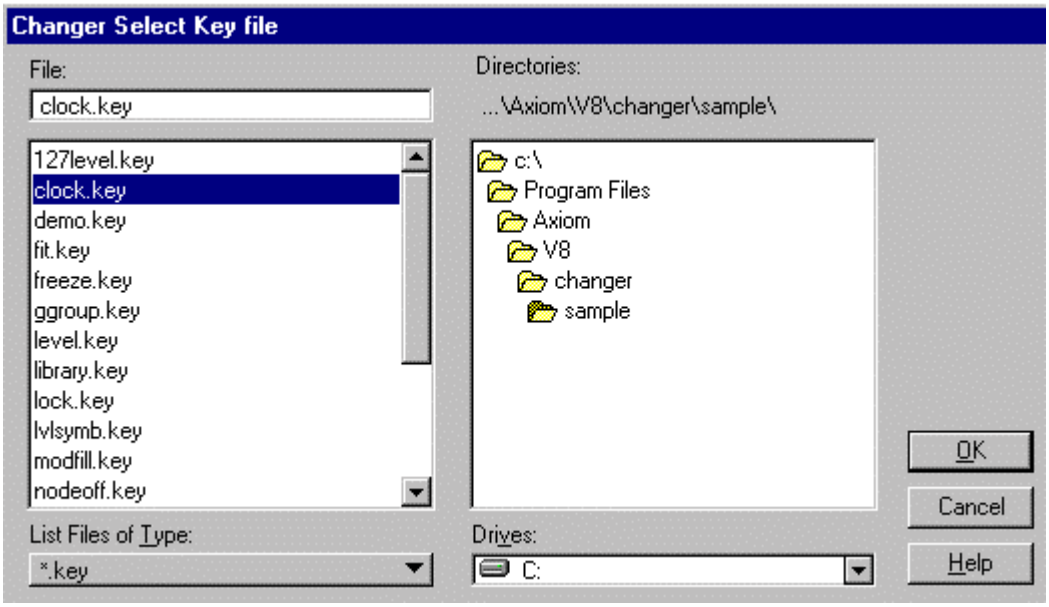
Select the drive and directory where *Global File Changer* sample files were installed. Click on "clock.dgn" to highlight it." Then Click <Add> to put that file into the 'Selected Files' list as in the image above. Click <OK>.

Select the key-in file.

The key file must be set up before running *Global File Changer* and contains the commands to be executed. We will cover the construction of this file later in this guide.

In the meantime, select `clock.key` as the key-in file to be used for processing, by clicking the <Select…> button next to the field labeled "Which file contains the keyin commands you want to execute?"

This will bring up the standard MicroStation 'file open' dialog box:



Select the drive and directory where *Global File Changer* sample files were installed, click on "clock.key" and click <OK>.

The "Clock.key" file contains keyin commands that address groups of elements named 'LINES', 'NUMBERS', 'FACE', and 'HANDS'. You will define these four groupings of elements when you create your selection set.

Create the selection set.

A clock.sel sample file is delivered with *Global File Changer*, but this section gives you a short drill on how to create it.

The "selection criteria" determine which elements the key-ins from the key-in file will act upon.

Use "Element Selection…" from the Selection menu.

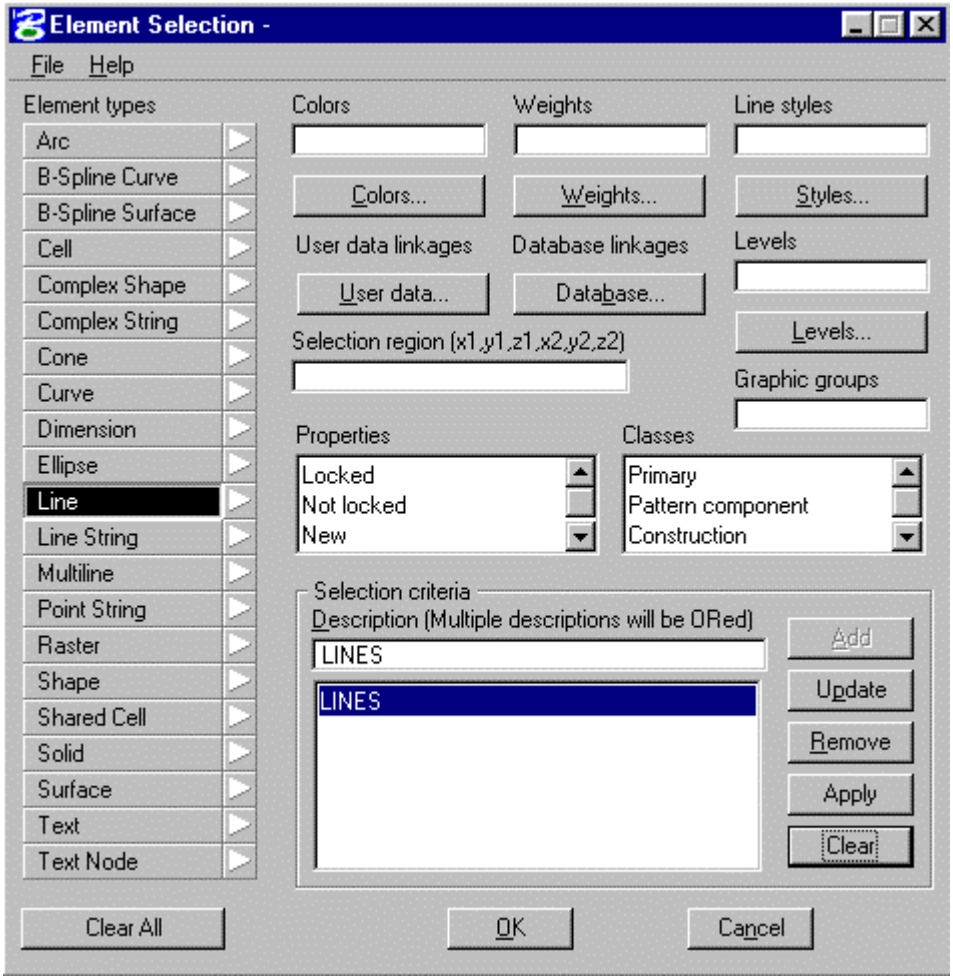
This will bring up the Element Selection Dialog box:

By default, all elements are selected. Click the <Clear All> button on the bottom left of the dialog box to unselect them.

The next step is to create sets of element types to be modified. CLOCK.DGN contains lines, text, an ellipse, and shapes. We want to select each element type separately, and give it an identifying name so that we can make different changes to each group of elements.

Click the “Line” button so that it is highlighted.

Click inside the Selection criteria Description field where you see the word ‘DEFAULT’. Type in “LINES” and click the <Add> button.



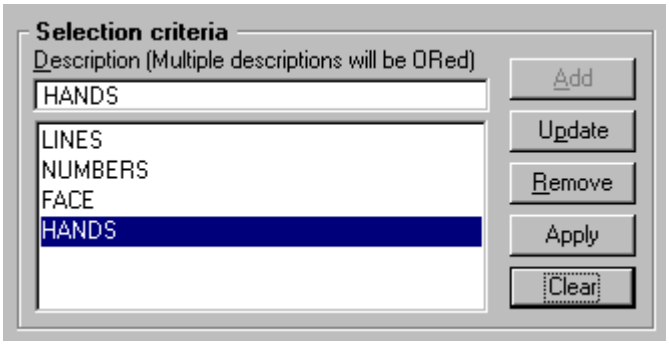
Now do the above three steps for each of the other element types in the file:

Click the “Text” button so it highlights, click inside the Selection Criteria Description field, type in “NUMBERS” and click the <Add> button.

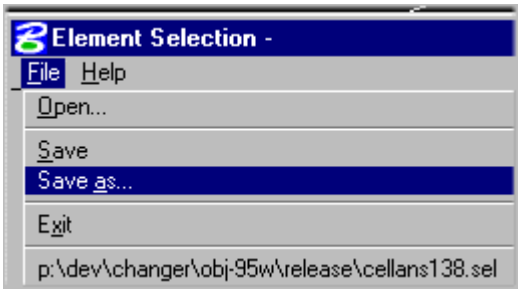
Click the “Ellipse” button so it highlights, click inside the Selection Criteria Description field, type in “FACE” and click the <Add> button.

Click the “Shape” button so it highlights, click inside the Selection Criteria Description field, type in “HANDS” and click the <Add> button.

You should now have four items in the Selection Criteria listbox:



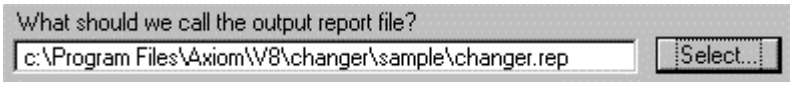
Now, save all this to a file by selecting “Save as…” from the File menu



and use the standard MicroStation dialog box to save it as **clock.sel** in the CHANGER\SAMPLE directory.

Now click the <OK> button to close the Element Selection dialog box.

Select a report file.



You may type in any valid filespec for the report file or use the <Select…> button to open up a standard MicroStation "Open File" dialog box. From that box you can navigate to a specific directory and have the report file written to that directory.

Process clock.dgn.

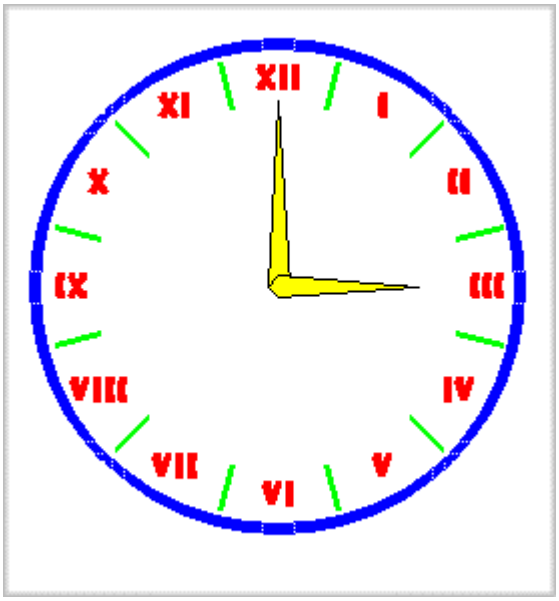
If any one of the three fields on the main dialog box does not contain valid data, the start button will be disabled, and the reason will be displayed in the area above the buttons (near the bottom of the dialog box).

Although it is sometimes faster to manually enter filenames, using the dialog boxes for selecting files can circumvent all of these problems.

Next, press <Start>!

Review the results.

Processing should only take a couple of seconds. You should see the various types of elements in the "plain" clock drawing change colors and weights. Also, if you examine the elements, you will see that each type of element has been moved to its own level.



When processing is complete, click <Display report>.

The report file will be similar to the following:

```
Global File Changer 8.0a                                5 April 2002 -- 2:44 pm


Design files:                    c:\program
files\axiom\v8\changer\sample\clock.dgn

Command file:                    c:\program
files\axiom\v8\changer\sample\clock.key

Automatic backup?                No

Automatic filedesign?            No

Models to process:               Active model only

Update screen during processing? No

Licensing information:           Temporary license. (expires 3 June 2002).


c:\program files\axiom\v8\changer\sample\clock.dgn
  *) (After initializing design file)

Model : Default

  1) ; open the "clock" selection file
  2) AXIOM SELECT OPEN c:\program files\axiom\v8\changer\sample\clock.sel
  3)
  4) ; select the lines
  5) AXIOM SELECT ELEMENTS lines
  6)
  7) ; change the lines
  8) co=green
  9) change color
  10) wt=2
  11) change weight
  12) lv=LinesLevel
  13) change level
  14)
  15) ; select the numerals
  16) AXIOM SELECT ELEMENTS numbers
  17)
  18) ; change the numerals
  19) co=red
```

```
  20) change color
  21) wt=3
  22) change weight
  23) lv=NumbersLevel
  24) change level
  25)
  26) ; select the face
  27) AXIOM SELECT ELEMENTS face
  28)
  29) ; change the face
  30) co=blue
  31) change color
  32) wt=5
  33) change weight
  34) lv=FaceLevel
  35) change level
  36)
  37) ; select the hands
  38) AXIOM SELECT ELEMENTS hands
  39)
  40) ; change the hands
  41) lv=HandsLevel
  42) change level
  43) active fill on
  44) active fillcolor yellow
  45) change fill
  46) xy=0,0
  47)
  48) ; de-select last selection set
  49) choose element
  50) xy=-2147000,2147000
  51)
  52) ; change symbology back to standard
  53) lv=1
  54) co=0
  55) wt=0
  56) lc=0
  57)
  58) ;turn on fill in view attributes for view 1
  59) set fill on
  60) selview 1

1 files were processed in this run.


Abbreviations used in this report include:
  MS -- Message field
  ER -- Error field
  PR -- Prompt field
  ST -- Status field
  CF -- Command field
```

You have now seen *Global File Changer* in action and have processed your first file!

Demo Files

Aside from the "clock" quickstart files, *Global File Changer* is delivered with some additional simple test files to help you get started. These files include `changer.dgn`, `changer.cel`, `demo.key` and `demo.sel`.

Note: You will need to edit the `demo.key` file so that the path to the selection file `demo.sel` is correct for your installation.

Using the sample key files

Sample .key files delivered with *Global File Changer* demonstrate how to handle a variety of commands. You can use the sample key files as a basis to create your own key files.

bylevel.key	V8 only. Change color, weight, and style of selected elements to bylevel. It uses demo.sel to select the elements that will be changed.
demo.key	Change color, weight, and style of selected elements. It uses demo.sel to select the elements that will be changed.
fit.key	Applies 'Fit View' to views 1 to 8.
ggroup.key	Turn on graphic group lock.
level.key	Move all displayable elements on level 1 to level 4. In V8 version, move all displayable elements from default level to 'nlevel'.
library.key	Attach new cell library to all design files
lock.key	Lock all graphic elements so they cannot be changed with MicroStation
lvlsymb.key	Turn on level symbology in views 1 and 5
nodeoff.key	Turn off the display of text node numbers in all views.
nodeon.key	Turn on the display of text node numbers in all views.
origin.key	Shift the global origin by 1000 UORs. Calls origin.ucm.
scale.key	Scale all design files by .75.
unlock.key	Unlock all graphic elements so they can be changed with MicroStation
workunit.key	V7 only. Change the working units of the design file. Calls workunit.ucm.
127level.key	V7 only. Uses MS calculator to extend levels to 127

Demo versions

The *Global File Changer* demo version only works on files of size 100 KB or less. Your permanent version of *Global File Changer* will not have this restriction.

Chapter 5 — Running *Global File Changer*

Getting started with *Global File Changer*

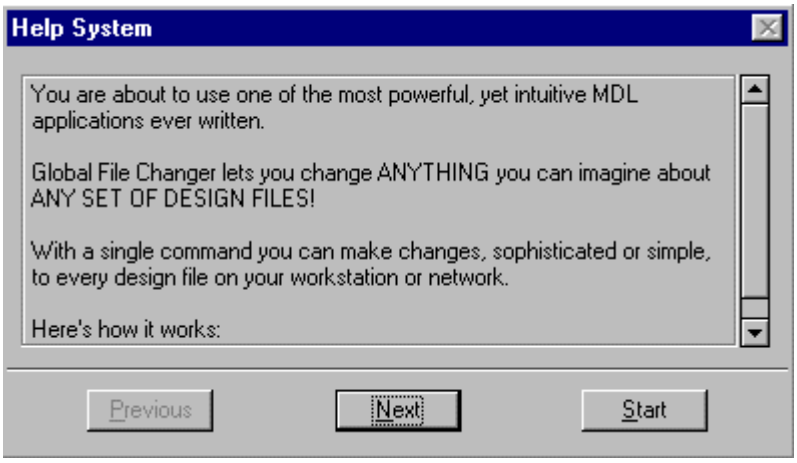
Global File Changer is a powerful program. Like any powerful program, care should be exercised when using *Global File Changer* to change multiple design files. Axiom International recommends that any sophisticated change you plan to make should be tested on scratch copies of your design files before being tried on active, important design files.

Starting *Global File Changer*

To start the program, select *Global File Changer* from the Axiom menu on the MicroStation menu strip.

The 'Help' dialog box

When the 'Help' option is set to 'Beginner' mode, a 'Help' box appears at startup and presents a brief overview of the product.

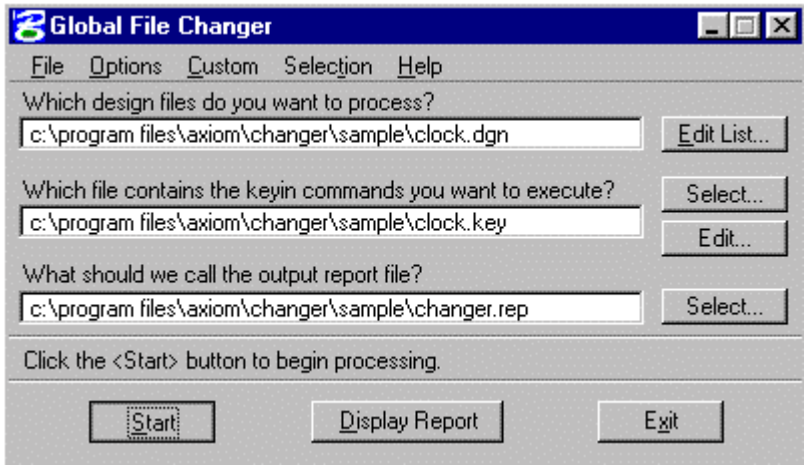


You can change the Help Level on the `Options` menu. to '`Expert`', in order to bring up the *Global File Changer* dialog box without the Help dialog box. After that, select the 'Save current settings…' command on the `Options` menu or have the 'Save settings on exit' option ON.

Tip: The 'Help' menu on the main *Global File Changer* dialog box allows you to access the full Users' Guide.

The main dialog box

The main *Global File Changer* dialog box is displayed after the Help dialog box when you start *Global File Changer*.

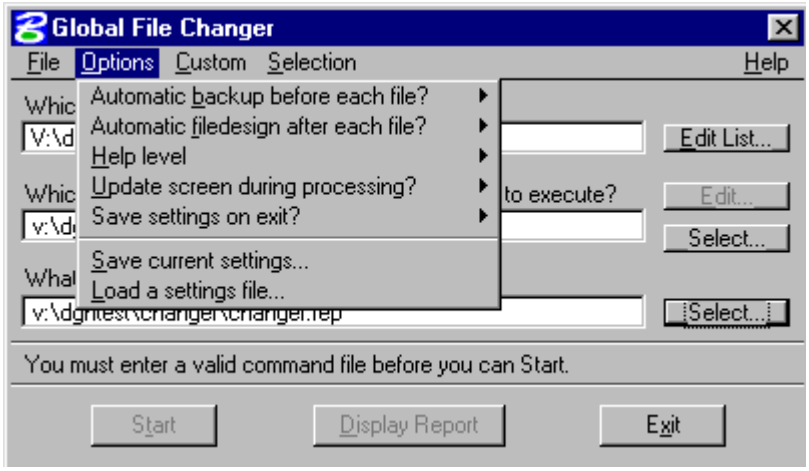


The 'File' menu

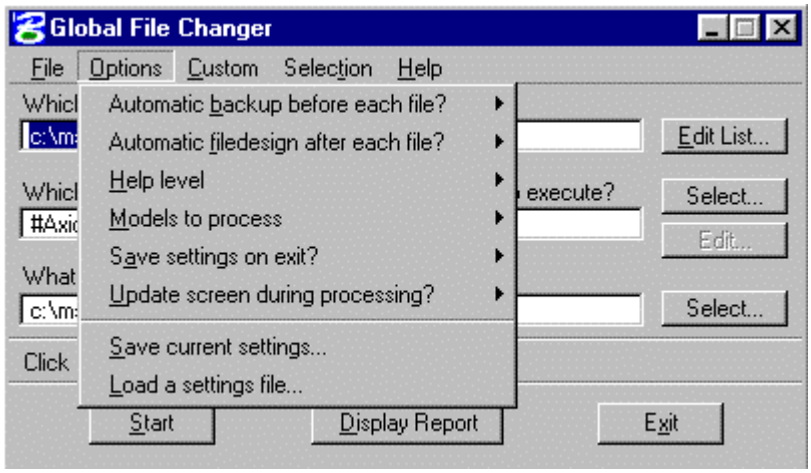
The file menu contains only the Exit option. This will close *Global File Changer* and works the same as the <Exit> button on the main dialog box.

The 'Options' menu

MicroStation V7 options

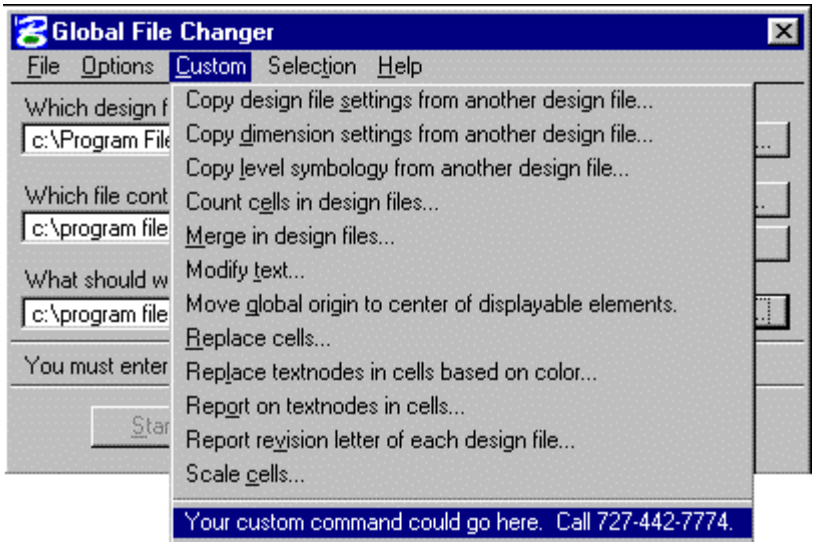


MicroStation V8 options



Detailed information about these functions can be found in the 'Options' menu section.

The 'Custom' menu



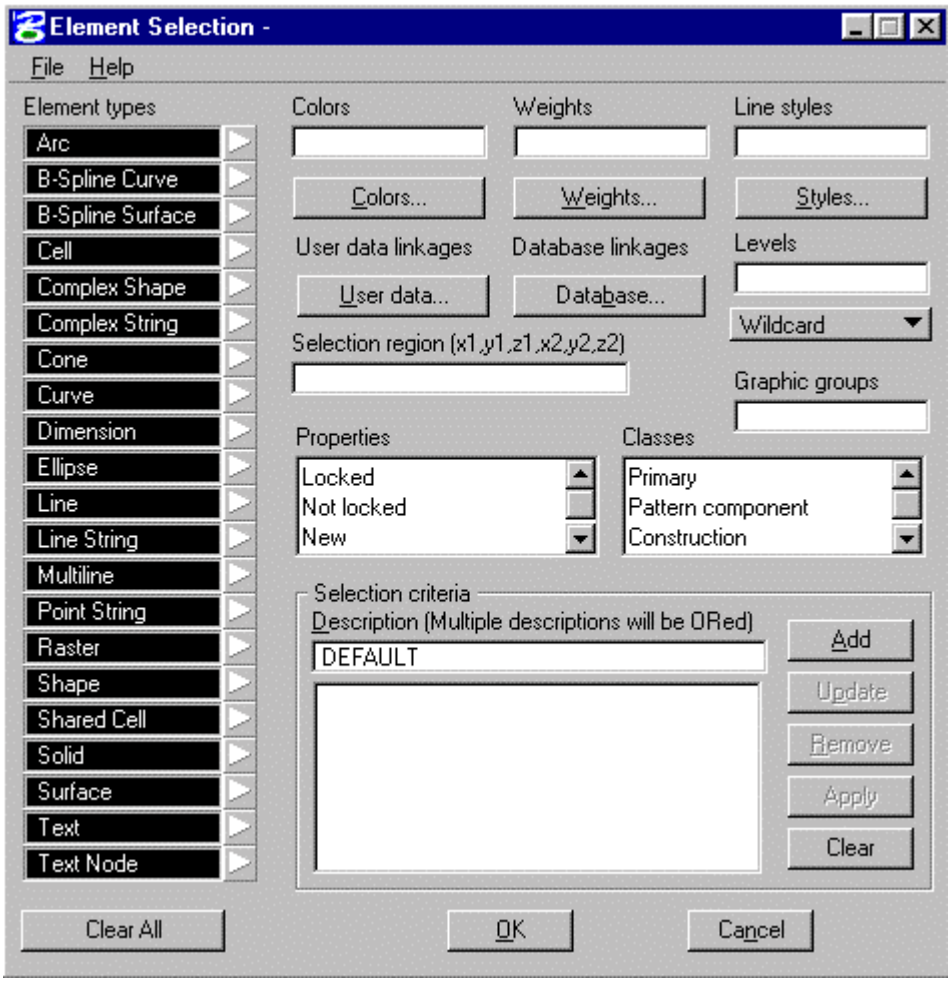
Detailed information about these functions can be found in the section called "The Custom Menu."

The 'Selection' menu

The purpose of element selection is to identify those elements that you want to change with *Global File Changer*, and protect other elements from being changed.

If you do not use ‘Element selection’ all elements will be selected by default. This makes little difference if you are, for example, modifying symbology on a group of files. It can be very useful however, if you want to modify some elements but not others.

Choosing “Selection | Element selection” will open *Global File Changer’s* ‘Element Selection’ dialog box. You will see a powerful set of options that let you define very specific element selection properties. You can find a full description of the options in this dialog box in the section of this guide called, ‘Element Selection’.



In addition to the general parameters on the main dialog, each element type selected includes its own selection dialog box with parameters tailored to that type. Access this dialog via the arrow to the right of the element type name.

For example: with text, you may select text with specific fonts, justifications, text heights and widths, and text matching one or more specific strings.

Note: Selection sets can be moved across PC based platforms, but not between UNIX based platforms and PC based platforms. This is due to formatting differences in the operating systems.

Using selection criteria in a key file

Two new commands have been added to *Global File Changer*.

The first new command is **AXIOM SELECT OPEN**. This command requires a file name as an argument, such as **AXIOM SELECT OPEN** c:\roads.sel. This command opens the indicated file and loads all the selection criteria in the file into memory.

The second new command is **AXIOM SELECT ELEMENTS**. This command requires a comma delimited list of description names, such as:

```
axiom select open c:\roads.sel
axiom select elements streets,stop signs,signals
delete
```

This command will create a selection set based on the selection criteria found in the descriptions passed to the command.

Note: See the 'Element Selection' section of this guide for detailed information on creating and using selection sets.

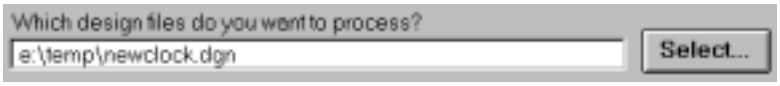
Help | Contents

The Help | Contents menu option opens the *Global File Changer* User's Guide.

Help | About

The "Help | About" button displays a dialog box that shows the current version, type of license and date that the program was built.

Which design files do you want to process?



There are several ways to tell *Global File Changer,* which design files you want to modify.

Type in the name of a single design file. Example:

```
sample.dgn
```

- Type in a wildcard filename. Example:

  ```
  *.dgn
  ```

- Type in a wildcard filename followed by `/s`. The `/s` means to process subdirectories also. To process all design files on drive C: (as opposed to just the files in the root directory), you would enter:

  ```
  c:\*.dgn/s
  ```

- Type in a series of design file names separated by semicolons. Example:

  ```
  sample.dgn;test.dgn
  ```

- Type in a series of wildcard filenames separated by semicolons. Examples:

  ```
  a*.dgn;d*.dgn
  ```

- Type in the name of an indirect list file. An indirect list file is a plain text file that lists the names of all the design files you want to process. For example, if you entered:

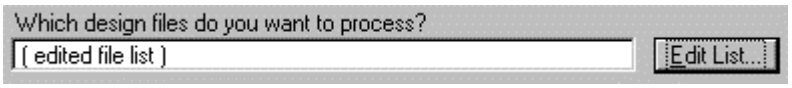
  ```
  @filename.lis
  ```

  and file `filename.lis` contained:

  ```
  test1.dgn
  d:\test\*.dgn
  e:\project1\*.dgn/s
  ```

  all the matching design files would be processed.

- Click on the `Select` button and use the Edit File List dialog box to edit the list of files to be processed. Use this dialog box to navigate directories, enter new wildcards, "point & click", enter a file name, etc. When you add or remove files from the list and press [OK], "(edited file list)" will display in the design file name field.



Note: "(edited file list)" is not saved when "Options | Save current settings…" is selected. Instead, the field is reset to the factory defaults before being saved. If you want to save your list, use the List | Export feature as described in the 'File List Editor' section.

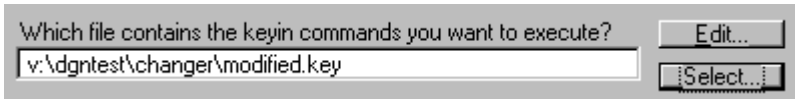
The default design file directory

When you first start *Global File Changer*, the design file directory is your current default directory. To make another directory your default for the next time you start *Global File Changer*, enter the file specification you want and select the "Options | Save current settings…" command or have the "Save settings on exit" feature ON.

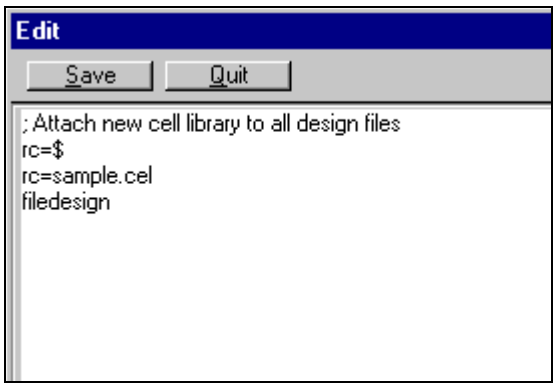
Which file contains the keyin commands you want to execute?

There are two ways to tell *Global File Changer* what commands you want to execute on each of your design files.

1. Enter the name of a key-in file.



A key-in file is a simple text file that contains the MicroStation key-in commands you want *Global File Changer* to execute on each design file. Each line of the key-in file contains one or more key-in commands that you want *Global File Changer* to execute. You can put more than one command on a line, if you separate each command with a semicolon. The following is an example of a key-in file called library.key. The purpose of library.key is to attach a new cell library called changer.cel to a set of design files.



2. Enter a MicroStation key-in command directly.

To do so, enter a pound sign ("#") followed by the MicroStation key-in command. Again, you can enter multiple commands by separating them with a semicolon. Typing the following in the key-in field is another way of attaching a new cell library to a series of design files.

```
#rc=changer.cel; filedesign
```

Remember that the # is needed only when you enter a MicroStation key-in within the *Global File Changer* main window. The # is not needed when MicroStation key-ins are entered into a key-in file.

<Select> and <Edit>

Use the <Select> button to load an existing key file.

Use the <Edit> function to open the specified key file in a text editor. Then you can view its contents and make any necessary modifications.

A simple example

You can try this simple keyin command on the sample demo file "clock.dgn" that comes with *Global File Changer*.

```
#co=3;choose all; change color
```

Running user commands

The following command demonstrates the easiest way to run a user command on a series of design files.

```
#uc=mine.ucm
```

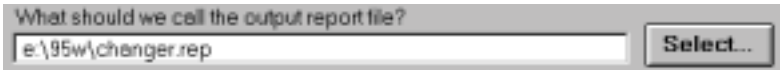
You can specify almost any non-interactive user command. *Global File Changer* cannot execute user commands that prompt the user for information.

To make it easier for you to run user commands that are stored in your *Global File Changer* directory, *Global File Changer* automatically appends the *Global File Changer* directory to your MS_UCM environment variable.

The default keyin command file directory

When you first start *Global File Changer*, if there are any `.key` files in your current default directory, then that is the directory in which *Global File Changer* will search for key-in files. If there are no `.key` files in your current directory *Global File Changer* will set the key-in file directory to the directory in which `changer.ma` is stored. To make another directory your default for the next time you start *Global File Changer*, enter the file specification you want and select **`'Save current settings…'`** from the `Options` menu or have the 'Save settings on exit' feature ON.

What should we call the output report file?



Global File Changer writes the results of each command it executes to a report file. Any legal filename can be specified. If the file already exists, it will be overwritten.

The section entitled "The Report File" describes the report file in greater detail.

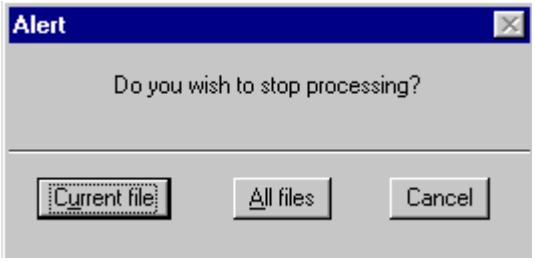
<Start>

Press the <Start> button to direct *Global File Changer* to begin processing your files.

Press any key to abort the processing

Once the button <Start> is pressed and the program is running you will have the option to stop the process by pressing any key.

If you press any key, an 'Alert' dialog box will give you the alternatives to 'Cancel' and continue processing, stop the processing only on the current file or stop the complete process.



<Display Report>

Press this button to display the output report generated by *Global File Changer*. The <Display Report> button will be grayed out when no report file with the specified name exists. During processing, the report file will be created and the button becomes available.

<Exit>

Press this button to exit (mdl unload) *Global File Changer*.

Chapter 6 — The ‘Options ’ menus

About settings

Most all of the settings that control the operation of *Global File Changer* are saved in a resource file. Every time you start *Global File Changer* this file is loaded, restoring the settings from the last time they were saved. To start with, this file contains the default settings but depending upon choices made in the Options Menu, new values may be saved and subsequently restored.

A common method of operation is to have “Save settings on exit?” set to ‘YES’ so that *Global File Changer* looks the same when you start it as it did the last time you quit.

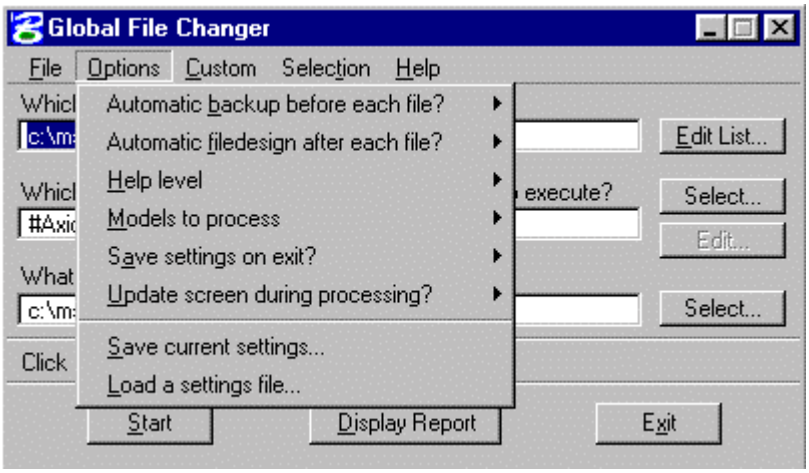
By default this file is “...\axiom\changer\changer.rsc”.

If you are on a network and want to have your own private settings file, go into MicroStation | Workspace | Configuration and define the variable CHANGER_RSC. The value of this variable overrides any part of the default file specification (as mentioned above).

For instance, if you wanted to save your settings in “...\axiom\changer\wilbur.rsc” you could define CHANGER_RSC as “wilbur.rsc”, it would then replace the default name and extension with “wilbur” and “rsc”. Or you could just define it as “wilbur” and it would only override the name part of the file specification (the results would be the same).

On the other hand if you defined it as a path it would use “changer.rsc” in the specified folder. For example, “d:\smith\” would override the path portion of the default file specification, giving you “d:\smith\changer.rsc” as the working setting file. Because CHANGER_RSC is defined as a User level variable no other MicroStation users will see it and therefore will not use the same file.

The working settings file is where *Global File Changer* saves the application settings. The “Save current settings” and “Load a settings file...” will change the working settings file.



Global File Changer will work fine without using the `Options` menu. The `Options` menu simply gives you greater control over the way *Global File Changer* performs certain tasks.

If you remove the path and resource file, making CHANGER_RSC environment variable "null" it will use Changer.rsc as your default when you reload *Global File Changer*.

CHANGER_RSC environment variable will only recognize one resource file at a time.

Options | Automatic backup before each file?

As protection against user error *Global File Changer* offers the option of automatically backing up each design file before processing it. The advantage of turning this option on is that if your changes don't turn out the way you want them to, you can recover the previous version of each design file. The disadvantage is that the backup version of each design file takes up just as much disk space as the original design file. Setting this option to "yes" has the same effect as adding a `backup` command to the beginning of every key-in command file.

The backup file will have the same name as the original file with an extension of .bak. It will be located in the directory defined by the MS_BACKUP variable. If this variable is not defined, it will be located in the same directory as the original file.

Options | Automatic filedesign after each file?

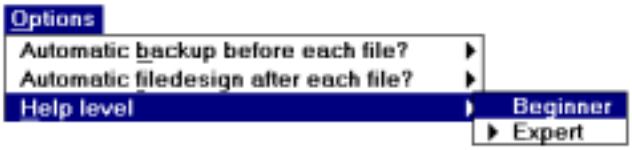
Note: "Filedesign" is a MicroStation keyin command. The GUI version of this is "File | Save settings".

One of the powerful features of *Global File Changer* is its ability to change the active parameters of dozens of design files at a time. Many of the settings *Global File Changer* can change are the type that are saved only when you execute a `filedesign` command.

For example, if you brought up a design file, keyed in `LV=44` and then exited the design file, the net result would be no change. You temporarily changed the active level to 44, but since you exited without saving your active parameters with a `filedesign` command, the change was not permanently recorded in the design file.

Setting this option to yes has the same effect as adding a `filedesign` command to the end of every key-in command file. Since the `filedesign` command is so important, this option was added as a convenience.

Options | Help level



Valid selections are "Beginner" and "Expert".

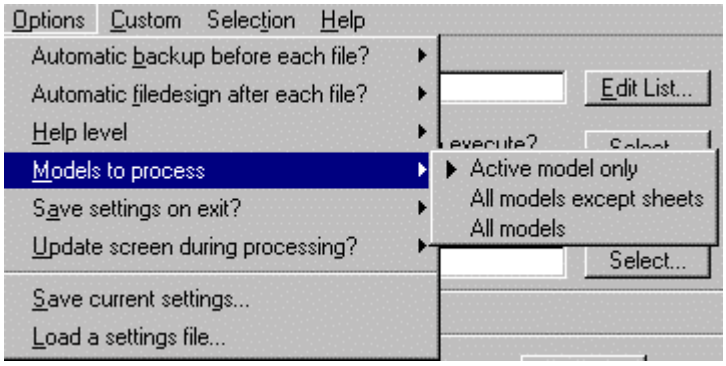
When you first start using *Global File Changer*, each time the program is started a series of help windows pops up to briefly explain how *Global File Changer* works. After you've used *Global File Changer* for a little while you'll probably want to turn these messages off. Use the `Help level` command on the `Options` menu to accomplish this.

Tip: Don't forget to use the **Save current settings...** command to save your new help setting or have the **Save settings on exit** feature ON. *Global File Changer* won't remember the change unless you do so.

When you want to review the help messages you can either select the `Help` command on the main *Global File Changer* window or change the help level back to `Beginner` using the `Options` menu.

Options | Models to process

V8 only



Active model only

This is the factory default.

When you select "Active model only", *Global File Changer* will limit its processing to the active model in all selected design files.

For example, if you select "Active model only" and select "sample.dgn" for processing, then only the active model in sample.dgn will be processed. If sample.dgn is the currently active design file (displayed on your screen), you can make any model within it the active model and use this option to limit processing to just that model.

If you are processing "*.dgn" (multiple files) with the "Active model only" option, *Global File Changer* will process only the active model in each selected file.

Note: The active model is a setting that can be saved. This setting should be saved when you either do a File > Save Settings, or if you have Save Settings on Exit set in your Workspace Preferences (Workspace > Preference > Operation > Save Settings on Exit).

All models

When you select 'All models', *Global File Changer* will process all models in all selected design files.

For example, if you select "All models" and select "sample.dgn" for processing, then all models in sample.dgn will be processed.

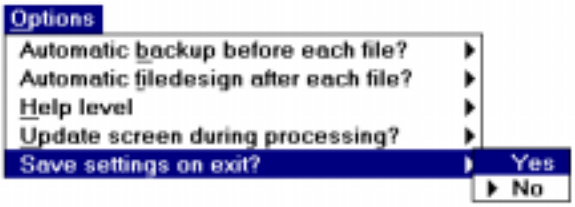
If you select "*.dgn", then all models will be processed in all files matching "*.dgn".

All models except sheets

Select "All models except sheets" to skip sheet models during processing.

Note: if you have any other requirements for the selection of models to be processed by *Global File Changer*, please let us know.

Options | Save settings on exit?

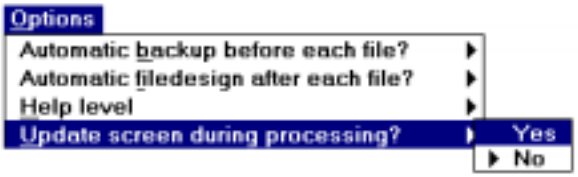


When 'Save settings on exit?" is 'Yes', all of the *Global File Changer* settings, these options, the fields in the dialog boxes, the selected files, etc. are all stored in the settings file each time you shut the application down.

With this option set to 'No', you must run "Options | Save current settings…" to save your settings.

The "Options | Save settings on exit?" Yes or No, is a setting you save with the resource file not necessarily a switch you use for that session. If the resource file you have loaded has the save settings set for 'Yes' and you set it to 'No' and don't save the settings, when you reload that resource file it will revert to 'Yes'.

Options | Update screen during processing?



By default *Global File Changer* updates the screen as it makes changes to your design files. By turning screen updating off, you trade a bit of the visual excitement that *Global File Changer* generates as it does its job for increased speed. With screen updating turned off, *Global File Changer* can do many jobs over twice as fast!

Options | Save current settings...

Select 'Save current settings…' to open a standard MicroStation 'Save settings' dialog box where you can select a *Global File Changer* settings file to overlay with current settings or create a new settings file.

The default is to overlay the currently active settings file. Pressing <Enter> or clicking on <OK> will cause the settings to be immediately saved to the selected file.

When the above “Save settings on exit?” option is activated *Global File Changer* saves the settings in the currently active settings file.

Options | Load a settings file...

The ‘Load a settings file…’ option brings up a standard MicroStation ‘open file’ dialog box from which you can specify a settings file to load. This operates much like “Save current settings...”

Chapter 7 — Tricks and te c h niques

Global File Changer's power is limited only by your imagination

As we've said before, the power of *Global File Changer* is limited only by your imagination. The purpose of this section is to describe a few of the tricks and techniques you can use to make *Global File Changer* do all the things you need it to do.

Combining *Global File Changer* with the MicroStation Calculator

Global File Changer combined with the MicroStation calculator forms a powerful tool for making bulk changes to design files. A user with appropriately advanced skills can directly modify the TCB and hence the type 9 and type 66 elements of any set of design files.

Definition: TCB stands for Terminal Control Block. The TCB is an area of memory in which MicroStation stores settings. The active color and active level are two examples of the hundreds of settings stored in the TCB.

Sample files `origin1.key` and `127level.key` contain examples of using the MicroStation calculator with *Global File Changer*. Your *MicroStation Customization Guide* and (if you have MDL installed) the file `tcb.h` contain detailed information about the TCB variables you can modify with *Global File Changer*. The contents of file `127level.key` are shown below:

```
; Enable extended levels. In this mode MicroStation has 127 levels.
mdl load calculate calc tcb->ext_locks.extendedLevels = 1
```

Note: Whenever possible, use MicroStation key-in commands to change MicroStation settings. Use the calculator to modify the TCB directly only when MicroStation does not provide key-ins to make the changes you want.

User commands that process elements one by one

Before MDL, most MicroStation programming was done using user commands. Although MDL is the preferred language for highly trained professional programmers, many systems managers and experienced operators prefer to develop simple, yet powerful labor saving tools in user command language.

There is one type of user command that is especially useful with *Global File Changer*. A *scanning user command* analyzes each element in a design file one by one and makes changes to some or all of the elements it encounters.

File `modele.ucm` is an example of a scanning user command. Purchasers of *Global File Changer* are authorized to use `modele.ucm` as a template for developing similar user commands that process elements in a design file one by one. Just copy `modele.ucm` to a filename of your choice and modify it so it makes the kind of changes you need done.

Combining *Global File Changer* with the SelectBy utility

MicroStation includes a utility called SelectBy. SelectBy lets you select elements to be modified based on their color, level, style, weight, element type, class, cell name, text height, text content, font and other element properties.

Although the SelectBy utility provides a powerful tool for making changes to design files, we suggest you use the **Element Selection** function of *Global File Changer* to control which elements are selected and manipulated..

SelectBy commands should only be used from a key-in file when used with *Global File Changer*.

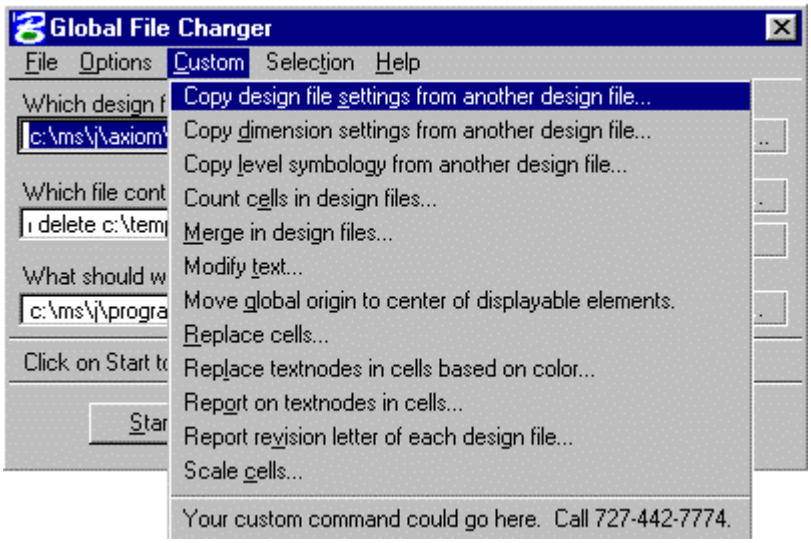
Following is an example of a *Global File Changer* key-in file that uses the SelectBy utility to fill all shape elements with the color violet.

```
; Change the fill color of all shape elements to violet.
; "selectby off" makes sure nothing is selected when we start.
; "selectby type none" says start off with no types being selected.
; "selectby type shape" says select all shape elements.
; "selectby on" says execute the select criteria we just described.
; Load the SelectBy utility.
mdl l selectby
; Make sure that no elements are selected when we start.
selectby off
; By default all element types are selected when we start. The following command
; makes sure that no element types are selected when we start.
selectby type none
; Select shape (type 6) elements.
selectby type shape
; The following command causes the selection criteria described above to be
; executed.
selectby on
; The following commands fill each of the selected elements with the color purple.
active fill on
active fillcolor violet
change fill
```

Note: The **Element Selection** utility of *Global File Changer* is very powerful, yet easily definable. Once a selection set has been defined using the **Element Selection** utility, add the commands to a key file. See the section called ‘Using selection criteria in a key file’ for specifics about using it with a Key file.

Chapter 8 — The 'Custom ' menu

Global File Changer's additional built-in commands



Note: The custom commands included in the V7 and V8 versions of *Global File Changer* are different as indicated in the following sections.

In addition to being able to execute MicroStation key-in commands and user commands on multiple design files, *Global File Changer* contains additional built-in commands that make changes that cannot be made using MicroStation alone. For example, the "Copy level symbology" command can copy the level symbology settings from one design file to all the design files you specify.

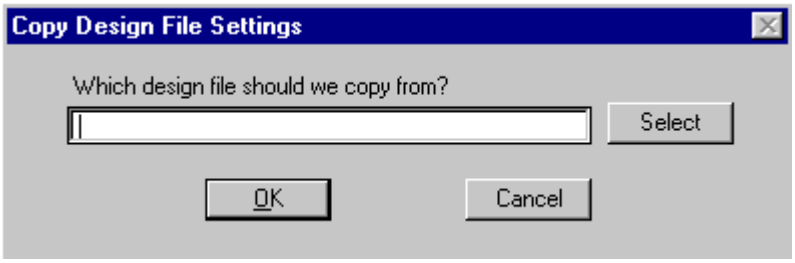
Any change you can make with a user command or a series of MicroStation key-in commands to a single design file, *Global File Changer* can make on hundreds of design files. If, however, you find that making a particular change is beyond your MicroStation skills, phone us at +1-727-442-7774 and (for a small additional fee, usually) we'll enhance *Global File Changer* so it can make almost any change you can imagine. In other words, once you own *Global File Changer* we'll make any enhancements you need for a fraction of what it would cost to have an MDL programmer write a separate program to do the same thing.

Special commands that are added to *Global File Changer* on customer request are frequently placed on the `Custom` menu. By keeping your software maintenance current you'll get most of the enhancements we make for other users at no extra charge!

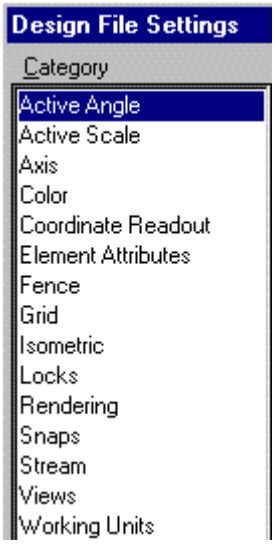
To execute a custom command just select the command you want off the `Custom` menu and *Global File Changer* will prompt you for all the information it needs to make the change that you request.

After you give *Global File Changer* all the information it asks for, it will fill in the second field of the main *Global File Changer* window automatically. Therefore, to use the custom commands described in this chapter, there is no need to write your own `.key` file or to compose your own key-in command. *Global File Changer* does it for you!

Custom | Copy design file settings



Use this function to copy settings from one design file to another. The settings that will be copied are the ones that you find in the MicroStation ‘Settings | Design File…’ dialog.



For MicroStation version 8, this custom tool copies active model settings from the source file to selected model(s) in the target file(s). See ‘Options | Models to process.’

The keyin command syntax is:

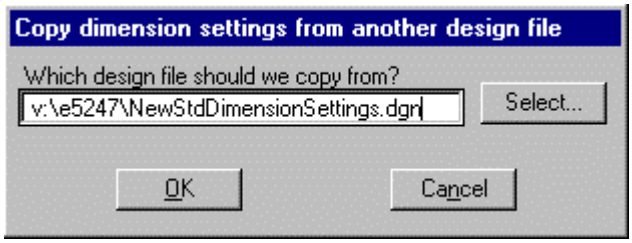
```
Axiom Copy Design File Settings (source design file)
```

For example:

```
Axiom Copy Design File Settings source.dgn
```

Custom | Copy dimension settings from another design file

V7 only



It may be desirable for all the design files in a project to have the same dimension settings. Changing the dimension settings of 1500 design files would be a tedious job without *Global File Changer*.

Using this command, *Global File Changer* will prompt you for the name of the design file whose dimension settings you want to copy. *Global File Changer* will then automatically compose the key-in command that will make the changes you want.

Global File Changer will copy the dimension settings from the design file you specify to all the design files that match your filename wildcard.

Tip: The "Options | Automatic filedesign after each file?" option *must* be turned ON in order for your changes to get saved to the design file. If this option is not turned on, this function will appear to have had no effect.

The keyin command syntax is:

```
Axiom Copy Dimension Params (source design file)
```

For example:

```
Axiom Copy Dimension Params source.dgn
```

Custom | Copy level symbology

V7 only

It may be desirable for all the design files in a project to have the same level symbology settings. Select the "Copy level symbology" command from the Custom menu. *Global File Changer* will prompt you for the name of the design file whose level symbology

settings you want to copy. *Global File Changer* will then automatically compose the key-in command that will make the changes you want. *Global File Changer* will copy the level symbology settings from the design file you specify to all the design files that match your filename wildcard.

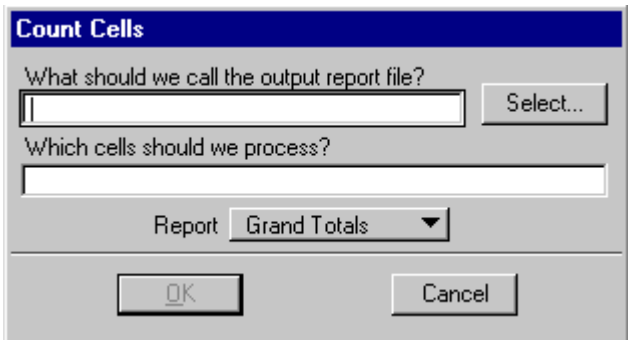
The keyin command syntax is:

```
Axiom Copy Level Symbology source_design_file
```

Example:

```
Axiom Copy Level Symbology source.dgn
```

Custom | Count cells in design files...



Use the 'Count Cells' function to generate a count of the number of cells in selected design files by cell name.

What should we call the output report file?

You can use this field to specify a name and location for the report file.

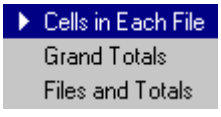
Note: The 'Count Cells' report file and the *Global File Changer* report file are two separate files. Be careful not to give these two files the same name.

Which cells should we process?

The 'Which cells should we process?' field accepts regular expressions.

To process all cells, enter '.*'. You can also enter a string of cell names separated by commas or spaces.

Report



Report cells in each file

If you select ‘Report Cells in Each File', *Global File Changer* will give you a list of cells for each design file. For example:

```
V:\DGNTest\Changer\Unchanged DGNs\changer.dgn

  Cellname   Count
  ALBOR      2
  C          1
  DECID      1
  F          1
  H          1
  NCELL      1

V:\DGNTest\Changer\NXF2.DGN

  Cellname   Count
  ESSVPI     63
  NOTE       4
  PRIKK      18
  REVTAG     1
```

Report grand totals

If you select 'Grand Totals', *Global File Changer* will give you the total number of times that each cell is used in all processed design files. For example:

```
Total:

  Cellname   Count
             2
  ALBOR      2
  C          1
  DECID      1
  ESSVPI     63
  F          1
  H          1
  NCELL      1
  NOTE       4
  PRIKK      16
  REVTAG     1
```

Report files and totals

If you select ‘Report Files and Totals’, *Global File Changer* will output detail per design file followed by grand totals for all design files. For example:

```
V:\DGNTest\Changer\Unchanged DGNs\changer.dgn

  Cellname   Count
  ALBOR      2
  C          1
  DECID      1
  F          1
  H          1
  NCELL      1

V:\DGNTest\Changer\NXF2.DGN

  Cellname   Count
  ESSVPI     63
  NOTE       4
  PRIKK      18
  REVTAG     1

Total:

  Cellname   Count
  ALBOR      2
  C          1
  DECID      1
```

```
ESSVPT      63
F           1
H           1
NCELL       1
NOTE        4
PRIKK       18
REVTAG      1
```

Keyin command syntax

You can run this function with the MicroStation keyin command:

```
Axiom Report on Cells report-file cellname-wildcard
Report-type
```

Report type:

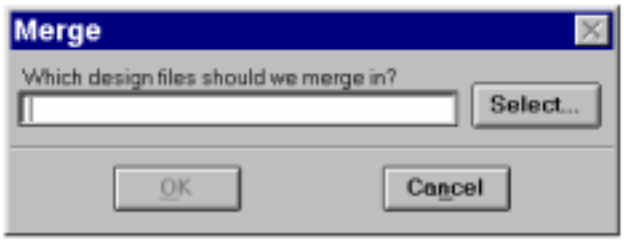
- r1=‘Cells in Each file’.
- r2=‘Grand Totals’
- r3=‘Files and Totals’

For example:

```
"Axiom Report on Cells d:\CellCount.rep .* r1"
"Axiom Report on Cells d:\CellCountTotals.rep .* r2"
"Axiom Report on Cells d:\CellCountFull.rep .* r3"
```

Note: You can only use one 'Axiom Report on Cells' command, in a key-in file.

Custom | Merge in design files



The `Merge` command that comes with *Global File Changer* lets you manually merge one design file into another design file. This command lets you automatically merge any group of design files into any other group of design files.

V8 Tip: In Version 8 of MicroStation, the ‘Merge design files’ feature merges the active model from the source file to selected model(s) in the target file(s).

Let's say you select "All models" and select merge "c:\sample.dgn" into "d:*.dgn".

In that case, the active model from sample.dgn will be merged into all models in all files matching "*.dgn".

How to merge one design file into a group of design files

Let's say you want to merge the design file `extra.dgn` into all the design files in the current default directory. Just select the "Merge in design files" command then specify the name of the design file you want to merge into other design files. Then enter `*.dgn` as the design filename wildcard on the main *Global File Changer* dialog box.

How to merge a group of design files into a single design file

Let's say you want all the design files in directory `\usr\extra` to be added into design file `xyz.dgn`. Select the "Custom | Merge in design files" command and then tell *Global File Changer* that the design files you want to merge into other design files are `\usr\extra\*.dgn`. Then enter `xyz.dgn` as the design filename wildcard on the main *Global File Changer* dialog box.

How to merge a group of design files into a group of design files

Let's say you want all the design files in directory `\usr\extra` to be added into design files in directory `\usr\mapping`. Select the " Custom | Merge in design files" command and then tell *Global File Changer* that the design files you want to merge into other design files are `\usr\extra\*.dgn`. Then enter `\usr\mapping\*.dgn` as the design filename wildcard on the main *Global File Changer* dialog box.

Keyin command syntax

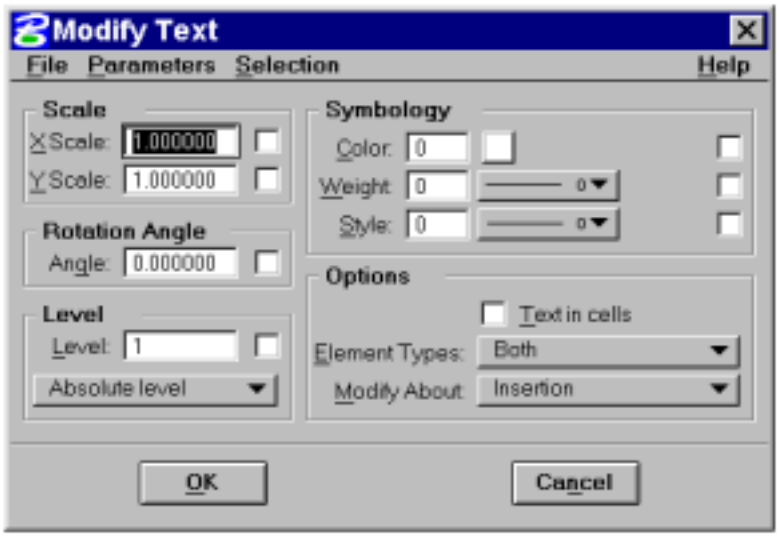
The syntax of the keyin command is:

```
Axiom Merge source_design_file
```

Example:

```
Axiom merge source.dgn
```

Custom | Modify text



This command lets you control virtually any parameter of MicroStation text elements and textnodes and is easy to use. All options can be set using standard MicroStation dialog boxes. Like other *Global File Changer* commands, “Custom | Modify text” can operate on just a single design file or on hundreds of design files at once. This functionality is discussed in more detail in the Custom | Modify text chapter.

Custom | Move global origin to center of displayable elements

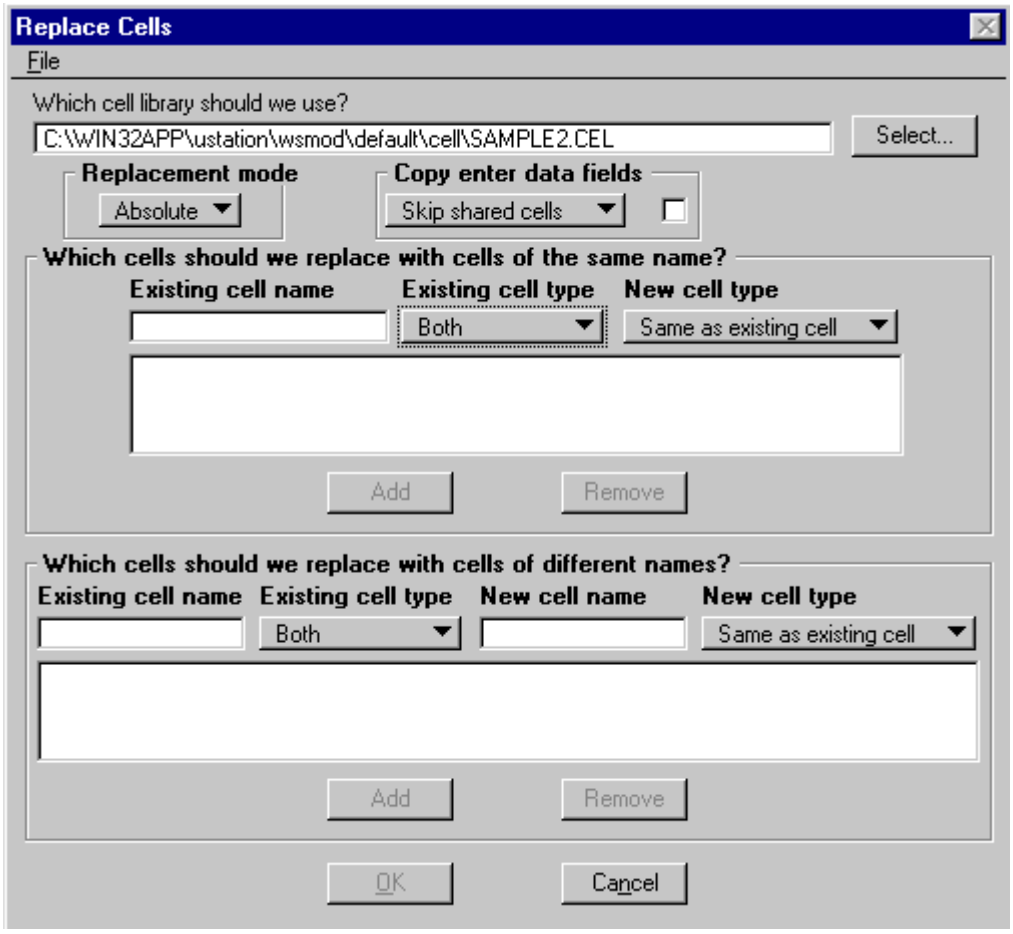
This function moves the design file’s global origin to the center of the extent of all the displayable elements in the design file. An element with a corrupt range could cause this command to put the global origin in the wrong location. If this happens, repair the range error with *FileFixer* and rerun this command. After running this function, the coordinate (0, 0) will be right in the center of the elements in your design file.

The keyin command syntax has no parameters. Just enter:

```
#Axiom Center Global Origin
```

Warning: This command cannot be undone; it is recommended to use the “Automatic backup…” option and revert to backup to restore original settings if necessary.

Custom | Replace cells



The “Custom | Replace cells” command replaces cells in a design file. The dialog box helps you generate this command.

Note: The “Custom | Replace cells” command retains any attribute linkages attached to the original cell.

The File pulldown menu

Use the ‘File’ pulldown menu to save and retrieve files that contain sets of cell replacement parameters.

File | Open: Use this to open an existing parameter file. The parameters in the parameter file will be used to populate the Replace Cells dialog boxes.

File | Save: Use this option to save the current dialog box settings to a parameter file. If a file has previously been opened with the `Open` option, the current parameters will be

written to that file. If no file has been previously opened, you will be prompted for the parameter file name.

File | Save as: Use this option to save the current text settings to a parameter file with a different name than the one you originally opened.

Which cell library should we use?

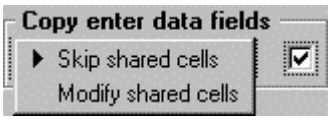
This option is used to define which cell library to use when replacing cells. If a cell library is already attached to the current design file, this field will be automatically populated with the attached cell library’s name. You may key-in a cell library, including the full path, or you may use the <Select…> pushbutton to graphically select a cell library.

Replacement mode

If the ‘Replacement Mode’ is “Absolute” the cell placement will be as it is stored in the cell library.

If the ‘Replacement Mode’ is “Relative” the cell placement will be relative to the lowest level of that cell that you will be replacing.

Copy enter data fields



The replace cell function will let you update ‘Enter Data Fields’ in the new cell with the same data that was in the old cell. This enables you to change cell format yet preserve your data.

EDFs will be replaced in sequence. If the replacing cell EDF is smaller than the original cell, data will be truncated. If the replacing cell is larger, blanks will be added. Ideally, both cells will have the same sequence of EDFs of approximately the same size.

You must select this option by putting a check in the associated box. The ‘Copy enter data fields’ function is unselected by default.

If you select the option to ‘Modify shared cells’ from the pull down menu, all shared cells with the same name will be changed, otherwise, the default is to change only normal cells.

For example let’s say that you have a file with cells that contain ‘Enter Data Fields’ with text, and you have to replace some of these cells, but you want to keep the text of the old cells in your new cells. It is now possible with this new option.

Which cells should we replace with cells of the same name?

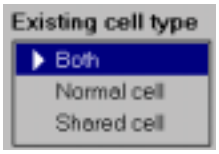
This section allows you to define cells to replace with cells of the same name. This option could be used when your cell library has been updated and you want your design files to reflect the changes in the cell library.

Existing cell name

The *Existing cell name* field allows you to specify which cells you want to replace. It allows you to use a series of wildcards to specify cell names. The "*" character means "match any string of characters". The "?" character means "match any single character." Following are some examples:

`*`	Match any cell.
`B*`	Match any cell that starts with the letter B.
`*F`	Match any cell that ends with the letter F.
`H*E`	Match any cell that starts with H and ends with E.
`H?E`	Match any 3 letter cell that starts with H and ends with E.
`A*`	Any cell that starts with A.
`??`	Any cell that has exactly 2 characters.

Existing cell type



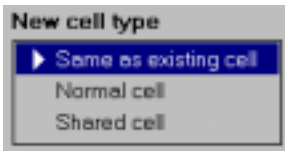
The *Existing cell type* option button allows you to determine which type of cells to replace.

Both — replaces the shared and non-shared cells.

Normal cell — replaces type 2 (non-shared) cells.

Shared cell — replaces only shared cells.

New cell type



The *New cell type* option button allows you to specify the type of the new cell that will replace the existing cell.

Same as existing cell — makes the new cell to be the same type as the existing cell. If the existing cell was a type 2 (non-shared) cell, the new cell should also be a type 2 cell. If the existing cell was a shared type cell, the new cell should also be a shared cell.

Normal cell — the new cell should always be made a type 2 cell regardless of the existing cell's type.

Shared cell — the new cell should always be made a shared cell regardless of the existing cell's type.

<Add>

The <Add> pushbutton adds the Existing cell name, Existing cell type, and New cell type to the list box contents. The list will be used to determine when a cell is to be replaced or rejected. If a cell meets the criteria represented on any row in the list, the cell will be accepted and replaced.

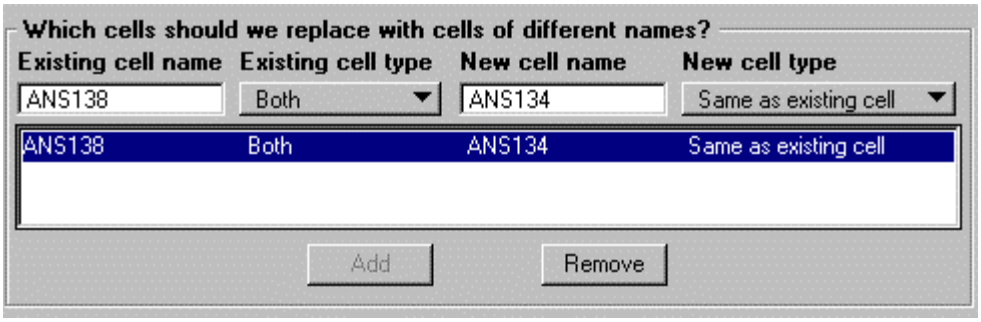
<Remove>

The <Remove> pushbutton removes the highlighted row from the list.

Tip: To replace all existing normal cells with shared cells, set the existing cell name to *. Set the Existing cell type to Normal cell. Set the New cell type to Shared cell.

Which cells should we replace with cells of different names?

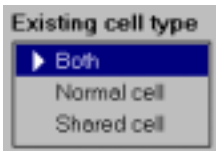
This section allows you to define cells to replace with cells of a different name.



Existing cell name

The *Existing cell name* field allows you to specify which cells you want to replace. You may not use wildcards in this field.

Existing cell type



The *Existing cell type* option button allows you to determine which type of cells to replace.

Both — replaces the shared and non-shared cells.

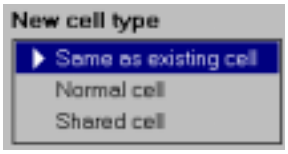
Normal cell — only replaces type 2 (non-shared) cells.

Shared cell — replaces only shared cells.

New cell name

The *New cell name* field allows you to specify the name of the cell that will replace the existing cell. You may not use wildcards in this field.

New cell type



The *New cell type* option button allows you to specify the type of the new cell that will replace the existing cell.

Same as existing cell — indicates you want the new cell to be the same type as the existing cell. If the existing cell was a type 2 (non-shared) cell, the new cell should also be a type 2 cell. If the existing cell was a shared type cell, the new cell should also be a shared cell.

Normal cell — indicates that you want the new cell to always be a type 2 cell regardless of the existing cell's type.

Shared cell — indicates that you want the new cell to always be a shared cell regardless of the existing cell's type.

<Add>

The <Add> pushbutton adds the Existing cell name, Existing cell type, the New cell name, and New cell type to the list box contents. The list will be used to determine when a cell is to be replaced or rejected. If a cell meets the criteria represented on any row in the list, the cell will be accepted and replaced.

<Remove>

The <Remove> pushbutton removes the highlighted row from the list.

<OK>

The <OK> pushbutton will prompt you for the name of a file to save the *Replace Cells* parameters in. When the "Custom | Replace cells" command is run, this file will be used to get the replacement parameters.

<Cancel>

The <Cancel> pushbutton closes the *Replace Cells* dialog box and disregards the changes you have made.

Keyin command syntax

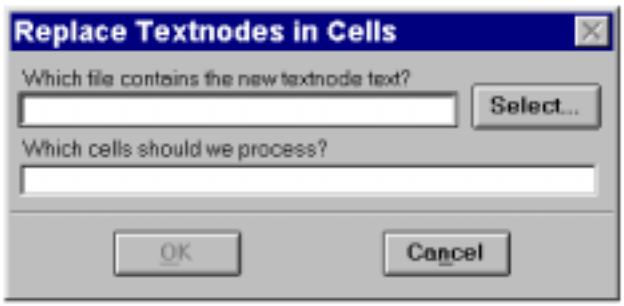
You can run this function with the MicroStation keyin command:

```
Axiom Replace Cells parameter_file
```

Example:

```
Axiom Replace Cells c:\repcell.txt
```

Custom | Replace textnodes in cells based on color



This command was written for a specific customer. It is included with *Global File Changer* because 1) you may find it useful as written or 2) we may be able to modify it to fit your particular needs fairly easily.

Note: This feature works on single line textnodes only. Multiple line textnodes will only have its first line processed.

The dialog box that generates this command prompts for two pieces of information: (1) the name of an ASCII input file (which is described below) and (2) a cellname wildcard (the wildcard methods are described under the "Key file command syntax" section of this guide.

The ASCII text file

There is one line containing only the design file name, followed by one line containing only the cell name, followed by one or more lines containing two space-delimited fields: 1) a color number and 2) a text string.

The color number has to be an integer between (inclusive) 0 and 255.

There can be multiple cells per design file; the design file name need not be repeated.

What this command does

This command searches for textnodes within the specified cells, whose names match the cellname wildcard and whose color matches the color specified in the ASCII input file. When it finds a match, it replaces the textnode with the specified text (from the ASCII input file).

Only textnodes within matching cells are processed. Textnodes within non-matching cells are not processed. Textnodes outside of cells are not processed. Text elements that are not part of a textnode are not processed.

Note: If the textnode and the first line of text have different colors, the color to match is the text color.

Command syntax

The syntax of this command is:

```
Axiom Replace Textnodes in Cells ASCII_input_file
cellname_wildcard
```

Example:

```
Axiom Replace Textnodes in Cells newtext.dat abc* *xyz
```

This command would process cells whose names begin with “ABC” or end with “XYZ”. Any textnode within such cells whose color matches the color number specified on one of the lines of ASCII input file `newtext.dat`, will be replaced by the text that follows the matching color number.

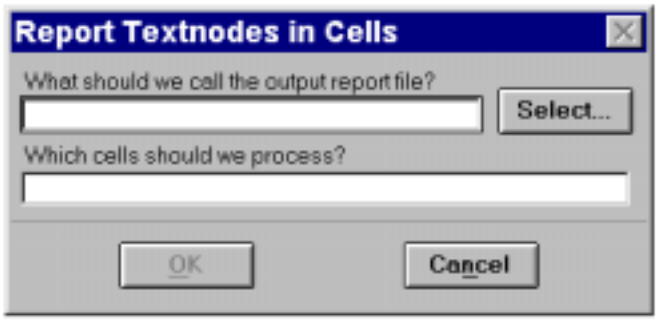
Let’s say `newtext.dat` (the ASCII input file specified in the above example) contains the following:

```
c:\design\test.dgn
ABC12
34 This is the new text for color 34.
66 This is the new text for color 66.
```

Let’s say cell `ABC12` in the file c:\design\test.dgn contains a textnode of color 66 that says, “This transformer weighs one hundred pounds.”

After processing, cell `ABC12` would be changed so that the textnode that previously read, “This transformer weighs one hundred pounds.” would now read, “This is the new text for color 66.” Cells not matching the design file name, cell name, or cell wild card would not be changed.

Custom | Report on textnodes in cells



This command was written for a specific customer. It is included with *Global File Changer* because 1) you may find it useful as written or 2) we may be able to modify it to easily fit your particular needs.

The dialog box that handles this function prompts for two pieces of information: 1) the name of an output report file (which is described below) and a cellname or wildcard (the wildcard methods are described under the "Key file command syntax" section of this guide.)

What this command does

This command searches for cells whose names match the cellname or wildcard. When it finds a match, it writes one line to the report file for each non-empty textnode in that cell. (A non-empty textnode is one that contains at least one text element.) Each line consists of the color number and text of the first text element in the textnode. Only textnodes within matching cells are processed. Textnodes within non-matching cells are not processed. Textnodes outside of cells are not processed. Text elements that are not part of a textnode are not processed.

The output report file

The color number is written in columns 1-9.

The first text element in each matching cell is written out starting in column 17. If a textnode in a matching cell has more than one text element, only the first one is reported.

Note: The 'Report on text nodes in cells' report file and the *Global File Changer* report file are two separate files. Be careful not to give these two files the same name.

Keyin command syntax

The syntax of this command is:

```
Axiom Report on Textnodes in Cells report_file
cellname_wildcard
```

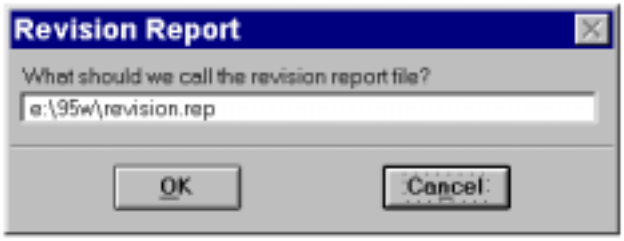
Example:

```
Axiom Report on Textnodes in Cells textnode.rep abc*
*xyz
```

This command would process cells whose names begin with “ABC” or end with “XYZ”. The first text element in each textnode within such cells would be listed on its own line.

Custom | Report revision letter of design file

V7 only



This command ***only runs is MSBATCH mode*** and was written for a specific customer. It is included with *Global File Changer* because 1) you may find it useful as written or 2) we may be able to modify it to fit your particular needs.

How we find revision letters

A *revision letter* is a letter that indicates the version of a design file.

This command scans each design file for *revision cells* and *revision text elements* that contain a revision letter.

A *revision cell* is a non-shared (type 2) cell whose name begins with ‘REV’, whose fourth character is a digit, whose last character is the letter “L” and which contains a text element which consists of a single character Enter Data Field. For example, the cell “REV3L” could be a revision cell. The cell “REV” could also be a revision cell. The revision letter is extracted from the first text element in a revision cell that is composed of a single character Enter Data Field.

A *revision text element* is a text element that consists of a single character Enter Data Field that falls in the geographic range (master units) where x is between -30. and -5.625 and where y is between 0. and 2.375. The revision letter is the character stored in the Enter Data Field.

This command reports only on the revision cell or revision text element that has the highest revision letter in that design file.

Note: The revision letter is treated case sensitively, in ASCII order (A,B,…,Z,a,b,…,z), meaning that a lowercase “a” would be treated as a higher revision than an uppercase “B”.

The revision report file

The revision report file is an ASCII text file. The default name of the revision report file is `revision.rep`. One line is added to the revision report file for each design file that is processed.

Note: The revision report file and the *Global File Changer* report file are two separate files. Be careful not to give these two files the same name.

1) If the highest revision letter is found in a revision cell, the following information is written to the (comma delimited) revision report file:

- the design file name (without extension)
- the design file extension (without period)
- the name of the revision cell
- the first text element
- the second text element
- the third text element
- additional text elements...

2) If the highest revision letter is found in a revision text element, the same format is used, except the name of the revision cell is left blank and there are no additional text elements.

3) If a design file contains neither a revision cell nor a revision text element, the Axiom Report Revision command searches for a cell named "ISSUED", "ISSUEM" or "REDRAW". The name of the found cell will be written to the revision report file in the format given under 1) above. The revision letter field will be left blank. If more than one such cell is found, the first encountered will be used.

4) If no such cell is found, the string "(none)" is written to the cellname field and the revision letter field will be left blank.

MSBATCH Example

msbatch c:\axiom\changer\changer.ma -k c:\test\key.key c:\test*.dgn/s

Key-file command syntax

The syntax of this command is:

```
Axiom Report Revision report_file
```

Example:

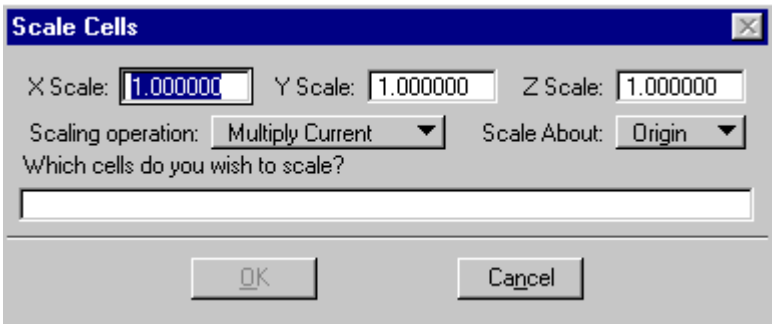
```
Axiom Report Revision revision.rep
```

Following is a sample output file:

```
M10010,s00,REV2L,V,ECO# 22497 SD 11-JAN-01 ADD,STYLE P; ADD DIM .318-.315
```

```
M10778,s00,REV2L,H,ECO# 22676 02-FEB-01 JJS,ADDED A5
M12300,s01,ISSUED
M12325,s01,REV2L,A,ECO# 22200 KB 17-NOV-00,ADD NOTE 1
M14033,s01,REV2L,A,ECO# 21100 REVA 08-MAR-00,17.125 WAS 17.50
m14083,s01,REV2L,C,ECO# 20749 ADD .004 TOLERANCE,13-SEP-00 DMN
M9001,s01,ISSUED
M9261,s01,REV2L,A,ECO# 18002 REMOVE 200 AND CIRC,19-MAY-97 DSD
```

Custom | Scale cells



Use this dialog box to scales cells. Each cell can be scaled about its origin (insertion point) or its center, multiplying its current scale or inserting new values for a new size.

Selecting which cells to scale

The Scale Cell dialog box allows you to specify which cells you want to scale. It allows you to use a series of wildcards to select cells. The "*" character means "match any string of characters". The "?" character means, "match any single character". Following are some examples:

`*`	Match any cell.
`B*`	Match any cell that starts with the letter B.
`*F`	Match any cell that ends with the letter F.
`H*E`	Match any cell that starts with H and ends with E.
`H?E`	Match any 3 letter cell that starts with H and ends with E.
`A*, ??`	Any cell that starts with A or that has exactly 2 characters.
`@cell.lis`	Read names from file `cell.lis` which has 1 cell per line.

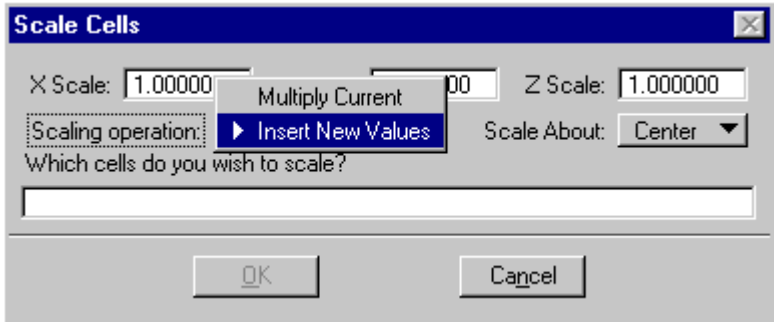
If a fence is active when the command is executed, only cells within the fence that match the wildcard will be processed.

If a selection set is active when the command is executed, only *selected* cells that match the wildcard will be processed.

If both a fence and a selection set are active when the command is executed, the fence is ignored and only selected cells that match the wildcard will be processed.

Scaling operations

Scaling operation features a pull down menu button, which gives you the alternative to 'Multiply the current scale' of the cells or 'Insert new values' for a new size.



Command syntax

The syntax of the command is:

```
Axiom Scale Cell reference_point x_scale y_scale
z_scale cell_wildcard
```

```
Axiom Scale Cell Center|Origin x_scale y_scale z_scale
cell_wildcard
```

Example:

```
Axiom Scale Cell Origin 2.0 2.0 2.0 abc* xyz*
```

The above command would double the size of all cells whose names begin with “ABC” or end with “XYZ”.

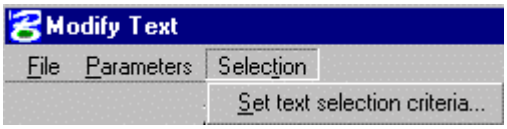
Chapter 9 — Custom | Modify Text

Overview

The ‘Modify Text’ custom function lets you control virtually any parameter of MicroStation text elements and textnodes and is easy to use. All options can be set using standard MicroStation dialog boxes. Like other *Global File Changer* commands, “Custom | Modify text” can operate on just a single design file or on hundreds of design files at once.

You control which text and textnode elements to work on — *all* the text and textnodes in each design file, ones within a fence, or just the ones that are selected. Used in conjunction withAxiom’s powerful Element Selection feature, the “Custom | Modify text” command gives you *enormous* power to control the text and textnodes in your design files.

Use ‘Set text selection criteria…’ to pinpoint the elements that will be changed.

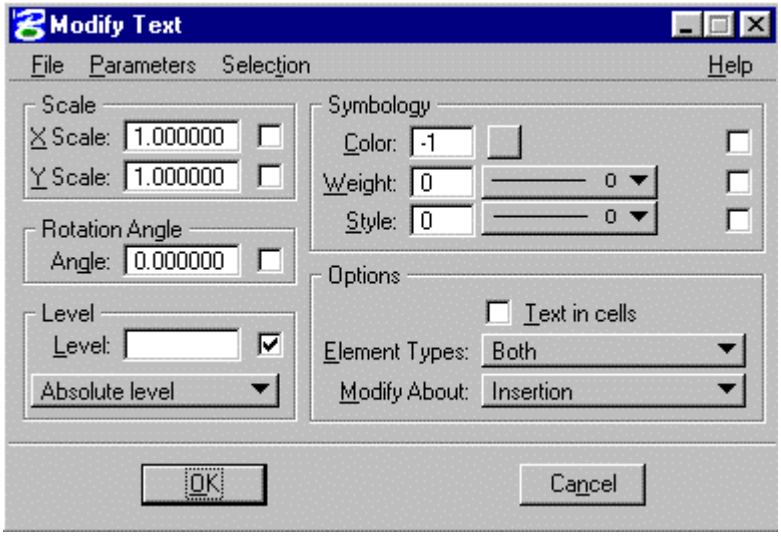


Then proceed to specify your changes in the ‘Modify Text’ dialogs.

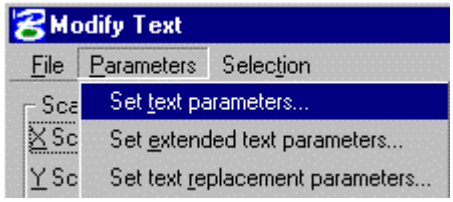
Some of the text parameters you can control include color, level, weight, style, rotation, height, width, scale, underline, slant, justification, use of stacked fractions, character spacing, line spacing, font and case.

There are four dialog boxes associated with this command that are used to set text and textnode parameters.

The main ‘Modify Text’ dialog box contains selections for modifying text scale, rotation, level, symbology, and text in cells.



Access additional options via the Parameters pull down menu.

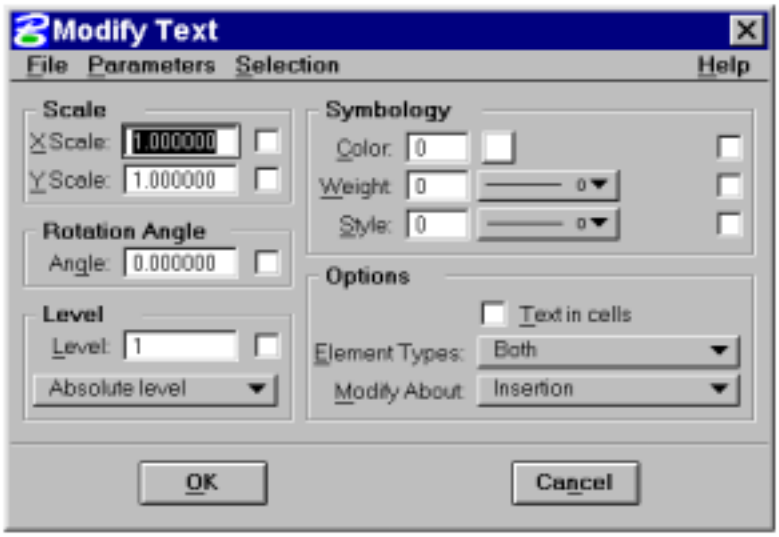


In the 'Set text parameters' dialog, you will find additional text and textnode parameters such as font, text size and justification. The 'Set extended text parameters' dialog box contains underline, vertical and slant options. The last dialog box gives you the ability to change the actual characters in the text elements.

To display the first dialog box, select `Modify text...` from the Custom pulldown menu on the main *Global File Changer* dialog box. The other three dialog boxes are accessed through the `Parameters` pulldown menu on the main 'Modify Text' dialog box.

Note: A toggle button to its right controls each text parameter. When the toggle button is depressed (turned on), the corresponding parameter will be modified.

The main ‘Modify Text’ dialog box



The File pulldown menu

Use the `File` pulldown menu to save and retrieve files that contain sets of text parameters.

Note: See the section entitled,“Text parameter file format” for more information about these parameter files.

File | Open: Use this to open an existing text parameter file. The parameters in the parameter file will be used to populate the Modify Text dialog boxes.

File | Save: Use this option to save the current dialog box settings to a parameter file. If a file has previously been opened with the `Open` option, the current parameters will be written to that file. If no file has been previously opened, you will be prompted for the parameter file name.

File | Save as: Use this option to save the current text settings to a parameter file with a different name than the one you originally opened.

The ‘Parameters’ pulldown menu

Use this pulldown menu to access the other dialog boxes that control text and textnode modification.

The ‘Selection’ pulldown menu

Use this pulldown menu to call up the *Element Selection* dialog box for the ‘modify text’ function.

Refer to the Chapter for “Element Selection” for a description of this dialog box.

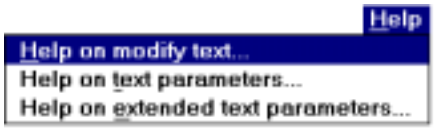
Warning: When you are first setting up to modify selected text with *Global File Changer*, it asks you to supply a name for the .sel file containing the selection set, the txt file containing the text modification parameters and the key file.

The key file contains the selection commands as well as the ‘Modify text’ commands and is only created when you combine text modification parameters with a selection set.

If you later go back into the Modify Text dialog boxes it won’t know that you want to use a selection set and will wipe out the keyin file you previously specified!

You must reload the .sel file or create a new one before closing the main ‘Modify text dialog box. You have to keep an eye on this field.

Help



Use this menu to get online help tips for the various dialog boxes.

Scale

Use this option to set a new scale for selected text and textnodes.

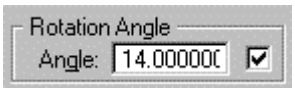
X Scale: Use this to scale text width.

Note: This option and the Text Width option on the Text Parameters dialog box cannot be selected at the same time.

Y Scale: Use this to scale text height.

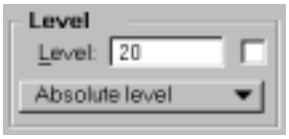
Note: This option and the Text Height option on the Text Parameters dialog box cannot be selected at the same time.

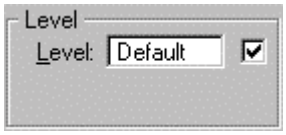
Rotation angle



Use this option to rotate text and textnodes. The angle specified (in degrees) is added to the current rotation of each element. Remember to select the toggle on the right to activate your new angle.

Level

V7 

V8 

Check the level toggle and enter a level number or name to select a level for the replacement text. By default, all text in the design file will be rewritten on the selected level.

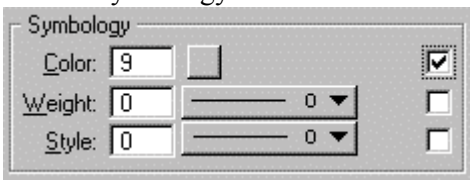
Absolute level / Relative level

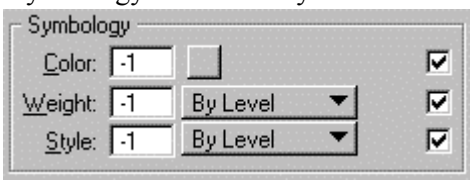
V7 only

Use this option to control whether the level parameter is added to the element's current level or the element is forced to the specified level.

Symbology

Use the symbology section to define new symbology for text that you select.





Color: Use this option to set the element's color. V8 users can enter '-1' for bylevel.

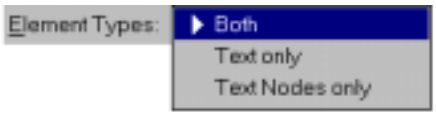
Weight: Use this option to set the element's weight. V8 users can enter '-1' for bylevel.

Style: Use this option to set the element's style. V8 users can enter '-1' for bylevel.

Text in cells

Use this option to control whether or not to modify text and textnodes that are part of type two cells.

Element types



Use this option to control which element types are modified.

Both: Accept both text and textnodes.

Text only: Accept only text elements.

Textnodes only: Accept textnode elements only.

Modify about

Use 'Modify About' to control which point text elements are scaled or rotated around.

Insertion: Modify the text about the insertion (justification) point.

Center: Modify the text elements about the center of the element.

Note: This option relies on the range block of the element being correct. If the range block of the element is wrong, the element may be scaled about the wrong point.

Lowerleft: Modify the text elements about the lower left corner of the element.

Note: Textnodes are always modified about the textnode origin.

<OK>

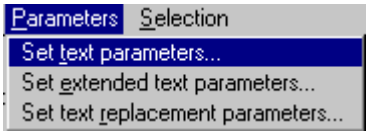
Press the <OK> pushbutton when you are finished selecting text settings.

This function saves all the current text settings to a text parameter (`.txt`) file. It then sets up the main *Global File Changer* dialog box to execute a command that references this file. If a text parameter file has not previously been opened with one of the `File` pulldown menu options, you will be prompted for the name of a text parameter file to which to save the current settings.

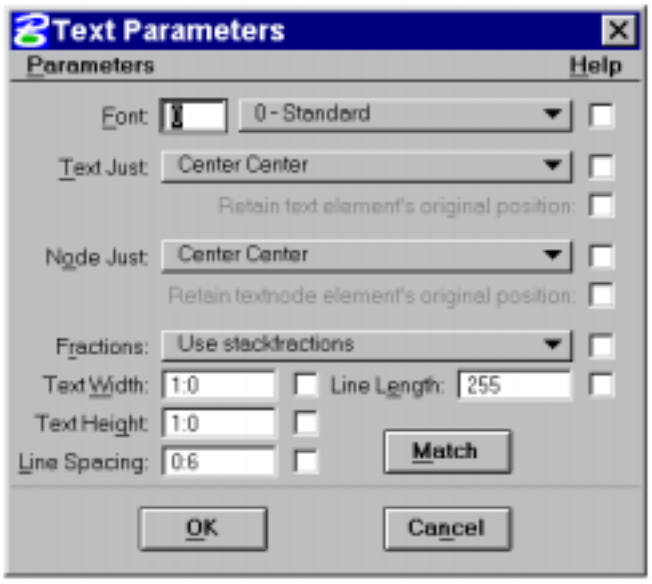
<Cancel>

Press <Cancel> to dismiss all Modify Text dialog boxes.

Parameters



Text parameters dialog box



The ‘Parameters’ pulldown menu

Use the ‘Parameters’ pulldown menu to bring up other Modify Text dialog boxes.

Set extended text parameters: Select this option to access the Extended Text Parameters dialog box.

Set text replacement parameters: Select this option to access the Replace Text Parameters dialog box.

Help | Help on text parameters

Note: When the help dialog box is displayed, you may get help for any specific parameter by clicking on the dialog item related to the desired parameter.

Use this option to open the help dialog box and display the first page of help for the Text Parameters dialog box.

Font

Use this option to control text and textnode's font. The option button is automatically populated with the currently available fonts. Select the desired font from the option button, or key in the desired font number in the text field.

Note: It's okay to key-in a font number that is not on the list.

Text just

Use this option to set the justification to be applied to text elements.

Node just

Use this option to set the justification to be applied to textnodes. This parameter is automatically applied to any text contained within textnodes.

Fractions

Definition: *Fractions* are defined by one or more numbers separated by a slash (/) character. MicroStation supports most commonly used fractions as *stackfractions*. When stackfractions are used, the entire fraction is replaced with a single character, which displays as the defined fraction.

Example: The stacked fraction representation of "1/2" is "½".

Use this option to control the use of stackfractions.

Use stackfractions: Any fraction within a text element that can be converted to single character will be. The effect is the same as placing the text element in the design file with the stackfractions preference turned on.

Remove stackfractions: Expands any single character fractions to be expanded to individual characters. The effect is the same as placing the text element in the design file with the stackfractions preference turned off.

Text width

Use this option to control text width.

Note: This option and the X Scale option on the Modify Text dialog box cannot both be selected at the same time.

Text height

Use this option to control text height.

Note: This option and the Y Scale option on the Modify Text dialog box cannot both be selected at the same time.

Line spacing

Use this option to control the line spacing parameter on textnodes.

Line length

Use this option to control the line length parameter on textnodes.

<Match>

Use this option to retrieve text and/or textnode parameters from an existing text or textnode element. You will be prompted to select an element from the design file. Once an element is selected, you will be prompted to accept the selected element. When the element is accepted, the dialog boxes will be populated with the text or textnodes parameters.

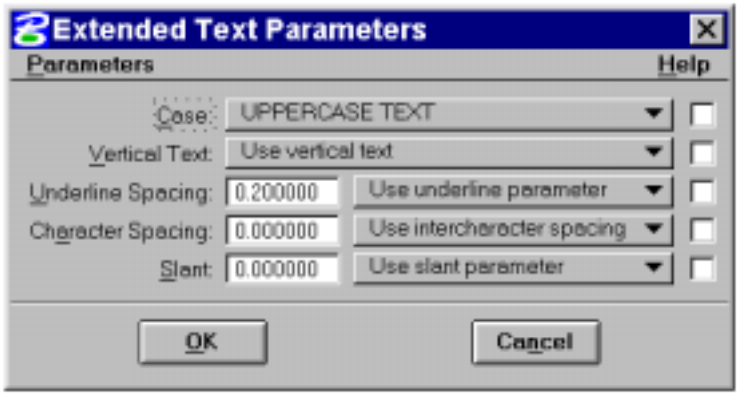
<OK>

Press the <OK> pushbutton to save the current parameters in the Text Parameters dialog box and then dismiss the Text Parameters dialog box.

<Cancel>

Press <Cancel> to dismiss the Text Parameters dialog box along with any changes made in the dialog box.

Extended text parameters dialog box



The ‘Parameters’ pulldown menu

Use the ‘Parameters’ pulldown menu to bring up other Modify Text dialog boxes.

Set text parameters: Select this option to access the Text Parameters dialog box.

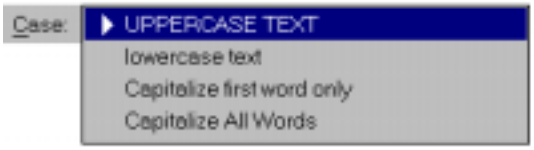
Set text replacement parameters: Select this option to access the Replace Text Parameters dialog box.

Help | Help on extended text parameters

Note: When the help dialog box is displayed, you may get help for any specific parameter by clicking on the dialog item related to the desired parameter.

Use this option to open the help dialog box and display the first page of help for the Extended Text Parameters dialog box.

Case



Use this option to force the text to either all uppercase or all lowercase or to control the case of the first letter of each word.

Uppercase: Force the text to all uppercase.

Lowercase: Force the text to all lowercase.

Capitalize first word only: Capitalize the first letter of the first word of the text element. Force all other text to lowercase.

Capitalize all words: Capitalize the first letter of each word of the text element. Force all other text to lowercase.

Note: Each text element in a textnode is considered to be a separate string.

Vertical text

Note: This option and the Underline Spacing option cannot be selected at the same time.

Use vertical text: Force text to display vertically.

Remove vertical text parameter: Remove the vertical text attribute from text elements to force the text to display horizontally.

Underline spacing

Use this option to control the underline spacing.

Note: This parameter is a percentage of the text element's height as opposed to a fixed working unit value. ".20" means the underline character will be 20% of the text's height below the baseline.

Note: This option and the Vertical Text option cannot be selected at the same time.

Use underline parameter: Force text elements to display as underlined text.

Remove underline parameters: Remove the underline parameter from the text elements.

Character spacing

Use this option to control the space between characters in text elements.

Note: This parameter is a percentage of the text element's width as opposed to a fixed working unit value. .20000 means the intercharacter spacing will be 20% of the text's width.

Use intercharacter spacing: The character spacing defines the distance between the end of one character and the beginning of the next character. This results in proportionally spaced text, such as the text in this paragraph, in which narrower characters take up less (horizontal) space.

Use fixedwidth spacing: The character spacing defines the distance between the beginning of one character and the beginning of the next character. This results in monospaced text, such as that produced with a typewriter, in which all characters take up the same (horizontal) space.

Remove character spacing parameter: Use this option to remove the character spacing parameter from the text element.

Slant

Use this option to display text with a slant (poor man's italics). Valid values are -85º to 85º.

Use slant parameter: This option forces the text elements to be displayed as slanted.

Remove slant parameter: This option removes the slant parameter from text elements.

<OK>

Press the <OK> pushbutton to save the parameters in the Extended Text Parameters dialog box and then dismiss the dialog box.

Tip: If a fence is active when the "Custom | Modify Text" command is executed, only text within the fence will be processed.

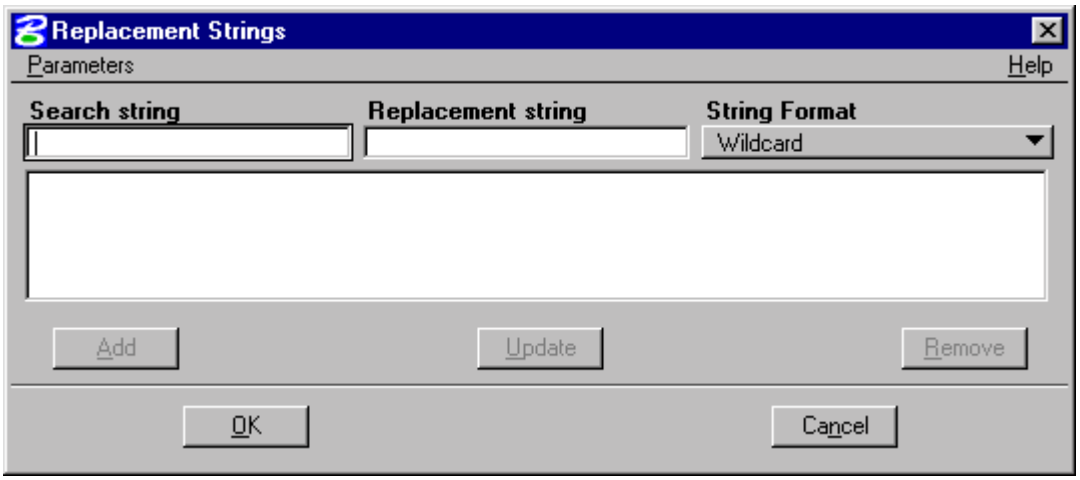
If a selection set is active when the command is executed, selected text will be processed.

If both a fence and a selection set are active when the command is executed, the fence is ignored and only selected text will be processed.

<Cancel>

Press the <Cancel> pushbutton to dismiss the Extended Text Parameters dialog box along with any changes made to the dialog box.

Replacement strings dialog box



The Parameter pulldown menu

Use the Parameters pulldown menu to bring up other Modify Text dialog boxes.

Set text parameters: Select this option to access the Text Parameters dialog box.

Set extended text parameters: Select this option to access the Extended Text Parameters dialog box.

Help | Help on replacement strings

Use this pulldown menu to access help on replacement strings parameters.

Note: When the help dialog box is displayed, you may get help for any specific parameter by clicking on the dialog item related to the desired parameter.

Use this option to open the help dialog box and display the first page of help for the Replacement Strings dialog box.

Search string

Use this option to define an existing text string in the design file. Wildcard characters and regular expressions may be used. A later section in this guide explains the wildcard and regular expression logic that the program uses in both ‘search’ and ‘replace’ functions. We recommend studying this section before using the search and replace option.

Using wildcards

For Wildcard strings the “*” character means, “match any string of characters” and a “?” means, “match any single character”.

Regular expressions are also allowed. Replacement of substrings is supported.

Warning: The built-in regular expression functions operate erratically in some DOS versions of MicroStation. Test your search/replacement strings before running on production files.

Note: Text matching is case sensitive.

Replacement string

When existing text matches the data in your ‘Search string’, the information in the corresponding ‘Replacement string’ field comes into play.

Adding new lines to existing text and text nodes

To change a text element to a text node or to add lines to an existing text node, use **“\n”**. This functionality is best used without wildcard and regular expression options.

For example, if you have the following line string:

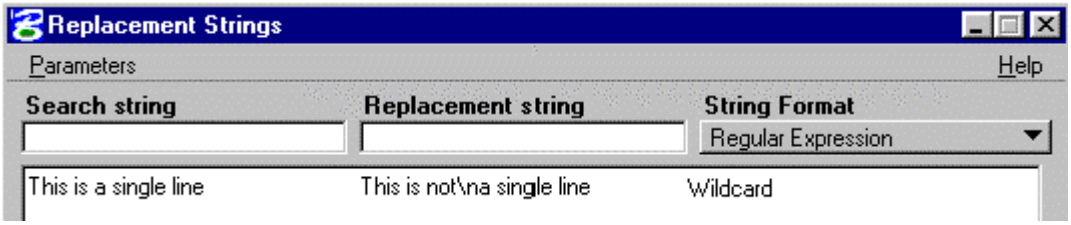
“One thousand pixels are contained in this shape that is blue.”

And you want to convert this into two line strings. You would enter this into the ‘Search string’ and you can enter the following into the ‘Replacement string’: This shape contains one thousand pixels.\n This shape is blue. You would have the following outcome:

“This shape contains one thousand pixels”

“This shape is blue.”

Example:

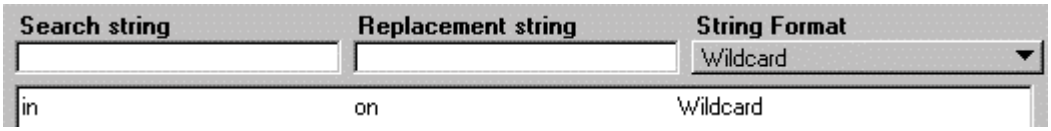


If you have a multi line text node, you can add a line at any point by replacing any existing line with new lines including the "\n" line separator as in the example above.

String Format

There are two choices here: Regular Expression and Wildcard.

You can do a simple replacement of text using wildcard. The code in the image below will change the word 'in' to the word 'on' without changing any other part of the matching text string. With Wildcard, you can also use '*' and '?' to indicate any string or any character respectively.



'Regular Expression' is the powerful string matching system that was developed in conjunction with UNIX.

Wildcard and regular expression options are very powerful in search and replacement fields. These are explained fully in the 'Wildcard and regular expression' section of this guide.

<Add>

Use this option to add strings to the Replacement strings list box.

<Update>

Use this option to modify an existing replacement parameter.

<Remove>

Use this option to remove an existing replacement parameter highlighted from the list.

<OK>

Press <OK> to save the current replacement strings parameters in the list box.

<Cancel>

Press <Cancel> to remove any changes made to the replacement strings parameters.

Keyin command syntax

The syntax of the command is:

```
Axiom Modify Text parameter_filename
Axiom Modify Text Selection parameter_filename
Axiom Modify Text Fence parameter_filename
```

Example:

```
Axiom Modify Text map.txt
Axiom Modify Text Selection map.txt
Axiom Modify Text Fence map.txt
```

The above command would execute the "Custom | Modify Text" command using the text parameters stored in file `map.txt`.

Note: With the "Select" or "Fence" modifiers with the Axiom Modify Text command the selection set or fence must be established before the command is executed. If you are using *Global File Changer's* Element Selection facility you must use a key-in file which first activates the selection set.

Text Parameter File Format

When using the above keyin commands, you will have to make your own "parameter file". Below you will find the various commands that you can put into your own "parameter file".

Tip: If a fence is active when the "Custom | Modify Text" function is executed, only text within the fence will be processed.

If a selection set is active when the command is executed, selected text will be processed.

If both a fence and a selection set are active when the command is executed, the fence is ignored and only selected text will be processed.

Tip: If you wish to use a fence or selection set with "Custom | Modify Text", you must put the commands to place the fence or create the selection set (using *Global File Changer's* Element Selection) in a key-in file.

Each text and textnode parameter has a keyword associated to it. Below is a list of each keyword and a short description. Each keyword is case-insensitive.

X Scale

XScale = 2.000000

This parameter is used to scale text and textnodes in the x direction. This parameter is applied to the text width.

Y Scale

Yscale = 2.000000

This parameter is used to scale text and textnodes in the y direction. This parameter is applied to the text height.

Angle

Angle = 10.000000

This parameter defines an angle in degrees to be added to the element's current rotation.

Level

Level = 1

Absolute Level = Yes: The element is forced to the level defined by the Level parameter. This is the default.

Absolute Level = No: The element will be forced to the sum of the element's current level and the number defined in the Level parameter.

Tip: If the above calculation exceeds 63, 64 is subtracted from the result.

Cells

Cells = No: Text and textnodes in type 2 cells will not be processed. This is the default value.

Cells = Yes: Text and textnodes in type 2 cells will be processed.

Element type

Element = Both: Both text and textnodes will be processed.

Element = Text: Only text elements not contained within textnodes will be processed.

Element = Node: Only textnodes and text contained within textnodes will be processed.

Modify about

Modify = Insertion: Text elements will be modified about the insertion (justification) point. This is the point that was used to place the element.

Modify = Center: Text elements will be modified about the center of the element.

Modify = Lowerleft: Text elements will be modified about the lower left corner of the element. This point is the same as the insertion point when the text element is placed with a lower left justification.

Note: Textnodes are always modified about the textnode origin.

Character space

Inter Character = 0.1000000: The distance from the right side of one character to the left side of the next will be character width times the specified value.

Fixed Character = 0.2000000: The distance from the left side of one character to the left side of the next will be the character width times the specified value.

Character Space = No: Remove character spacing from the text element.

Note: 0.100000 means 10% of character width.

Symbology

Color forces the element to the defined color number.

Weight forces the element to the defined weight number.

Style forces the element to the defined line style number.

Font

Font forces the element's font to the font number defined.

Note: The advantages of *Global File Changer* over EdG are almost too numerous to mention. One, however, is that the integrity of your design files are maintained because changes made by *Global File Changer* are made using MicroStation itself.

For example, EdG can change a text element's font. But when it does, it fails to adjust the range of the text element as it should. It therefore introduces a range error every time it changes a font. *Global File Changer*, using MicroStation itself, adjusts the text element's range when its font is changed.

This is just one of the many advantages of *Global File Changer* over EdG.

Text justification

This parameter forces the text element's justification to the justification value defined. There are nine valid text justification values:

- LT left top.
- LC left center.
- LB left bottom.
- CT center top.
- CC center center.
- CB center bottom.

- RT right top.
- RC right center.
- RB right bottom.

Textnode justification

This parameter forces the textnode element's justification to the justification value defined. There are fourteen valid text justification values:

- LT left top.
- LC left center.
- LB left bottom.
- LMT left margin top.
- LMC left margin center.
- LMB left margin bottom.
- CT center top.
- CC center center.
- CB center bottom.
- RMT right margin top.
- RMC right margin center.
- RMB right margin bottom.
- RT right top.
- RC right center.
- RB right bottom.

Linespace

Linespace = 0:5:0

This parameter defines the linespacing value for textnodes. It is specified in working units.

Linelength

Linelength = 255: This parameter defines the maximum number of characters, any text element in a textnode may contain. If Modify Text encounters any textnodes with text elements that are longer than the Linelength parameter, the text element will be split into as much separate text elements as needed to meet the Linelength parameter. Enter-Data-Fields in text elements that had to be split will be removed.

Fractions

Fractions are defined by one or more numbers separated by a slash (/) character. MicroStation supports most commonly used fractions as stackfractions. When stackfractions are used, the entire fraction is replaced with a single character, which displays as the defined fraction.

Example: The stacked fraction representation of "1/2" is "½".

Fractions = Yes: Any fractions in the modified text elements will be forced to stackfractions.

Fractions = No: Any fraction in the modified text elements will be expanded to the individual characters that make up the fraction.

Case

Upper: All the text will be forced to upper case.

Lower: All text will be forced to lower case.

Capitalization

All Words: The entire text element will first be forced to lower case and then each individual word will be capitalized. Words are defined as being delimited one or more space character.

First Word: The entire text element will first be forced to lower case and then the first word will be capitalized.

Vertical Text

Yes: The modified text will be displayed vertically.

No: Vertical text parameters will be stripped from text elements making the element return to being regular horizontal text.

Underline

Underline = 0.200000: If this parameter is set to a numeric value, the text elements will be displayed as underlined. A numeric value is a percentage of the modified text element's height. This allows you to modify text of differing sizes using the same numeric value.

Underline = No: If this parameter is set to No, the underline attribute will be stripped from text elements.

Slant

Slant = 10.000000: If this parameter is set to a numeric value, this value will be used as the number of degrees of slanting to apply to the text elements. Valid values are between -85 to 85 degrees.

Slant = No: If this parameter is set to No, any slant attribute will be stripped from text elements.

Text replacement

The Text Replacement section consists of three parts. The first line must be the string "*Replacement Parameters*". This indicates the beginning of the text replacement section. Following the Replace Parameters line is the search string and replacement string, each on their own lines. You may have multiple pairs of search and replacement strings. After all the strings have been defined, the Text Replacement section is closed with a string of "*End Replacement Parameters*".

Example:

```
Replacement Parameters
Number 10?
Number 101
Initials: *
Initials: GFC
End Replacement Parameters
```

The line *Number 10?* is the search string, which will be replaced with *Number 101*.

The line *Initials: ** is the search string which will be replaced with *Initials: GFC*.

Chapter 10 — Element Selection

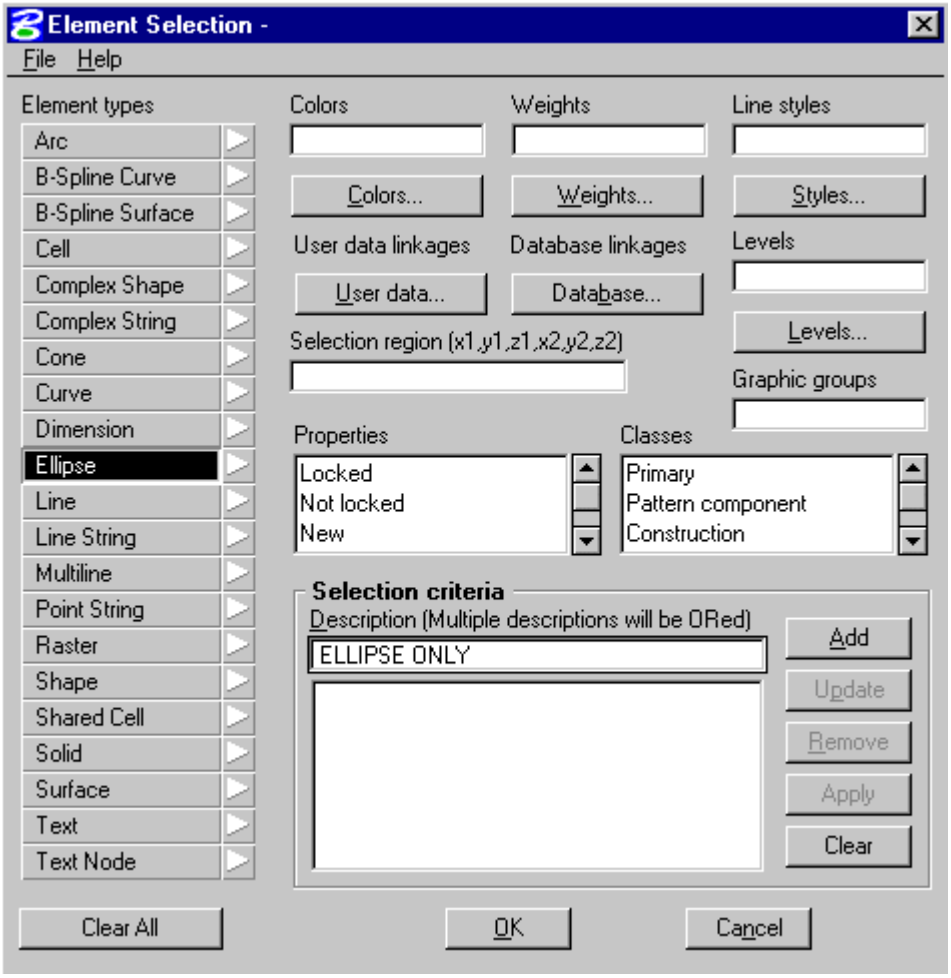
Element Selection — Introduction

Axiom Element Selection is a very powerful function by Axiom International that is built into *Global File Changer, DgnCompare* and *Duplicate Element Remover* for defining and creating selection sets. With it you will be able select various element types such as Lines, Line Strings, Ellipses, Text, Text Nodes and Complex Strings. You will be able to further fine tune your selection set by including specific attributes of an element such as Level, Color, Weight, Style, Line length, Sweep of an Arc and Fill Color. Also you will be able to refine the selection based on attributes applicable to all elements such as symbology, graphic group and level.

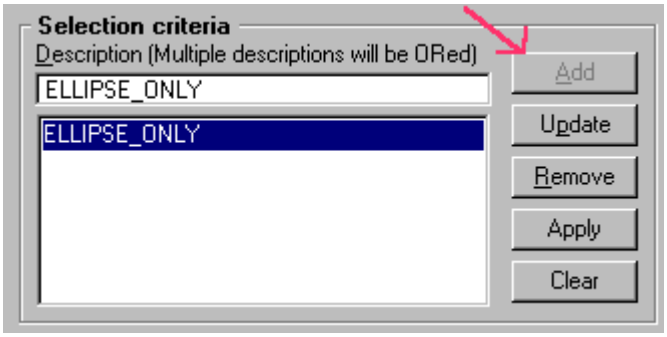
Element Selection — A simple example

In this example we create a selection set that causes the program to skip all elements except for ellipses.

1. Select Ellipse on the main dialog box, and type a description of your selection into the ‘Selection criteria’ field as shown in the image below.



2. Click <Add> to add your ellipse selection to the selection set. (We could select more element types and add them to the selection set. An element that matches any one of our selections will be processed.)



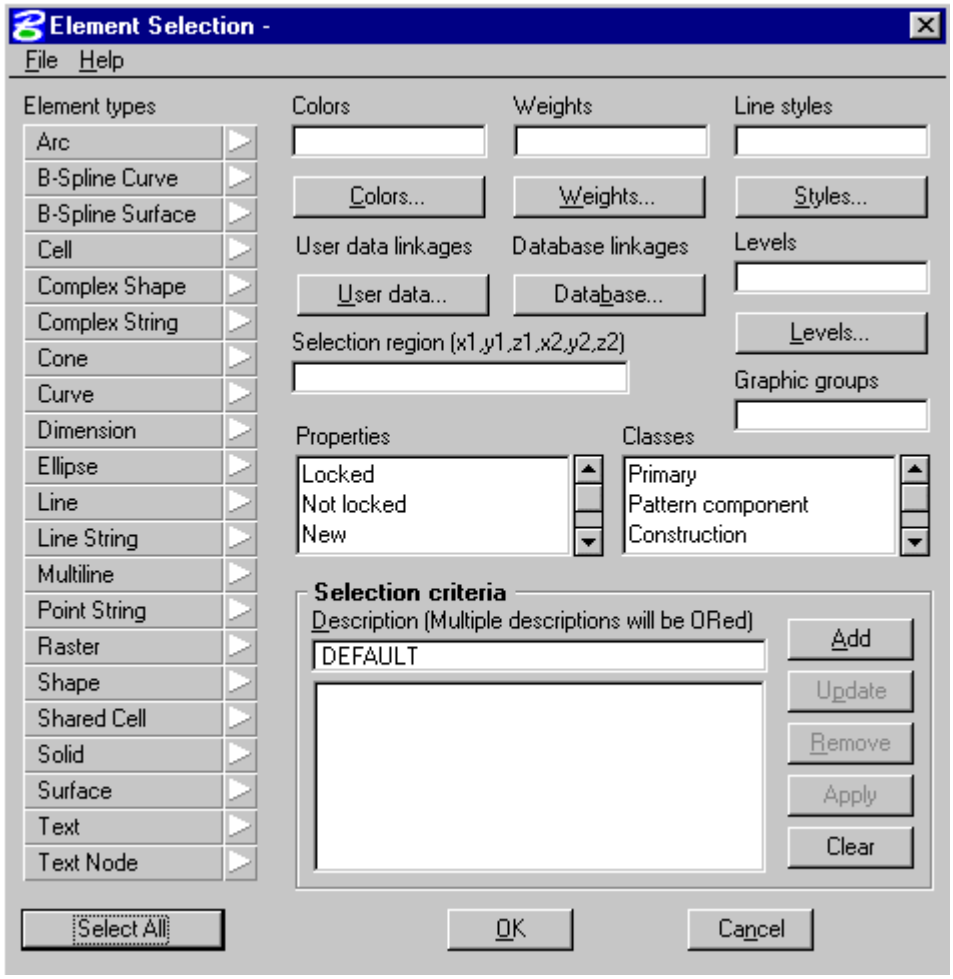
3. After creating a selection set of one criterion, we must save the set. Click File | SaveAs. Save the selection set under a name that you will remember.

4. At this point, the selection set is saved and also loaded and good to go.

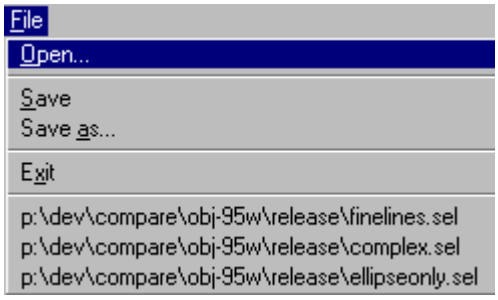
5. Close the *Element Selection* dialog box.

Element Selection —Main Dialog Box

There are several things that are common to most element types. These include color, weight, line style, level, database linkages, user data, graphic group numbers, properties, and classes. We will take each one in turn and explain how to set them.



The File menu



The File pulldown menu includes four options - Open, Save, Save as, and Exit. The most recently used selection set names display below these options. The Currently selected set name appears on the title bar.

File | Open

The open option displays a standard file open dialog box that will allow you to select a previously saved file. The opened file must have been created with the either the Save or Save as… menu options. Once a valid file has been selected, the *Descriptions* list will be populated with all the descriptions found in the file. When a file is successfully opened, the file name will be added to the bottom of the File pulldown menu. Selecting the file name will automatically open the file. Up to ten file names will be saved to the end of the File pulldown menu.

Using variable names in File | Open

The axiom select open command supports use of MicroStation configuration variables in the form of "$(varname)". So if $(var) is set to a path with a trailing slash, you can use:

```
axiom select open $(var)file.key
```

or, if $(var) is set to a full filespec, you can use:

```
axiom selection open $(var)
```

File | Save

The save option lets you save a selection set that was previously opened with the open pulldown menu option. If there is no currently opened file, a Save as dialog box will prompt you for the new file name.

File | Save as

The save as displays a Save as dialog box that will prompt you for the new file name.

File | Exit

The exit option closes the *Axiom Element Selection* dialog box.

The Help box

This option will display a dialog box that will give you some online help:

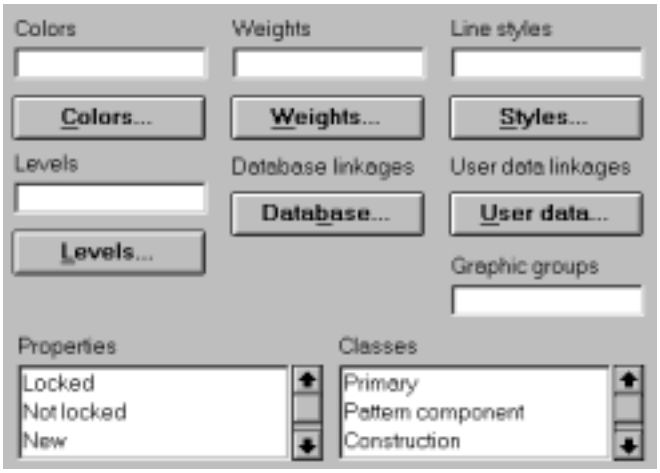
Recently used select files list

At the bottom of the File menu, you will see a list of recently used selection sets. A single click on the name of any set will cause it to load.

Element types

Your first step in *Axiom Element Selection* will be to select the elements you want to process, exclusive of other elements. These element type selections are described in detail in the next section.

Symbology options



After selecting the element type, your next step will be to select the associated symbology. These options are described in detail in the ‘Element Selection — Symbology Options’ section of this chapter.

Selection criteria

When you have finished specifying element types and all parameters the selection must be added to the list and saved. After selecting your symbology, type in a meaningful name (such as the element name) in the 'Selection Criteria dialog box' on the first line under 'Description'.

Note: Each selection will be overwritten if you don't select ADD after entering the element type name on the description line. If you add another element of the same type but different symbology you must give it a unique name, e.g. line, line1, line2, etc.

When you are done selecting and adding to the list all elements you want to process, select the File menu and save your selection criteria, press <OK>.

You may define several search criteria and save them to a file. This file may then be used to select the same sets later. Each selection is given a descriptive name and then added to a list of descriptions.

The 'Selection Criteria' section of this guide describes these functions in detail.

<OK>

Press this button to accept all of your selections and return with those selections to the application that called *Axiom Element Selection* in the first place.

<Cancel>

Press this button to cancel all of the selections you may have made and return to the application that called *Axiom Element Selection*.

Element Selection — Element Types

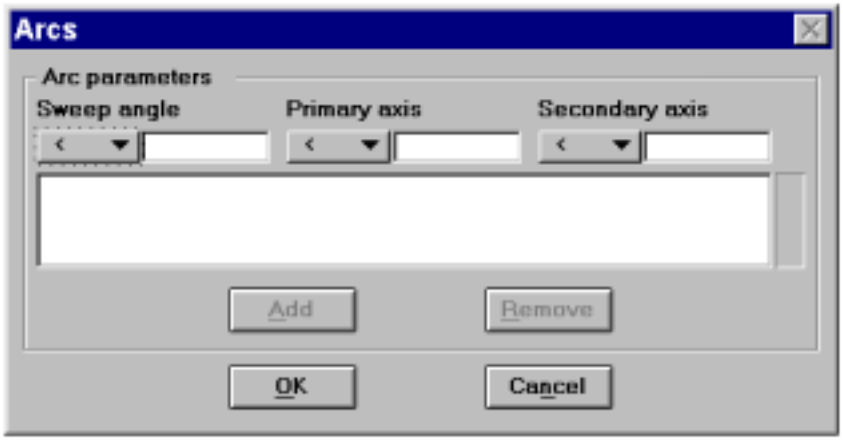
There are 21 element types that you can include in a selection set. To include an element type in the search criteria, select the appropriate name in the Element types item. This item uses the *Windows* style selection mode. This selection mode is described in the 'Select Colors dialog box:' section. You may select multiple element types.

Most of the element types have additional element specific parameters. To set element specific parameters, click on the arrow to the right of the element type name. This will call up a new dialog box with element specific properties.

Once you have set element specific parameters, the right arrow will be filled with black. Also, when an element type is selected which has additional element specific data defined, the element type name will be displayed in blue instead of black.

Note: When using a Selection set it is necessary to choose at least one element type in order for the Selection set to be processed.

Arcs



Arcs have three parameters that may be specified - sweep angle, primary axis, and secondary axis.

Sweep angle

The sweep angle is the number of degrees from one end point of the arc to the other end as calculated from the arc's center point.

Primary axis

For circular arcs, the primary axis will be equal to the radius of the arc. For non-circular arcs, MicroStation considers the first axis defined during placement of the arc as the primary axis. Since it is not possible to visually tell which axis was defined first, the larger of the two axes will be considered to be the primary axis.

Secondary axis

For circular arcs, the secondary axis will be equal to the radius of the arc. For non-circular arcs, MicroStation considers the second axis defined during placement of the arc as the secondary axis. Since it is not possible to visually tell which axis was defined second, the smaller of the two axes will be considered to be the secondary axis.

The Condition option button

This option button has five possible choices: less than, less than or equal, equal, not equal, greater than or equal, and greater than. The selected option is applied to the number in the data entry field to the right of the option button. If no value is present in the data entry field, the option button is ignored.

Set arc properties

The sweep angle has a valid range of 0 to 360 degrees. Partial degrees are allowed in decimal form, such as 44.45 or 95.625.

The primary and secondary axis values are expressed in master units. Partial master units are allowed in decimal form such as 10.5 or 1.25.

You may leave any properties blank that do not apply. For arcs, you may only care about the primary axis, in which case, you could leave the other two parameters blank.

<Add> <Remove> <OK> <Cancel>

The <Add> pushbutton adds the sweep angle, primary axis, and secondary axis to the list box contents. The list will be used to determine when an arc is to be added to the selection set or rejected. If the arc meets all the criteria represented on any row in the list, the arc will be accepted and added to the selection set.

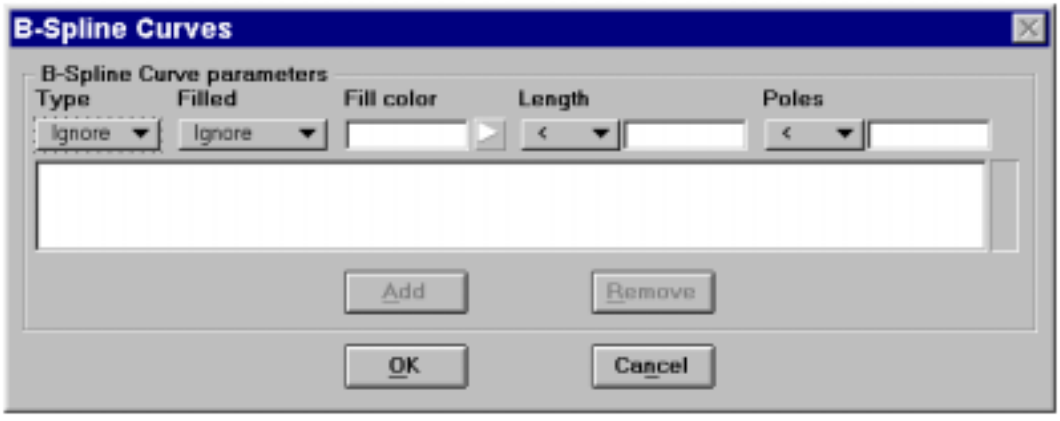
The <Remove> pushbutton removes the highlighted row from the list.

The <OK> pushbutton saves the list of arc parameters in memory and closes the *Arcs* dialog box.

The <Cancel> pushbutton rejects any changes made to the list of arc parameters and closes the *Arcs* dialog box.

Note: MicroStation seems to use 6 decimal places of accuracy when calculating element values while Analyze only uses 4 decimal places. This could cause problems if you are relying on the output of Analyze to determine a value such as the sweep angle or primary axis of an arc. You may wish to allow some rounding tolerance, particularly when dealing with curved elements such as arcs, ellipses, curves, and b-splines.

B-Spline Curves



B-spline curves have five parameters that may be specified: type, filled, fill color, length and number of poles.

Type

The *Type* option button allows you to specify between closed and open b-spline curves or to accept both types.

Filled

The *Filled* option button is used to determine which type of closed b-spline curves to select. The Ignore option will allow either filled or not filled b-spline curves to be selected. The Filled option will only allow filled b-spline curves to be selected. The Not filled option will allow only non-filled b-spline curves to be selected. This option only makes sense when the *Type* option is set to Closed.

Fill color

The *Fill color* option allows you to define the fill colors of b-spline curves. This option only makes sense when the *Type* option is set to Closed and the *Filled* option is set to Filled.

You may also select colors by using the right arrow pushbutton. This will call up the *Select Colors* dialog box that will allow you to select the desired colors graphically. If any color numbers are already in the *Fill colors* data entry field, they will automatically be selected when the *Select Colors* dialog box displays.

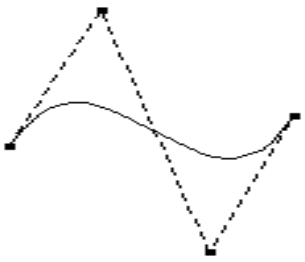
Tip: The fill color of a closed element may be different from the element's color.

Length

The length of a b-spline curve is measured along the element from one endpoint to the other. Length is based on master units. You may enter either a decimal number such as 1.5 or working unit values like 1:50:0.

Number of poles

The number of poles is essentially the number of vertices used to create the b-spline curve.



The Condition option button

The condition option button is described in the ‘ The Condition option button’ section under ‘Arcs’ dialog box.

Properties

To set the b-spline curve properties, set the length parameter and the associated condition option button and then set the number of poles and its associated condition option button.

You may leave any properties blank that do not apply. For b-spline curve, you may only care about the length, in which case, you could leave the other parameters blank.

<Add> <Remove> <OK> <Cancel>

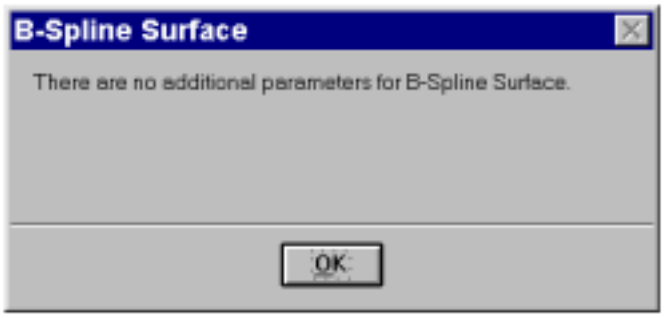
The <Add> pushbutton adds the length and number of poles to the list box contents. The list will be used to determine when a b-spline curve is to be added to the selection set or rejected. If the b-spline curve meets all the criteria represented on any row in the list, the b-spline curve will be accepted and added to the selection set.

The <Remove> pushbutton removes the highlighted row from the list.

The <OK> pushbutton saves the list of b-spline curve parameters in memory and closes the *B-Spline Curves* dialog box.

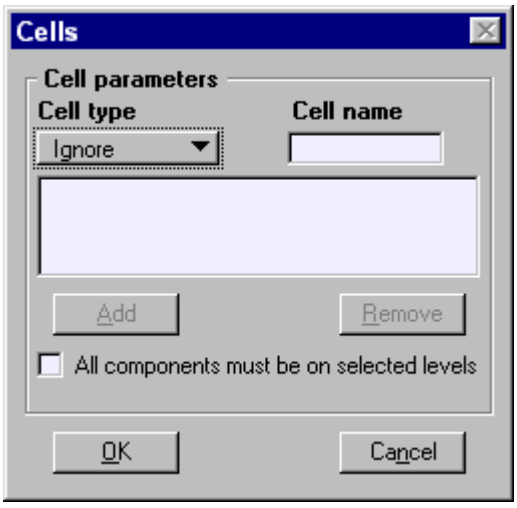
The <Cancel> pushbutton rejects any changes made to the list of b-spline curve parameters and closes the *B-Spline Curves* dialog box.

B-Spline Surfaces



There are no additional parameters for b-spline surfaces.

Cells



Cells have two parameters that may be specified: cell type and cell name. Selection of cells by level may be further controlled insisting that all the component elements must be on selected levels as opposed to only requiring that some be on the specified levels.

The Cell type option button

The Cell type option button is used to determine which type of cells to select. The ignore option will allow either graphic or point cells to be selected. The Graphic cell option will only allow graphic cells to be selected. The Point cell option will allow only point cells to be selected.

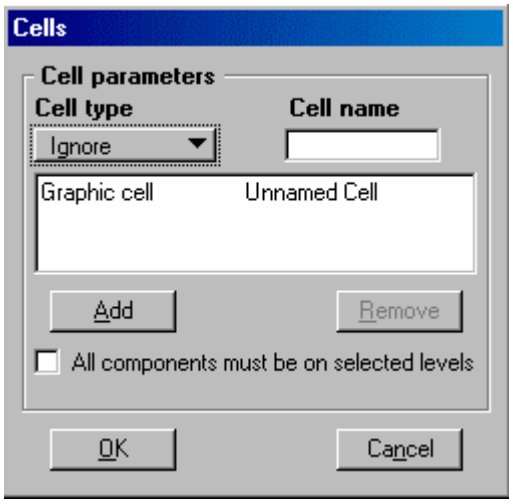
Cell name

The Cell name field allows you to specify which cells you want to select. It allows you to use a series of wildcards to specify cell names. The "*" character means "match any string of characters". The "?" character means "match any single character". Following are some examples:

`*`	Match any cell.
`B*`	Match any cell that starts with the letter B.
`*F`	Match any cell that ends with the letter F.
`H*E`	Match any cell that starts with H and ends with E.
`H?E`	Match any 3 letter cell that starts with H and ends with E.
`A*, ??`	Any cell that starts with A or that has exactly 2 characters.

Blank cell name

To select cells with no name, click the <Add> button with the name field blank.



Properties

To set the cell properties, set the cell type option button to the desired option (Ignore will normally be the desired mode), and then key in a single cell name or wildcard combination.

<Add> <Remove>

The <Add> pushbutton adds the cell type and cell name to the list box contents. The list will be used to determine when a cell is to be added to the selection set or rejected. If the cell meets all the criteria represented on any row in the list, the cell will be accepted and added to the selection set.

The <Remove> pushbutton removes the highlighted row from the list.

All components must be on selected levels

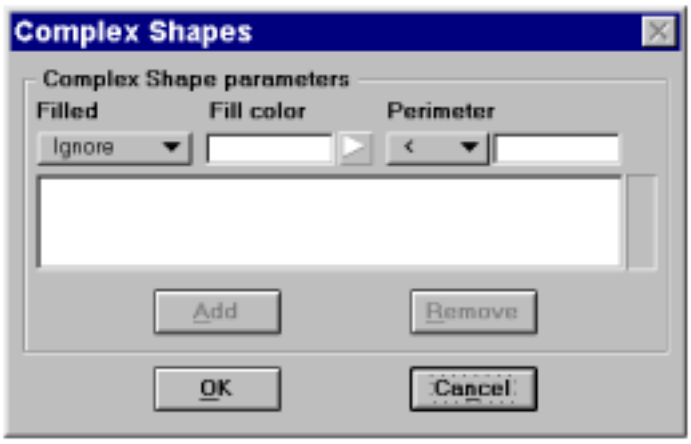
When this is checked all the elements that make up a cell must be on one of the selected levels (on the main *Axiom Element Selection* dialog box) for that cell to be selected. If it is not checked at least one element must be on one of the selected levels for the cell to be considered. If there are no levels specified on the main *Axiom Element Selection* dialog box then this option is ignored.

<OK> <Cancel>

The <OK> pushbutton saves the list of cell parameters in memory and closes the *Cells* dialog box.

The <Cancel> pushbutton rejects any changes made to the list of cell parameters and closes the *Cells* dialog box.

Complex Shapes



Complex shapes have three parameters that may be specified: filled, fill color and perimeter.

Filled

Closed elements such as shapes, complex shapes, and ellipses may be displayed as filled elements or not filled.

Filled option button

The *Filled* option button is used to determine which type of closed complex shapes to select. The Ignore option will allow either filled or not filled complex shapes to be selected. The Filled option will only allow filled complex shapes to be selected. The Not filled option will allow only non filled complex shapes to be selected.

Fill color option button

The *Fill color* option button allows you to define the fill colors of complex shapes. This option only makes sense when the *Filled* option is set to Filled.

You may also select colors by using the right arrow pushbutton. This will call up the *Select Colors* dialog box that will allow you to select the desired colors graphically. If any color numbers are already in the *Fill colors* data entry field, they will automatically be selected when the *Select Colors* dialog box displays.

Tip: The fill color of a closed element may be different from the element's color.

Perimeter

The perimeter is the distance measured along the entire element.

The Condition option button

The condition option button is described in the section ‘The Condition option button’ under ‘Arcs dialog box’.

Properties

To set the complex shape properties, set the filled option button to the desired option (Ignore will normally be the desired mode), and set the perimeter parameter with its associated condition option button.

You may leave perimeter parameter blank if it does not apply.

<Add> <Remove> <OK> <Cancel>

The <Add> pushbutton adds the fill type and perimeter to the list box contents. The list will be used to determine when a complex shape is to be added to the selection set or rejected. If the complex shape meets all the criteria represented on any row in the list, the complex shape will be accepted and added to the selection set.

The <Remove> pushbutton removes the highlighted row from the list.

The <OK> pushbutton saves the list of complex shape parameters in memory and closes the *Complex Shapes* dialog box.

The <Cancel> pushbutton rejects any changes made to the list of complex shape parameters and closes the *Complex Shapes* dialog box.

Complex String

Complex strings have only one parameter that may be specified — length.

Length

The length is the distance measured along the entire element from one end point to the other end point. Length is based on master units. You may enter either a decimal number such as 1.5 or working unit values like 1:50:0.

Properties

To set the complex string properties, set the length parameter with its associated condition option button.

<Add> <Remove> <OK> <Cancel>

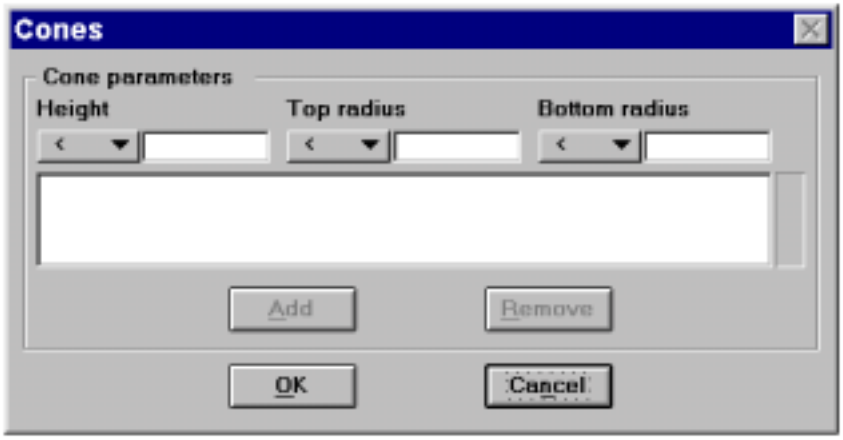
The <Add> pushbutton adds the length to the list box contents. The list will be used to determine when a complex string is to be added to the selection set or rejected. If the complex string meets all the criteria represented on any row in the list, the complex string will be accepted and added to the selection set.

The <Remove> pushbutton removes the highlighted row from the list.

The <OK> pushbutton saves the list of complex string parameters in memory and closes the *Complex Strings* dialog box.

The <Cancel> pushbutton rejects any changes made to the list of complex string parameters and closes the *Complex Strings* dialog box.

Cones



Cones have three parameters that may be specified — height, top radius, and bottom radius.

Height

The height is measured from the center of the top to the center of the bottom.

Top radius

The top radius is radius of the top of the cone.

Bottom radius

The bottom radius is radius of the bottom of the cone.

Note: When placing a cone in MicroStation, the bottom radius is defined first.

The Condition option buttons

The condition option button is described in the section ‘The Condition option button’ under ‘Arcs dialog box’.

Properties

To set the cone properties, set the height parameter with its associated condition option button, then set the top radius and its associated condition option button, and then set the bottom radius and its associated condition option button.

You may leave any properties blank that do not apply. For cones, you may only care about the top and bottom radius, in which case, you could leave the height parameter blank.

<Add> <Remove> <OK> <Cancel>

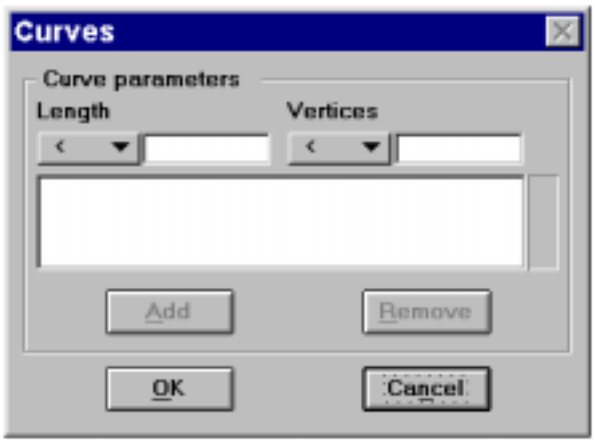
The <Add> pushbutton adds the height, top radius, and bottom radius to the list box contents. The list will be used to determine when a cone is to be added to the selection set or rejected. If the cone meets all the criteria represented on any row in the list, the cone will be accepted and added to the selection set.

The <Remove> pushbutton removes the highlighted row from the list.

The <OK> pushbutton saves the list of cone parameters in memory and closes the *Cones* dialog box.

The <Cancel> pushbutton rejects any changes made to the list of cone parameters and closes the *Cones* dialog box.

Curves



Curves have two parameters that may be specified — length and number of vertices.

Length

The length of a curve is measured along the element from one endpoint to the other. Length is based on master units. You may enter either a decimal number such as 1.5 or working unit values like 1:50:0.

Vertices

‘Vertices’ is the number of vertices used to create the curve.

The Condition option buttons

The condition option button is described in the section ‘The Condition option button’ under ‘Arcs dialog box.’

Properties

To set the curve properties, set the length parameter and the associated condition option button, and then set the vertices and its associated condition option button.

You may leave any properties blank that do not apply. For curves, you may only care about the length, in which case, you could leave the other parameter blank.

<Add> <Remove> <OK> <Cancel>

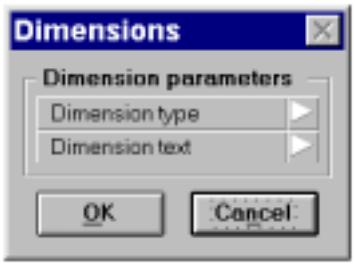
The <Add> pushbutton adds the length and number of vertices to the list box contents. The list will be used to determine when a curve is to be added to the selection set or rejected. If the curve meets all the criteria represented on any row in the list, the curve will be accepted and added to the selection set.

The <Remove> pushbutton removes the highlighted row from the list.

The <OK> pushbutton saves the list of curve parameters in memory and closes the *Curves* dialog box.

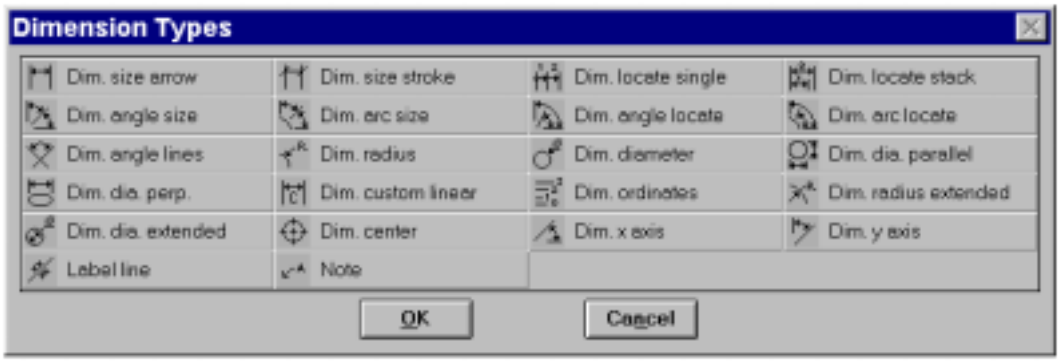
The <Cancel> pushbutton rejects any changes made to the list of curve parameters and closes the *Curves* dialog box.

Dimension



Dimensions have two main areas: Dimension type and Dimension text. Clicking either right arrow buttons will display a dialog box specific to the selected parameter. If you select either Dimension type or Dimension text as a selection criterion, you must also define the criteria specific to the selected parameter.

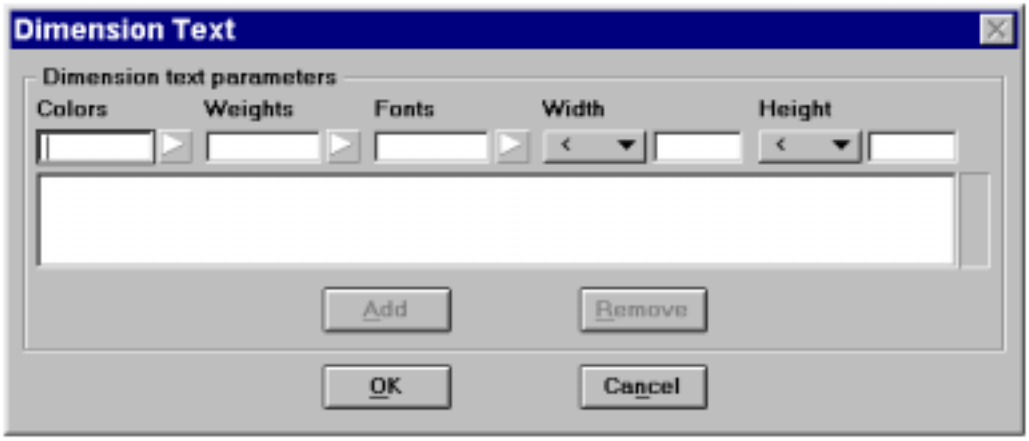
Dimension Types



There are 22 different dimension types. Each type corresponds to the MicroStation command used to place the dimension element. You may use this dialog box to select which dimension type to include in the selection criteria.

The *Dimension Types* dialog box uses the same selection mode as the *Select Colors* dialog box. Refer to the ‘ Select Colors dialog box:’ for an explanation on making selections graphically.

Dimension Text



The Dimension Text dialog box will allow you to set specific parameters about the dimension text. These include: color, weight, font, text width, and text height.

Colors

You may set as many colors in your selection criteria as you need. To simplify the process, you may use individual color numbers or ranges of colors. For example, let's say you want to process elements that are drawn with either color 1, color 7 or color 9. You would enter into the *Colors* data entry field the string 1,7,9. As you can see, each color number is separated by comma (,). Now, suppose you want to process elements that are drawn with either color 1, color 2, color 3, color 8 or color 10. You would enter into the *Colors* data entry field the string 1-3,8,10. Ranges of colors are separated by a dash (-). You may include any number of color numbers and ranges of color numbers separated by commas. The range of valid color numbers is 0 to 255. If you enter a number outside the range of 0 to 255, an error message will be displayed.

You may also select colors by using the right arrow pushbutton. This will call up the *Select Colors* dialog box that will allow you to select the desired colors graphically. If any color numbers are already in the *Colors* data entry field, they will automatically be selected when the *Select Colors* dialog box displays.

Weights

You may set as many weights in your selection criteria as you need. To simplify the process, you may use individual weight numbers or ranges of weights. For example, let's say you want to process elements that are drawn with either weight 0 or weight 2. You would enter into the *Weights* data entry field the string 0,2. As you can see, each weight number is separated by comma (,). Now, suppose you want to process elements that are drawn with either weight 0, weight 1, weight 2, or weight 5. You would enter into the *Weights* data entry field the string 0-2,5. Ranges of weights are separated by a dash (-). You may include any number of weight numbers and ranges of weight numbers separated by commas. The range of valid weight numbers is 0 to 31. If you enter a number outside the range of 0 to 31, an error message will be displayed.

You may also select weights by using the right arrow pushbutton. This will call up the *Select Weights* dialog box that will allow you to select the desired weights graphically. If any weight numbers are already in the *Weights* data entry field, they will automatically be selected when the *Select Weights* dialog box displays.

Fonts

You may set as many fonts in your selection criteria as you need. To simplify the process, you may use individual font numbers or ranges of fonts. For example, let's say you want to process elements that are drawn with either font 0 or font 2. You would enter into the *Fonts* data entry field the string 0,2. As you can see, each font number is separated by comma (,). Now, suppose you want to process elements that are drawn with either font 0, font 1, font 2, or font 5. You would enter into the *Fonts* data entry field the string 0-2,5. Ranges of fonts are separated by a dash (-). You may include any number of font numbers and ranges of font numbers separated by commas. The range of valid weight numbers is 0 to 255. If you enter a number outside the range of 0 to 255, an error message will be displayed.

You may also select fonts by using the right arrow pushbutton. This will call up the *Fonts* dialog box that will allow you to select the desired fonts graphically. If any font numbers are already in the *Fonts* data entry field, they will automatically be selected when the *Fonts* dialog box displays.

The Fonts dialog box

The Fonts dialog box displays a list of all the currently available fonts. This dialog box uses the *Windows* style selection mode. This selection mode is described in the section, 'Select Colors dialog box:'

Width and Height

Width and height represent the dimension text element's size in master units.

The Condition option button

The condition option button is described in the section 'The Condition option button' under 'Arcs dialog box.'

Properties

To set the dimension text properties, set the color, weight, and font parameters as well as the width and height and their associated condition option button.

You may leave any properties blank that do not apply. For dimension text, you may only care about the color and height, in which case, you could leave the other parameters blank.

<Add> <Remove> <OK> <Cancel>

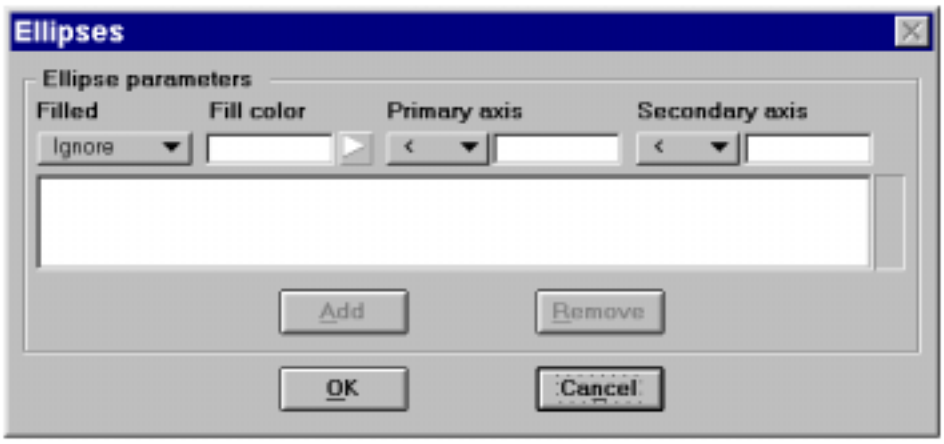
The <Add> pushbutton adds the dimension text parameters to the list box contents. The list will be used to determine when a dimension is to be added to the selection set or rejected. If the dimension meets all the criteria represented on any row in the list, the dimension will be accepted and added to the selection set, provided it also meets the dimension type criteria.

The <Remove> pushbutton removes the highlighted row from the list.

The <OK> pushbutton saves the list of dimension text parameters in memory and closes the *Dimension Text* dialog box.

The <Cancel> pushbutton rejects any changes made to the list of dimension text parameters and closes the *Dimension Text* dialog box.

Ellipses



Ellipses have three parameters that may be specified - filled, primary axis and secondary axis.

Filled

The *Filled* option button is used to determine which type ellipses to select. The Ignore option will allow either filled or not filled ellipses to be selected. The Filled option will only allow filled ellipses to be selected. The Not filled option will allow only non filled ellipses to be selected.

Fill color

The *Fill color* option button allows you to define the fill colors of ellipses. This option only makes sense when the *Filled* option is set to Filled.

You may also select colors by using the right arrow pushbutton. This will call up the *Select Colors* dialog box that will allow you to select the desired colors graphically. If any color numbers are already in the *Fill colors* data entry field, they will automatically be selected when the *Select Colors* dialog box displays.

Tip: The fill color of a closed element may be different from the element's color.

Primary axis

For circular ellipses, the primary axis will be equal to the radius of the ellipse. For non-circular ellipses, MicroStation considers the first axis defined during placement of the ellipse as the primary axis. Since it is not possible to visually tell which axis was defined first, the larger of the two axes will be considered the primary axis.

Secondary axis

For circular ellipses, the secondary axis will be equal to the radius of the ellipse. For non-circular ellipses, MicroStation considers the second axis defined during placement of the ellipse as the secondary axis. Since it is not possible to visually tell which axis was defined second, the smaller of the two axes will be considered the secondary axis.

The Condition option button

The condition option button is described in the section 'The Condition option button' under 'Arcs dialog box.'

Properties

To set the ellipse properties, set the filled option button to the desired option (Ignore will normally be the desired mode), and set the primary and secondary axis parameters with their associated condition option buttons.

You may leave any properties blank that do not apply. For ellipses, you may only care about the primary axis, in which case, you could leave the other parameters blank.

<Add> <Remove> <OK> <Cancel>

The <Add> pushbutton adds the fill type, primary axis, and the secondary axis to the list box contents. The list will be used to determine when a ellipse is to be added to the selection set or rejected. If the ellipse meets all the criteria represented on any row in the list, the ellipse will be accepted and added to the selection set.

The <Remove> pushbutton removes the highlighted row from the list.

The <OK> pushbutton saves the list of ellipse parameters in memory and closes the *Ellipses* dialog box.

The <Cancel> pushbutton rejects any changes made to the list of ellipse parameters and closes the *Ellipses* dialog box.

Lines

Lines have only one parameter that may be specified — length.

Length

Closed elements such as shapes, complex shapes, and ellipses may be displayed as filled elements or not filled. Length is based on master units. You may enter either a decimal number such as 1.5 or working unit values like 1:50:0.

Properties

To set the line properties, set the length parameter with its associated condition option button.

<Add> <Remove> <OK> <Cancel>

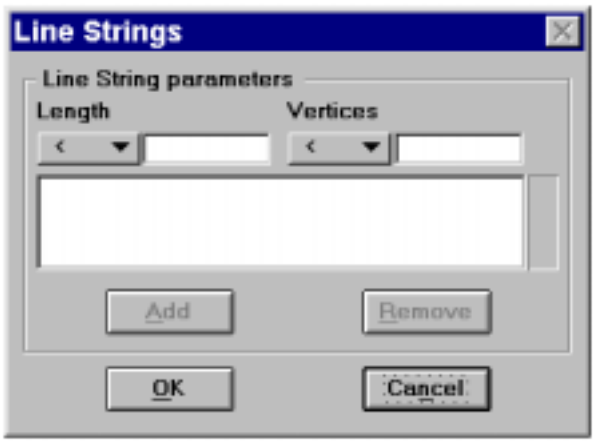
The <Add> pushbutton adds the length to the list box contents. The list will be used to determine when a line is to be added to the selection set or rejected. If the line meets all the criteria represented on any row in the list, the line will be accepted and added to the selection set.

The <Remove> pushbutton removes the highlighted row from the list.

The <OK> pushbutton saves the list of line parameters in memory and closes the *Lines* dialog box.

The <Cancel> pushbutton rejects any changes made to the list of line parameters and closes the *Lines* dialog box.

Line Strings



Line strings have two parameters that may be specified — length and number of vertices.

Length

The length of a line string is measured along the element from one endpoint to the other. Length is based on master units. You may enter either a decimal number such as 1.5 or working unit values like 1:50:0.

Vertices

'Vertices' means the number of vertices used to create the line string.

The Condition option button

The condition option button is described in the section 'The Condition option button' under 'Arcs dialog box.'

Properties

To set the line strings properties, set the length parameter and the associated condition option button, and then set the vertices and its associated condition option button.

You may leave any properties blank that do not apply. For line strings, you may only care about the length, in which case, you could leave the other parameter blank.

<Add> <Remove> <OK> <Cancel>

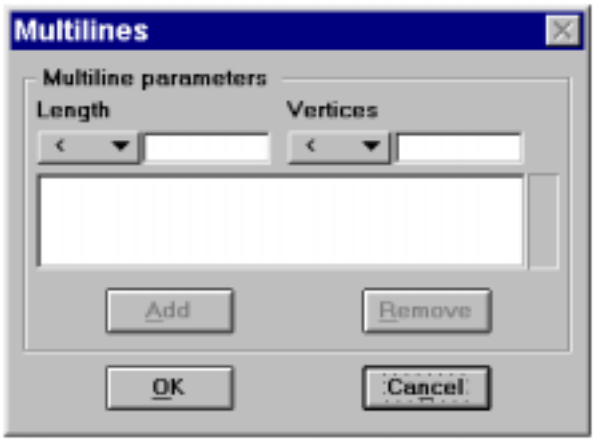
The <Add> pushbutton adds the length and number of vertices to the list box contents. The list will be used to determine when a line string is to be added to the selection set or rejected. If the line string meets all the criteria represented on any row in the list, the line string will be accepted and added to the selection set.

The <Remove> pushbutton removes the highlighted row from the list.

The <OK> pushbutton saves the list of line strings parameters in memory and closes the *Line Strings* dialog box.

The <Cancel> pushbutton rejects any changes made to the list of line string parameters and closes the *Line Strings* dialog box.

Multilines



Multilines have two parameters that may be specified — length and number of vertices.

Length

The length of a multiline is measured along the element from one endpoint to the other. Length is based on master units. You may enter either a decimal number such as 1.5 or working unit values like 1:50:0.

Vertices

‘Vertices’ means the number of vertices used to create the multiline.

The Condition option button

The condition option button is described in the section ‘The Condition option button’ under ‘Arcs dialog box.’

Properties

To set the multilines properties, set the length parameter and the associated condition option button, and then set the vertices and its associated condition option button.

You may leave any properties blank that do not apply. For multilines, you may only care about the length, in which case, you could leave the other parameter blank.

<Add> <Remove> <OK> <Cancel>

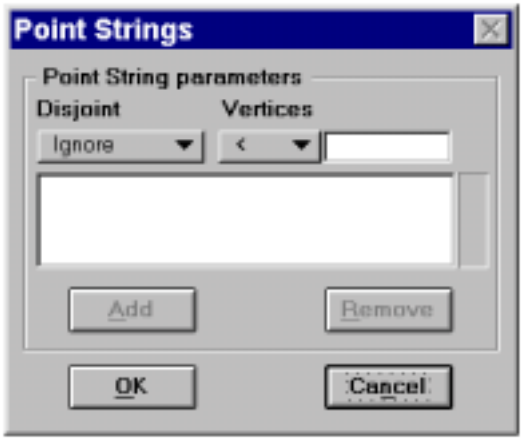
The <Add> pushbutton adds the length and number of vertices to the list box contents. The list will be used to determine when a multiline is to be added to the selection set or rejected. If the multiline meets all the criteria represented on any row in the list, the multiline will be accepted and added to the selection set.

The <Remove> pushbutton removes the highlighted row from the list.

The <OK> pushbutton saves the list of multiline parameters in memory and closes the *Multilines* dialog box.

The <Cancel> pushbutton rejects any changes made to the list of multiline parameters and closes the *Multilines* dialog box.

Point Strings



Point Strings have two parameters that may be specified - disjoint and number of vertices.

Disjoint

Point strings may be placed as either disjointed or continuous. If the point string is placed as disjointed, all that is visible is a point for each vertex. A continuous point string will look just like a line string.

Vertices

Vertices is the number of vertices used to create the point string.

The Condition option button

The condition option button is described in the section ‘The Condition option button’ under ‘Arcs dialog box.’

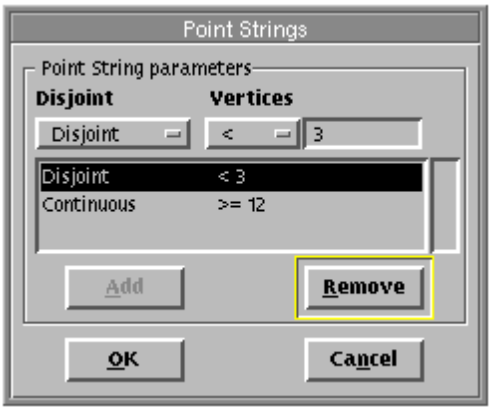
Properties

To set the point strings properties, set the disjoint parameter and then set the vertices and its associated condition option button.

You may leave any properties blank that do not apply. For point strings, you may only care about the disjoint parameter, in which case, you could leave the other parameter blank.

<Add> <Remove> <OK> <Cancel>

The <Add> pushbutton adds the disjoint and number of vertices to the list box contents. The list will be used to determine when a point string is to be added to the selection set or rejected. If the point string meets all the criteria represented on any row in the list, the point string will be accepted and added to the selection set.



The <Remove> pushbutton removes the highlighted row from the list.

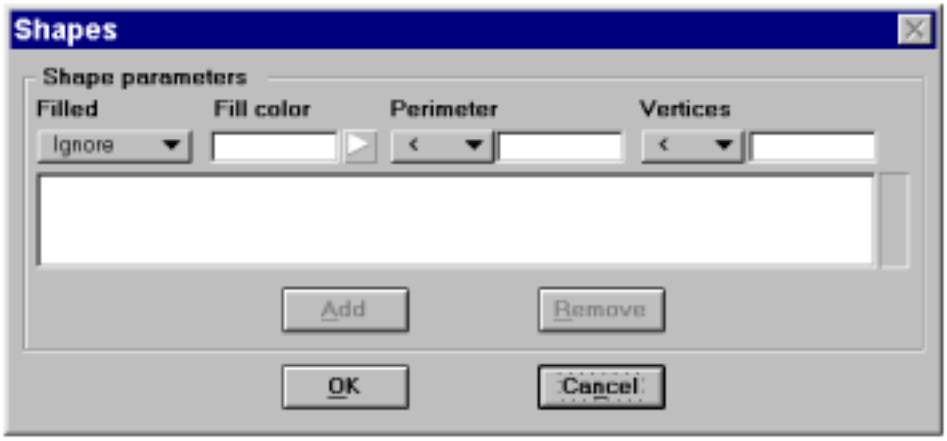
The <OK> pushbutton saves the list of point string parameters in memory and closes the *Point Strings* dialog box.

The <Cancel> pushbutton rejects any changes made to the list of point string parameters and closes the *Point Strings* dialog box.

Raster

There are no additional parameters for raster elements.

Shapes



Shapes have three parameters that may be specified — 'filled', 'perimeter' and 'number of vertices.'

Filled

The *Filled* option button is used to determine which type shapes to select. The Ignore option will allow either filled or not filled shapes to be selected. The Filled option will only allow filled shapes to be selected. The Not filled option will allow only non-filled shapes to be selected.

Fill color

The *Fill color* option button allows you to define the fill colors of shapes. This option only makes sense when the *Filled* option is set to 'Filled'.

You may also select colors by using the right arrow pushbutton. This will call up the *Select Colors* dialog box, which will allow you to select the desired colors graphically. If any color numbers are already in the *Fill colors* data entry field, they will automatically be selected when the *Select Colors* dialog box displays.

Tip: The fill color of a closed element may be different from the element's color.

Perimeter

The perimeter is the distance measured along the entire element.

Vertices

'Vertices' means the number of vertices used to create the shape. The number of vertices for a shape may be a little misleading. For example, MicroStation considers a square

shape to have 5 vertices, not 4. You can see this if you use the Analyze command on a shape element. You will notice that the first and last vertex is always the same.

The Condition option button

The condition option button is described in the section 'The Condition option button' under 'Arcs dialog box.'

Properties

To set the shape properties, set the filled option button to the desired option (Ignore will normally be the desired mode), set the perimeter parameter with its associated condition option button, and set the number of vertices with its associated condition option button.

You may leave any parameter blank if it does not apply. For shapes, you may only care about the filled parameter, in which case, you could leave the other parameters blank.

<Add> <Remove> <OK> <Cancel>

The <Add> pushbutton adds the fill type and perimeter to the list box contents. The list will be used to determine when a shape is to be added to the selection set or rejected. If the shape meets all the criteria represented on any row in the list, the shape will be accepted and added to the selection set.

The <Remove> pushbutton removes the highlighted row from the list.

The <OK> pushbutton saves the list of shape parameters in memory and closes the *Shapes* dialog box.

The <Cancel> pushbutton rejects any changes made to the list of shape parameters and closes the *Shapes* dialog box.

Shared Cells

Shared Cells have only one parameter that may be specified — cell name.

Cell name

The shared cell name field allows you to specify that shared cells you want to select. It allows you to use a series of wildcards to specify shared cell names. The "*" character means "match any string of characters". The "?" character means "match any single character". Following are some examples:

`*`	Match any shared cell.
`B*`	Match any shared cell that starts with the letter B.
`*F`	Match any shared cell that ends with the letter F.
`H*E`	Match any shared cell that starts with H and ends with E.
`H?E`	Match any 3 letter shared cell that starts with H and ends with E.
`A*, ??`	Any shared cell that starts with A or that has exactly 2 characters.

Properties

To set the shared cell properties, key in a single shared cell name or wildcard combination.

<Add> <Remove> <OK> <Cancel>

The <Add> pushbutton adds the shared cell name to the list box contents. The list will be used to determine when a shared cell is to be added to the selection set or rejected. If the shared cell meets all the criteria represented on any row in the list, the shared cell will be accepted and added to the selection set.

The <Remove> pushbutton removes the highlighted row from the list.

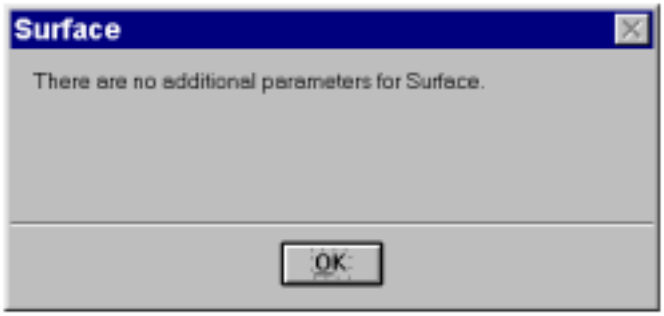
The <OK> pushbutton saves the list of shared cell parameters in memory and closes the *Shared Cells* dialog box.

The <Cancel> pushbutton rejects any changes made to the list of shared cell parameters and closes the *Shared Cells* dialog box.

Solid

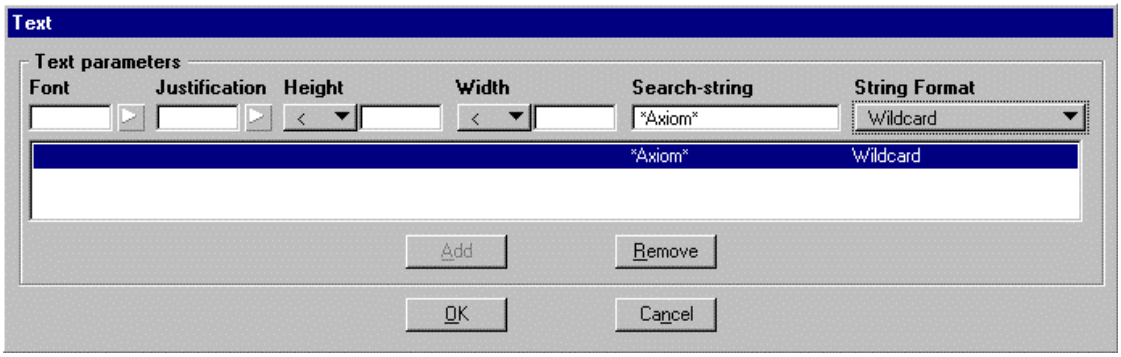
There are no additional parameters for solid elements.

Surface



There are no additional parameters for surface elements.

Text



Text has six parameters that may be specified — font, justification, text height, text width, search-string and string format.

Font

You may set as many fonts in your selection criteria as you need. To simplify the process, you may use individual font numbers or ranges of fonts. For example, let's say you want to process elements that are drawn with either font 0 or font 2. You would enter into the *Fonts* data entry field the string 0,2. As you can see, each font number is separated by comma (,). Now, suppose you want to process elements that are drawn with either font 0, font 1, font 2, or font 5. You would enter into the *Fonts* data entry field the string 0-2,5. Ranges of fonts are separated by a dash (-). You may include any number of font numbers and ranges of font numbers separated by commas. The range of valid weight numbers is 0 to 255. If you enter a number outside the range of 0 to 255, an error message will be displayed.

You may also select fonts by using the right arrow pushbutton. This will call up the *Fonts* dialog box that will allow you to select the desired fonts graphically. If any font numbers are already in the *Fonts* data entry field, they will automatically be selected when the *Fonts* dialog box displays.

The Fonts dialog box

The Fonts dialog box displays a list of all the currently available fonts. This dialog box uses the *Windows* style selection mode. This selection mode is described in the 'Select Colors dialog box:' section.

Justification

You may set as many justifications in your selection criteria as you need. For example, let's say you want to process elements that are drawn with either lower left or upper left justification. You would enter into the *Justification* data entry field the string LB,LT. As you can see, each justification is separated by comma (,). You may include any number justifications separated by commas.

There are 15 valid justifications:

RMT	right margin top
RMC	right margin center
RMB	right margin bottom
LT	left top
LC	left center
LB	left bottom
CT	center top
CC	center center
CB	center bottom
RT	right top
RC	right center
RB	right bottom
RMT	right margin top
RMC	right margin center
RMB	right margin bottom

You may also select justifications by using the right arrow pushbutton. This will call up the *Justifications* dialog box that will allow you to select the desired justifications graphically. If any justifications are already in the *Justification* data entry field, they will automatically be selected when the *Justifications* dialog box displays.

The Justifications dialog box

The *Justifications* dialog box displays a list of all valid justifications. This dialog box uses the *Windows* style selection mode. This selection mode is described in the 'Select Colors dialog box:' section.

Height and Width

Height and width represent the text element's size in master units.

The Condition option button

The condition option button is described in the section 'The Condition option button' under 'Arcs dialog box.'

Search-String

The Search-String parameter allows you to include in the search criteria a string of characters or a regular expression that matches the text string. Suppose you had three data entry fields in a design file: "Man hole", "Street name", and "Signal". A wildcard search-string of "*na*" would return "Street name" and "Signal".

String Format

You have two choices here: Regular Expression and Wildcard.

The Regular Expression is the powerful string matching system that was developed in conjunction with UNIX.

The Wildcard is like Regular expressions with two exceptions. For people not familiar with regular expressions, *Axiom Element Selection* allows '?' to represent any single character. The normal regular expression to represent this is to use a period. The other exception concerns the '*' character. For people not familiar with regular expressions, *Axiom Element Selection* allows '*' to represent any combination of characters. The normal regular expression to represent this is to use a "**.***" combination. Because Axiom programs automatically replace each '*' character in the substring with a "**.***" combination, you should not use the "**.***" regular expression in the substring data entry field in Wildcard mode.

Properties

To set the text properties, set the font and justification parameters as well as the height and width and their associated condition option buttons and the substring.

You may leave any properties blank that do not apply. For text, you may only care about the substring, in which case, you could leave the other parameters blank.

<Add> <Remove> <OK> <Cancel>

The <Add> pushbutton adds the text parameters to the list box contents. The list will be used to determine when a text element is to be added to the selection set or rejected. If the text element meets all the criteria represented on any row in the list, the text element will be accepted and added to the selection set.

The <Remove> pushbutton removes the highlighted row from the list.

The <OK> pushbutton saves the list of text parameters in memory and closes the *Text* dialog box.

The <Cancel> pushbutton rejects any changes made to the list of text parameters and closes the *Text* dialog box.

Text Nodes

Text nodes have seven parameters that may be specified — font, justification, text height, text width, line spacing, line length and text node number.

Font

This parameter is identical to the 'Font' parameter for text.

Justification

This parameter is identical to the 'Justification' parameter for text.

Height and Width

These two parameters are identical to the 'Text Height and Width' parameters for text.

The Condition option button

The condition option button is described in the section 'The Condition option button' under 'Arcs dialog box.'

Line spacing

Line spacing is the distance between the bottom of one line of text and the top of the next line of text.

Line length

Line length is the maximum number of characters per line allowed in any single text item within a text node. It is set with the MicroStation main menu Element | Text 'line length' setting. Valid line length values range from 1 to 255.

Node number

Each text node is given a number between 0 and 65535. This number is visible in views that have the text node attribute set to on. Every time a new text node is placed, MicroStation automatically increments the text node number.

Properties

To set the text node properties, set the font and justification parameters as well as the height, width, line spacing, line length, and node number and their associated condition option buttons.

You may leave any properties blank that do not apply. For text nodes, you may only care about the font and text height, in which case, you could leave the other parameters blank.

<Add> <Remove> <OK> <Cancel>

The <Add> pushbutton adds the text parameters to the list box contents. The list will be used to determine when a text element is to be added to the selection set or rejected. If the text element meets all the criteria represented on any row in the list, the text element will be accepted and added to the selection set.

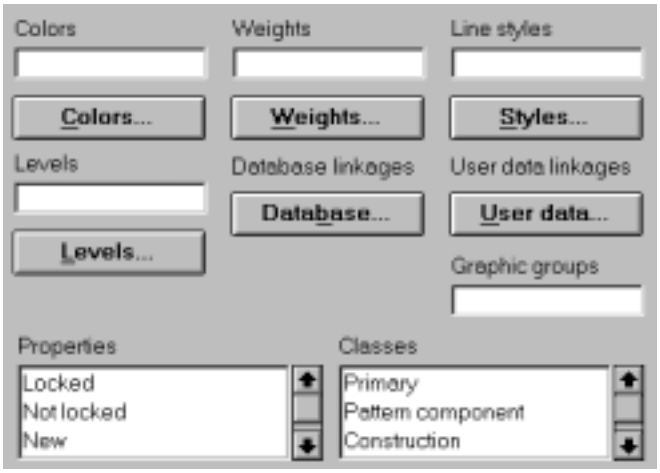
The <Remove> pushbutton removes the highlighted row from the list.

The <OK> pushbutton saves the list of text node parameters in memory and closes the *Text Nodes* dialog box.

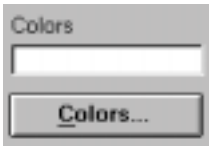
The <Cancel> pushbutton rejects any changes made to the list of text node parameters and closes the *Text Nodes* dialog box.

Element Selection — Symbology Options

In this section we'll describe all of the symbology options from the main *Axiom Element Selection* dialog box:



Colors



You may set as many colors in your selection criteria as you need. To simplify the process you may use individual color numbers or ranges of colors. For example, let's say you want to process elements that are drawn with either color 1, color 7 or color 9. You would enter into the *Colors* data entry field the string 1,7,9. As you can see, each color number is separated by comma (,). Now, suppose you want to process elements that are drawn with either color 1, color 2, color 3, color 8 or color 10. You would enter into the *Colors* data entry field the string 1-3,8,10. Ranges of colors are separated by a dash (-). You may include any number of color numbers and ranges of color numbers separated by commas. The range of valid color numbers is 0 to 255. If you enter a number outside the range of 0 to 255, an error message will be displayed.

You may also select colors by using the *Colors...* pushbutton. This will call up a new dialog box that will allow you to select the desired colors graphically. If any color numbers are already in the *Colors* data entry field, they will automatically be selected when the *Select Colors* dialog box displays.

Select colors dialog box

With this dialog box you can see the actual colors as well as their associated numbers. This dialog box uses the *Windows* style of selection. This means you can make selections by clicking the mouse on a single item, dragging the mouse over a range of items, use the Control key with the mouse click, or use the Shift key with the mouse click.

To select a single color, simply click the mouse on the desired selection. If any other colors were previously selected, they will be cleared from the selection, leaving only the single color in the selection.

To select a single range of colors, place the mouse on either the first or last color in the range. Press the data button down and drag the mouse to the other end of the range of

desired colors. If any other colors were previously selected, they will be cleared from the selection, leaving only the range that was just selected. An alternate way to select a range of colors is to first click on either the first or last color in the range. Then move the mouse to the other end of the range of colors and hold down the Shift key while you click the mouse again. Here is an example of selecting colors 10 to 20. First move the mouse to color number 10 and click the data button. Next move the mouse to color number 20 and click data button again. You should see a black box appear around each color from color 10 to color 20. None of the other color numbers will have a black box around them.

To toggle a single color without disturbing any other previous selections, move the mouse to the desired color. Next, hold down the Control key and click the mouse. If the color was not selected before, it should now be selected. If the color was already selected, it should now no longer have the black box around it. The Control button is used to change a selection without disturbing the rest of the selections. Here is an example of using the Control key to de-select color number 15 from a the range of colors 10 to 20. First move the mouse to color number 10 and click the data button. You will see color 10 is now the only selected color. Next, move the mouse to color number 20 and, while holding down the Shift key, click on it. You should now have colors 10 to 20 selected. Now position the mouse on color number 15. Hold down the Control key and click the data button. You should see color 15 is no longer selected. The Control key cannot be used in conjunction with the mouse dragging selection method, however it may be combined with the Shift key.

To select a range of colors without disturbing any other previous selections, you will first need use the Control click method described above to select either the first or last color number in the range. Next, move the mouse to the other end of the range. While holding down both the Control key and the Shift key, click the data button. Here is an example of using Both the Control and Shift keys to select a range of color numbers. First, lets select a range of colors from 1 to 10. Place the mouse on color 1 and click the data button. Next, hold down the shift key and click the data button on color number 10. Colors 1 through 10 should be now the only colors selected. Next place the mouse on color 20. Hold down the Control key and click the data button. Now colors 1 through 10 and color 20 should be selected. Next, move the mouse to color 30. While holding down both the Control and Shift keys, click the data button. Now you should see colors 1 through 10 and colors 20 through 30 selected.

When the OK button is pressed, the *Select Colors* dialog box will be dismissed and the *Colors* data entry field on the *Axiom Element Selection* dialog box will be automatically populated with the selected colors. If no colors are selected, the *Colors* data entry field will be blank.

When the Cancel button is pressed, the *Select Colors* dialog box will be dismissed. The value of the *Colors* data entry field will remain unchanged.

V8 only

V8 users can select ‘bylevel’ from the ‘Select Color’ dialog box or type it in if desired.

Weights

You may set as many weights in your selection criteria as you need. To simplify the process, you may use individual weight numbers or ranges of weights. For example, let's say you want to process elements that are drawn with either weight 0 or weight 2. You would enter into the *Weights* data entry field the string 0,2. As you can see, each weight number is separated by comma (,). Now, suppose you want to process elements that are drawn with either weight 0, weight 1, weight 2, or weight 5. You would enter into the *Weights* data entry field the string 0-2,5. Ranges of weights are separated by a dash (-). You may include any number of weight numbers and ranges of weight numbers separated by commas. The range of valid weight numbers is 0 to 31. If you enter a number outside the range of 0 to 31, an error message will be displayed.

You may also select weights by using the *Weights...* pushbutton. This will call up a new dialog box that will allow you to select the desired weights graphically. If any weight numbers are already in the *Weights* data entry field, they will automatically be selected when the *Select Weights* dialog box displays.

V8 only

V8 users can select 'bylevel' from the 'Select Weights' dialog box or type it in if desired.

Select weights dialog box

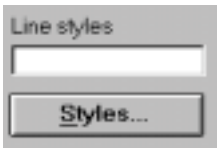
With this dialog box you can see the weights as well as their associated numbers. This dialog box uses the *Windows* style of selection. This means you can make selections by clicking the mouse on a single item, dragging the mouse over a range of items, use the Control key with the mouse click, or use the Shift key with the mouse click.

The *Select Weights* dialog box uses the same selection mode as the *Select Colors* dialog box. Refer to the section 'Select Colors dialog box:' for an explanation on making selections graphically.

When the OK button is pressed, the *Select Weights* dialog box will be dismissed and the *Weights* data entry field on the *Axiom Element Selection* dialog box will be automatically populated with the selected styles. If no styles are selected, the *Styles* data entry field will be blank.

When the Cancel button is pressed, the *Select Weights* dialog box will be dismissed. The value of the *Weights* data entry field will remain unchanged.

Line styles



You may set as many line styles in your selection criteria as you need. To simplify the process, you may use individual line style numbers or ranges of line styles. For example, let's say you want to process elements that are drawn with either style 0 or style 2. You would enter into the *Line styles* data entry field the string 0,2. As you can see, each line style number is separated by comma (,).

Now, suppose you want to process elements that are drawn with either style 0, style 1, style 2, style 3, or style 5. You would enter into the *Line styles* data entry field the string 0-3,5.

Ranges of line styles are separated by a dash (-). You may include any number of line style numbers and ranges of line style numbers separated by commas. The range of valid line style numbers is 0 to 7. If you enter a number outside the range of 0 to 31, an error message will be displayed. In addition, you may also include custom line styles in the list. Custom line style names are also delimited by commas and may be included with line style numbers.

You may also select line styles by using the *Styles...* pushbutton. This will call up a new dialog box that will allow you to select the desired line styles graphically. If any line style numbers or custom line style names are already in the *Styles* data entry field, they will automatically be selected when the *Select Line Styles* dialog box displays.

V8 only

V8 users can select 'bylevel' from the 'Select Line Styles' dialog box or type it in if desired.

Select line styles dialog box

With this dialog box you can see the actual line styles as well as their associated numbers. This dialog box uses the *Windows* style of selection. This means you can make selections by clicking the mouse on a single item, dragging the mouse over a range of items, use the Control key with the mouse click, or use the Shift key with the mouse click.

The *Select Line Styles* dialog box uses the same selection mode as the *Select Colors* dialog box. Refer to the section 'Select Colors dialog box:' for an explanation on making selections graphically.

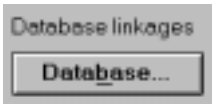
Custom line styles

The custom line styles list box also uses the *Windows* style of selection. Refer to the section ‘Select Colors dialog box:’ for an explanation on making selections graphically.

When the OK button is pressed, the *Select Line Styles* dialog box will be dismissed and the *Line styles* data entry field on the *Axiom Element Selection* dialog box will be automatically populated with the selected styles. If no styles are selected, the *Styles* data entry field will be blank.

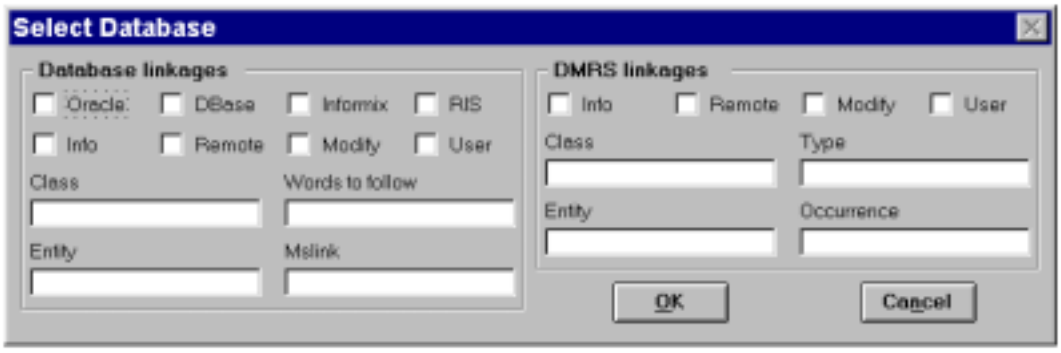
When the Cancel button is pressed, the *Select Line Styles* dialog box will be dismissed. The value of the *Line styles* data entry field will remain unchanged.

Database linkages



You can select elements based on attribute linkages, although you must select all element types. Attribute linkages are placed on MicroStation elements to give intelligence to the elements by associating database records to the elements. You may set the attribute linkage values by using the *Database...* pushbutton. This will call up a new dialog box that will allow you to select the desired linkage values.

Select database dialog box



This dialog box is divided into two sections. One for DMRS linkages and one for all other database linkage types.

Database linkages types

The valid non-DMRS database linkage types are Oracle, DBase, Informix, and RIS. The toggle buttons are used to define which linkage types to search for. You may use any combination of linkage types.

Database overrides

There are four override options that are common to all linkages. These overrides are normally not changed. The only override MicroStation uses is User which should never be set for DMRS linkages and always set for all other linkage types. If you are not familiar with the overrides, the toggle buttons should not be set.

Database class

Class is defined by the application that puts the attribute linkage on the element. It is a number from 0 to 23. You may define multiple classes separated by commas. Ranges of classes are also allowed. For example, if you wanted to define classes 1, 3, 4, 5, and 23 you enter the string 1,3-5,23 in the *Class* data entry field. If you are not familiar with the class property in attribute linkages, you should leave this field blank.

Words to follow

MicroStation uses a field called Words to follow to indicate how much data is included in the attribute linkage. By default, non-DMRS attribute linkages have 8 words of data. The number of words in any attribute linkage must always be evenly divisible by 4.

Based on the above description, one would most likely assume that the normal value for non-DMRS attribute linkages Words to follow, would be 8. This, however, is not the case. The actual value is 7. This is because the first word is never counted as part of the Words to follow. Therefore, valid values for Words to follow are 7, 11,15, 19, 23, ..., 139.

If you are not familiar with the Words to follow property, you should leave this field blank.

Database entity

The entity value in a database linkage indicates which database table this linkage points to. Each table name is given a numeric value from 0 to 65535. These numbers are defined in the MSCATALOG table. You may define multiple entities separated by commas. Ranges of entities are also allowed. For example, if you wanted to define entities 1, 3, 4, 5, and 23 you enter the string 1,3-5,23 in the *Entity* data entry field. If you are not familiar with the entity property in attribute linkages, you should leave this field blank.

Mslink

The mslink value in a database linkage indicates which row in the database table this linkage points to. Mslink a numeric value from 0 to 4294967295. This number is not a specific row number but rather a unique number in a specific column named MSLINK in the database table. MicroStation requires all database tables to have this MSLINK column and each row to have a unique value in this column. You may define multiple mslink values separated by commas. Ranges of mslink values are also allowed. For example, if you wanted to define mslinks 1 to 100 and 200 to 300 you enter the string 1-100, 200-300 in the *Mslink* data entry field. If you are not familiar with the mslink property in attribute linkages, you should leave this field blank.

DMRS overrides

The DMRS overrides are identical to the database linkage overrides. Refer to the 'Set database overrides' section for a description.

DMRS Class

The DMRS class is identical to the database linkage class. Refer to the 'Set database Class' section for a description.

Type

Type is defined by the application that puts the attribute linkage on the element. It is a number from 0 to 23. You may define multiple types separated by commas. Ranges of types are also allowed. For example, if you wanted to define types 1, 3, 4, 5, and 23 you enter the string 1,3-5,23 in the *Type* data entry field. If you are not familiar with the type property in DMRS linkages, you should leave this field blank.

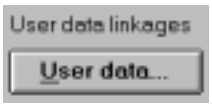
Entity

The DMRS entity is identical to the database linkage entity. Refer to the 'Set database Entity' for a description.

Occurrence

The DMRS occurrence is identical to the database mslink property with one exception - the range of valid values is 0 to 16777215. Refer to the 'Set database Mslink' section for a description.

User data linkages



You may select elements based on user data linkages. User data linkages are placed on MicroStation elements by applications to provide additional information. One example of this is when MicroStation places a graphic element with a custom line style. MicroStation places user data on the element to store the custom line style name.

You may set the user data linkage values by using the *User data...* pushbutton. This will call up a new dialog box that will allow you to select the desired linkage values.

Data overrides

There are four override options that are common to all linkages. These overrides are normally not changed. The only override MicroStation uses is User, which should always be set for all user data linkages. If you are not familiar with the overrides, the toggle buttons should not be set.

Class

This field is identical to the database linkage Class field. Refer to the ‘Set database Class’ section for a description.

Words to follow

This field is identical to the database linkage Words to follow field. Refer to the ‘Set database Words to follow’ section for a description.

Word 1-10

The size of user data linkages are limited only by the maximum size of a MicroStation element. Most user data linkages consist of 8 words of data, however some applications may use up to 140 words. All the data after the first word is user defined. Each word can have a numeric value in the range of 0 to 65535. You may define multiple values separated by commas. Ranges of values are also allowed.

Levels

The level picker for MicroStation V7 versions differs from the V8 level picker. Both are described below.

level picker

You may set as many levels in your selection criteria as you need. To simplify the process, you may use individual level numbers or ranges of levels. For example, let's say you want to process elements which are drawn on level 1 or level 23 You would enter into the *Levels* data entry field the string 1,23. As you can see, each level number is separated by comma (,).

Now, suppose you want to process elements that are drawn on level 1, level 2, level 3, or level 5. You would enter into the *Levels* data entry field the string 1-3,5.

Ranges of levels are separated by a dash (-). You may include any number of level numbers and ranges of level numbers separated by commas. The range of valid level numbers is 1 to 63 If you enter a number outside the range of 1 to 63, an error message will be displayed.

You may also select levels by using the *Levels...* pushbutton. This will call up a new dialog box that will allow you to select the desired levels graphically. If any level numbers are already in the *Levels* data entry field, they will automatically be selected when the *Levels* dialog box displays.

Select levels dialog box

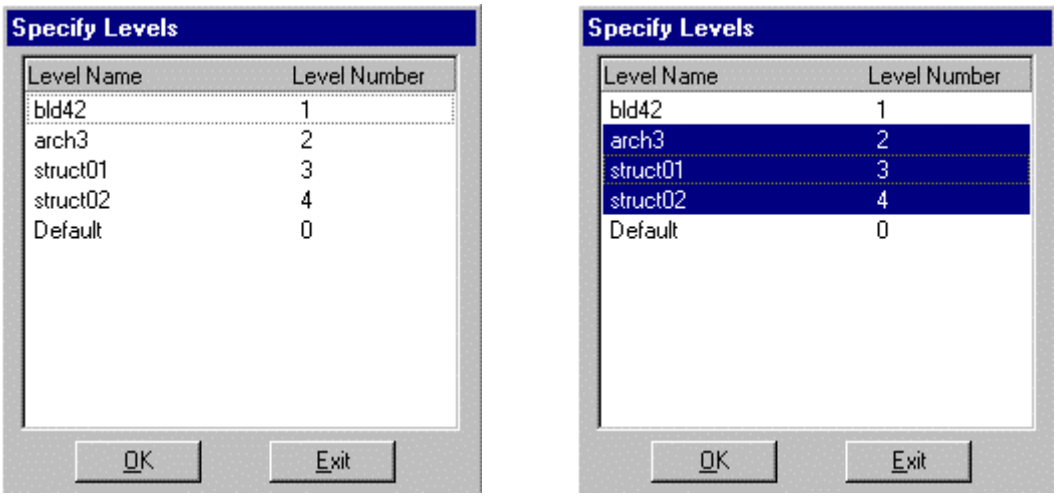
With this dialog box you can see the level numbers. This dialog box uses the *Windows* style of selection. This means you can make selections by clicking the mouse on a single item, dragging the mouse over a range of items, use the Control key with the mouse click, or use the Shift key with the mouse click.

The *Select Levels* dialog box uses the same selection mode as the *Select Colors* dialog box. Refer to the section 'Select Colors dialog box:' for an explanation on making selections graphically.

When the OK button is pressed, the *Select Levels* dialog box will be dismissed and the *Levels* data entry field on the *Axiom Element Selection* dialog box will be automatically populated with the selected levels. If no levels are selected, the *Levels* data entry field will be blank.

When the Cancel button is pressed, the *Select Levels* dialog box will be dismissed. The value of the *Levels* data entry field will remain unchanged.

V8 level picker

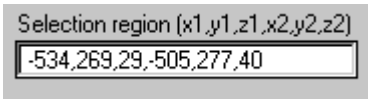


MicroStation version 8 allows unlimited levels and long level names. For this reason, the V8 level picker has a different design. You will see a display of all levels in your active design file. You can pick from these holding down the 'Ctrl' key to select more than one.

To add names that are not in the active design file, can type them in on the main selection box using comma separators.

You can also select levels by number and number ranges as in the V7 version.

Selection region



The 'Selection region' gives you the ability to select a block of elements within certain coordinates in 2D and 3D files. Coordinates should define any two opposing corners in an imaginary 2D rectangle or 3D solid.

When using a selection region, other element selection criteria (Type, Level, Symbology, Class, etc.) still apply. Thus, you have the ability to select only certain elements *within* the selection region itself.

In the image above, the X, Y and Z values show coordinates for the opposing corners of an imaginary cube. Elements that fit fully within these coordinates will be selected. If you were *also* to specify a certain color in the "Colors" field, only elements that fit fully within those coordinates—*and* were the correct color—would be selected.

Note: When working with 2D files, you must still specify Z values, although they will be ignored.

Graphic groups

You may set as many graphic group numbers in your selection criteria as you need. To simplify the process, you may use individual graphic group numbers or ranges of graphic group numbers. For example, let's say you want to process elements which are have graphic group numbers of 1 or 15 You would enter into the *Graph groups* data entry field the string 1,15.

As you can see, each graphic group number is separated by comma (,). Now, suppose you want to process elements that have graphic group numbers of 1, 2, 3, or 5. You would enter into the *Graph groups* data entry field the string 1-3,5.

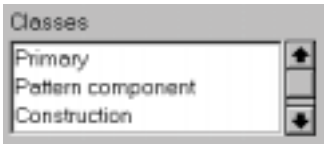
Ranges of graphic groups numbers are separated by a dash (-). You may include any number of graphic group numbers and ranges of graphic group numbers separated by commas. The range of valid graphic group numbers is 0 to 65535 If you enter a number outside the range of 0 to 65535, an error message will be displayed. A graphic group number of 0 indicates no graphic group. Using the number 0 in the *Graphic groups* data entry field will select all elements that are not graphically grouped to any other elements.

Properties

All MicroStation elements have 8 properties: locked, new, modified, attributes, view independent, planer, snappable, and solid. Each property may be either set or not set. For example, an element may be either locked or not locked or an element may be either view independent or view dependent. If both options for a particular property are selected (such as locked and not locked), the selection for this property will be ignored. Element properties are described in the *MicroStation Development and Support Guide* or the *Intergraph Standard File Format* document under the heading of 'Properties indicator.'

The Properties list box uses the *Windows* style of selection. This means you can make selections by clicking the mouse on a single item, dragging the mouse over a range of items, use the Control key with the mouse click, or use the Shift key with the mouse click.

Class

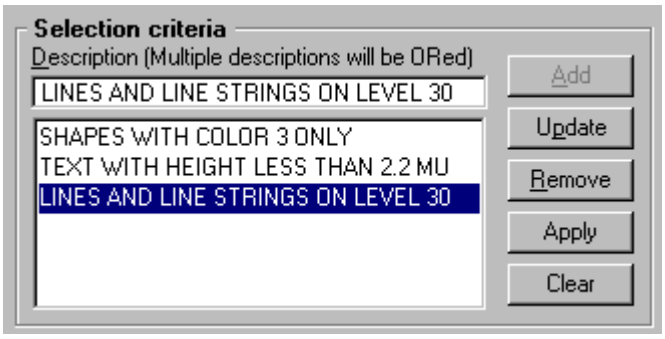


MicroStation has seven possible classes of elements: primary, pattern component, construction, dimension, primary rule, linear pattern, and construction rule. Normally, you will not be aware of the class of an element because MicroStation automatically sets the class as the element is placed. The most commonly used classes are primary, dimension, and construction.

The Class list box uses the *Windows* style of selection. This means you can make selections by clicking the mouse on a single item, dragging the mouse over a range of items, use the Control key with the mouse click, or use the Shift key with the mouse click.

Saving Element Selection Criteria

You may define several search criteria and save them to a file. This file may then be used to make selection sets later. Each selection is given a descriptive name and then added to a list of descriptions.



Description name

Each selection criteria must be given a name. This is done in the *Description* data entry field. Up to 128 characters are allowed in the *Description* field. Spaces are allowed although leading and trailing spaces will be stripped from the name before adding it to the list.

<Add>

The <Add> pushbutton adds the name currently displayed in the *Description* data entry field to the list of descriptions.

<Update>

The Update pushbutton updates the data for the currently highlighted name in the *Description* list with the information currently displayed in the *Axiom Element Selection* dialog box.

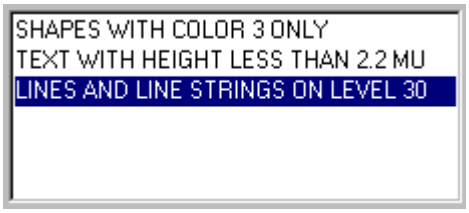
<Remove>

The <Remove> pushbutton removes the highlighted name from the list.

<Apply>

The <Apply> pushbutton causes all those elements matching the highlighted selection criteria to be immediately selected in the design. Using the <Apply> button, you can immediately see which elements will be selected by the highlighted test.

Descriptions list



The Description list contains all of the names of saved search criteria. When you save this list as a selection set, that saved set will select elements that meet any one of the saved criteria.

When a description name is highlighted, the Axiom Element Selection dialog box is automatically populated with the saved values. You may then review the saved selection criteria or modify some of its values.

Suppose you find that the levels in the ROADS search criteria is not set correctly. First you would select ROADS from the description list. Next you would set the levels field to the correct levels. You would then select the <Remove> pushbutton to remove saved ROADS selection criteria. Lastly, you would select the <Add> pushbutton to add the corrected ROADS selection criteria to the list.

Chapter 11 — Wildcards and Regular Expressions

Options for finding and replacing text

Both wildcards and regular expressions are coding systems that allow users to match specific combinations of text that are similar in some regular way or are an exact match. Regular expression coding gives you far more control and precision than wildcards.

Depending on the purpose of the program, wildcards and regular expressions can be used for simply finding specific text combinations or they can be used to find and replace or rename the text or names found.

Wildcard expressions

Wildcards use two special characters. The "*" which is used to represent any number, including zero, of unspecified characters in a string. The other special character is the "?". This means exactly one instance of any character in a string. All other characters are treated literally. The only exception to this is a "\" (backslash) followed immediately by either the "*" or the "?", another backslash or a hexadecimal number. To be processed literally, the following characters must be preceded by a backslash.

backslash \

asterisk *

question mark ?

In versions 3.3 and later, you can also use a backslash to precede a hexadecimal character representation (for example, use \F8 for the degree symbol '°') The program will search for these strings and convert them before applying wildcard or regular expression logic.

Wildcards are case *in*sensitive. The "*" in the wildcard system would mean the same as ".*" in regular expressions. The "?" would have the same meaning as the "." in regular expressions.

Examples:

??-???-1234.dgn as a wildcard search string would find any two characters followed by a hyphen, followed by any three other characters, another hyphen and then 1234.dgn. It would find "AR-ref-1234.dgn". I would also match AR-ref-1234.DGN since wildcards are case insensitive. It would not match "A-Rref-1234.dgn". A regular expression which would find the exact same strings would be ..\-...\-1234\.[Dd][Gg][Nn]

The wildcard search string "*my*is Jim*" would match any string that contained somewhere within it "my" followed by "is Jim" anywhere later in the string. Because there is an "*" at the beginning and end of this search string it would include everything

before and after these characters as well. The above search string would match; “I always wondered why my name is Jim and not James.” It would also match, “Have you ever wondered why Mythology is JIMAL’S worst subject.” Even though that may not be what was intended. The regular expression equivalent to the above wildcard string would be “.*[Mm][Yy].*[Ii][Ss][ ][Jj][Ii][Mm].*”

String substitution with wildcards

If you are doing string substitution using wildcards remember that everything found by your search string will be replaced with exactly what is in the replacement section.

If you for instance used a wildcard search string like “*Jim*” and had the replacement set as “Joe” for our examples immediately above, the result would be both complete sentences being replaced by the one word “Joe” only.

If we just used “Jim” as our wildcard search string with the same replacement of “Joe” the results of the two sentences would be; “I always wondered why my name is Joe and not James.” and “Have you ever wondered why Mythology is JoeAL’S worst subject.” The first replacement might be what we want but the second one almost certainly would not be.

Regular expressions

In the context of the “normal world” (as opposed to the arcane computerese world) the term “Regular Expression” has very little relevance to the meaning of the word “regular” as used in normal English conversation. It is just a name that had some meaning within the academic computer society several decades ago, and has been carried over from then.

Regular expressions are a very powerful tool for finding and replacing text strings that have similar characteristics. Using regular expressions, you can literally pick a text string apart into as many pieces as you want, then reassemble them in any order you want, while adding any new pieces you need in the process.

A regular expression is made up of *special characters* and *literals.*

A special character is defined as “a single character that has special meaning when used in a regular expression.” The period (.) is a special character.

A “literal” is defined as “anything that is not a special character.” The letter ‘A’ would be a literal.

The verb “to match” is used extensively in this chapter. It means “to accept as equivalent to.” Thus, the period (‘.’) is “accepted as equivalent to any alphanumeric character.”

Special characters

Special characters are single characters that have special meaning when used in a regular expression.

Period (“.”)

Matches any alphanumeric character. Thus “`a..`” matches “**act**”, “**art**”, “**ash**”, “**arc**”, “**ate**”, and so on.

Asterisk (“*”)

Matches any number of repetitions of the immediately preceding character or pattern, including zero repetitions. For example, “`tell*`” matches “**tel**” followed by any number of *l*’s or no *l*’s. Thus, it would find matches within the strings “**the tel. number**”**,** “**to tell the truth**”**,** and “**answer the telephone**”**.**

Backslash (“\”)

Reverses the “special” meaning of a character. For example, “`\.`” matches a period, “`\*`” matches an asterisk, and “`\\`” matches a backslash. There are some cases where the backslash changes the meaning of a character from *literal* to *special*. These cases are defined later. If used before a character that is not a special character, or that would have no meaning as a special character, the backslash is simply ignored.

Caret (“^”)

Matches the beginning of a string. “`^Once upon a time`” will find a match within “**Once upon a time there were three bears**”, but not within “**The story began once upon a time**.”

With a single exception, if the caret occurs anywhere except the beginning of a regular expression, it is interpreted as a literal. (The single exception to this is defined later.)

To match a line starting with a caret sign, you must specify a “special character” caret followed by a “literal” carat. Thus “`^\^.`” would match the first two characters of any string whose first character was a caret.

Dollar sign (“$”)

Matches the end of a string. “`the end$`” will find a match within **“He reached the end**”, but not within “**He reached the end of the road.”** Note that it would *not* find a match within **“He reached the end.”** because of the period at the end of the string.

If a dollar sign occurs anywhere but at the end of a regular expression, it is interpreted as a literal character. Thus “`$100`**”** will match *only* “**`$100`**”, treating the dollar sign as a literal.

To match a string ending with a dollar sign, you must specify a “literal” dollar sign, followed by a “special character” dollar sign. “`.\$$`” would match the last two characters of any string whose last character was a dollar sign.

Character "sets"

Brackets ("[" and "]")

Brackets are used to delimit a "set" of characters, any *one* of which may match a *single* character in the search string. Thus, "`[Aa]`" will match any occurrence of the letter *a*, either upper or lower case, and "`[0123456789]`" will match any single digit.

When the caret is used as the first character after a left square bracket, it reverses the meaning of the search. "`[^0123456789]`" will match any character *except* a digit**.** And "`^[^0123456789]" will match` the first character of a string as long as it is *not* a number. Note that in this case, the caret is used in with both its special meanings.

Hyphens ("-")

The hyphen ("-") has special meaning when used within brackets**.** It indicates a range of characters and must have a character on each side of it to be valid. "`[A-Z]`" will match any upper case letter), "`[a-z]"` will match any lower case letter, or "`[0-9]"` will match any digit. "`[a-zA-Z]"` will match any letter, either upper or lower case.

When found outside of brackets, the hyphen is interpreted as a literal character.

To include the hyphen in a set of characters to search for, precede it by a backslash**.** Thus "`[+\-]`" matches either a plus or minus sign, whereas "`[+-]" would be an invalid regular expression.`

Repetitions

The repetition codes are used to allow the same pattern to be matched multiple times.

The strict technical definition of a regular expression pattern is "a sequence of one or more special characters and/or literals that will match zero or more occurrences of a single character or set of characters." Now that's quite a mouthful, so it's easiest to think of it from the other direction**.** Essentially it is "a matched string of characters"

The formats are:

"*p*`\{`*x*`\}`" matches exactly *x* repetitions of pattern *p*.

"*p*`\{`*x*`,\}`" matches at least *x* repetitions of pattern *p*.

"*p*`\{`*x*`,`*y*`\}`" matches any number of repetitions of pattern *p*, from *x* to *y*, inclusive.

(Note that this is one of the cases where literal characters — the opening and closing braces — are changed to special characters by the backslash.)

x and *y* must be non-negative integers less than 256.

Whenever a choice exists, as many occurrences of the pattern as possible will be matched.

Probably the most common usage of the repetition codes is in matching numbers, as in "`[0-9]\{1,\}",` which will match "**`1",“33",`** and "**`23496187"`** alike.

Segments

One of the more powerful aspects of regular expressions is the ability to save pieces of the target string and rearrange them in the replacement process. These pieces are referred to as *segments***.** The way segments are represented is different between the search string and replacement string.

Segments in the search string

Segments in the search string are delimited by the "`\(`" and "`\)`" operators, which may be placed around any section of the search string.

"`\(`" denotes the beginning of a segment.

"`\)`" denotes the end of a segment.

(Note that this is the other case where literal characters — the opening and closing parentheses — are changed to special characters by the backslash.)

Example:

When looking for filenames, the regular expression "`[ ]\(.*\)\.dgn`" will match and save the base filenames for files ending in "**`.dgn.`**" Note the use of "`[ ]`" to make sure that the match for the filename starts with the next character after the space preceding the filename.

Use of the caret ('^') and dollar sign ('$') to match line beginnings and endings of strings must occur outside of any segments. The expression "`\(^This expression$\)`" will treat both the caret and dollar sign as literal characters and will not match the string "**`This expression`**", but *will* match: "**`^This expression$.`**"

To match a string containing nothing but "This expression", use:
"`^\(This expression\)$.`"

Segments in the replacement string

Segments in the replacement string are indicated by the "\#" code, where '#' represents a number.

Segments in the search string are numbered starting from the left with the number 1.

Segments are inserted into the replacement string according to their associated number.

Note: Segment numbers in the replacement string are only allowed to have a single digit. Thus, there is no segment 10 or higher available. The reason for this is so that segment numbers can be followed immediately by digits in the replacement string. For example, if you had a search string that extracted 2 segments, and you wanted to insert the number "1" between them during replacement, you could use "\11\2" as the replacement string. As you can see, if more that one digit were allowed for replacement segment numbers, the program would have no way of determining if you wanted to insert segment #1, followed by the digit "1", followed by segment #2, or segment #11 followed immediately by segment #2

Considering

target string: "**They say ignorance is bliss.**"
search string: "`\(ignorance\).*\(is\).*\(bliss\)`"
replacement string: "`But surely \3 \2 not \1`"

then the resulting string would be: "**But surely bliss is not ignorance.**"

If a segment number does not exist, the replacement expression is discarded**.** This normally comes about when there are fewer segments defined in the search string than there are referenced in the replacement string**.** For example:

target string: **They say ignorance is bliss.**
search string: "`\(ingnorance\).*\(is\).*\(bliss\)`"
replacement string: "`But surely \4 \3 not \2`"

then the resulting string would be "**But surely bliss not is.**"

Note the two spaces between the words "surely" and "bliss." Since there are literal spaces on both sides of the "`/4`", they are both included in the replacement string**.** Segment number four would have been put between them had there been a fourth segment in the search string.

To insert a backslash followed by a number into the replacement string, the rules for the backslash still hold true**.** That is, by preceding a backslash with another backslash, the first backslash "literalizes" the second backslash**.** Thus, "`\\1`" in a replacement string would result in "`\1`" being inserted into the target string.

Note that when using segments, *everything* that matched the pattern enclosed by the segment delimiters, is included in the segment that is inserted into the result.

Hexadecimal Characters

In versions 3.3a and later, you can use a backslash to precede a hexadecimal character representation in a search string. (for example, use \F8 for the degree symbol '°') The program will search for these strings and convert them before applying wildcard or regular expression logic.

Examples

Example 1

This is a very simple, straight substitution**.** This same thing can be done using *Wildcard Substitution*.

Search string: "`Ave\.`"
Replacement string: "`Avenue`"
Target string: "**123 4th Ave.**"
Result string: "**123 4th Avenue**"

The use of "`\.`" indicates that the period should be taken literally, as opposed to matching any single character**.** Without the backslash, (as "`Ave.`") it would match "**Ave**

Maria" and change it to "**AvenueMaria**." (Note that the space between "**Ave"** and "**Maria"** is matched by the period and is therefore replaced along with the "**Ave."**)

Example 2

Here is an example of changing all instances of "**Interstate *n"*** to "**I*n***" (where the trailing '*n*' is a number):

Search string: "`Interstate[ ]*\([0-9]*\)"`
Replacement string: "`I \1`" (space between the 'I' and the '\')
Target string: "**Interstate 95" (**or **"Interstate95"** or **"Interstate95")**
Result string: *I 95*

The "`[ ]*"` (with a space character between the brackets) means "match any zero or more spaces." The "`[0-9]*"` means "match any sequence of zero or more digits." The "`\("` and "`\)"` surrounding the "`[0-9]*"` means "save this piece of text so it can be put back into the target string." The "`\1"` in the replacement string means "put the first segment found in the target string into the result string at this position."

"`[0-9]\{1,3\}"` might be safer than "`[0-9]*."` The former would only match numbers that had a least one, and no more than three digits, since interstate highways always have at least one digit and never have more than three**.** The latter would match any instance of the string "Interstate, regardless whether it had a number following it or not**.** Thus, using the latter would change "**The Interstate System"** to **"The I system."**

Example 3

Here is an example of changing all instances of an area measurement from the format "2X3" (or something similar) to the format "3 by 2":

Search string: "`\([0-9]\{1,\}\)[ ]*[Xx][ ]*\([0-9]\{1,\}\)`"
Replacement string: "`\2 by \1`"
Target string: "**100x200" (**or **"100X200"** or **"100 x 200"** or **"100 X200",** etc.)
Result string: "**200 by 100"**

The "`[Xx]"` means "match either an upper or lower case letter 'X'`."` The two instances of "`[ ]*"` mean "match any number of spaces on either side of the 'X'`."` The two instances of "`\([0-9]\{1,\}\)"` will match and save the numbers on either side of the letter x, while ensuring that each is composed of at least one digit**.** The placement of the "`\2"` and "`\1"` in the replacement string swap the locations of the numbers within the result.

Example 4

Here is an example of how all copyright notices could be changed from "1997" to "1998":

Search string: "`\(.*copyright.*\)1997\(.*\)`"
Replacement string: "`\11998\2`"
Target string: "**`This drawing copyright 1997 by ABC Co.`**"
Result string: "**`This drawing copyright 1998 by ABC Co.`**"

Example 5

Here is an example of how regular expressions can handle different but similar situations, all at once.

Search string:
"`El[A-Za-z]*\.[]*\([0-9]\{1,\}\.*[0-9]*\)[ ]*\([fF][tT]\)`"
Replacement string: "`Elevation \1\2`"
Target string: "**`El. 100.3 FT`**"
Result string: "**`Elevation 100.3FT`**"

Breaking the search string down, from left to right, it looks for:

The literal string "`El`"
Possibly more letters, upper or lower case — this allows for El, Ele, Elev, etc.
A single period — this narrows it down to abbreviations
Possibly some spaces — because there may or may not be any here
(beginning of first segment)
At least one, but possibly more digits — there has to be at least one digit
Possibly a decimal point — if there are fractional feet then provide for a decimal point
Possibly some more numbers — the fractional feet, if any
(end of first segment)
Possibly some spaces — because there may or may not be any here also
(beginning of second segment)
"`FT`" in any combination of upper and lower case — to further narrow it down.
(end of second segment)

When the string is reassembled, it only has 3 parts: 1) the literal string `Elevation`, 2) the first segment, containing the numeric part of the measurement, and 3) the second segment, containing the units abbreviation in its original form.

Any spaces between the number and the unit abbreviation are effectively removed from the result, thus adding a little uniformity.

The units abbreviation is put back intact, regardless of the upper/lower case state of either letter in it, because it might have been purposefully intended to be different in different cases for some reason. (This could very easily be done differently if uniformity were the goal. For example, had the replacement string been "`Elevation /1•`", then all units abbreviations would be replaced with the foot symbol '•' immediately following the number, and with no intervening spaces).

All reasonable possibilities for the numeric part are covered — including the possibility of a decimal point without any succeeding digits, as in "**`123.`**"

"`[0-9]\{1,\}\.*[0-9]*`" deserves a bit of explanation**.** First off, it requires there to be at least one digit**.** This would be expected in any type of measurement**.** Then it says "there may or may not be a decimal point and there may or may not be more digits after

the decimal point.” Now in the case of a whole number without a decimal point (e.g. “100ft”) the “`[0-9]\{1,\}`” will catch all the digits. Then the “`\.*`” will see no subsequent decimal point and thus will match the zero occurrences. And after that, the “`[0-9]*`” will see no more digits because they were already all matched by the “`[0-9]\{1,\}`” and thus will match the zero or more occurrences of more digits.

Example 6

Here is how the problem posed at the end of the *Wildcard Substitution* chapter can be solved using regular expressions.

Suppose all the streets on a map were named using the format “<direction> <number><street>”, as in “North 51st Street” or “West 33rd Avenue.” But they should have been done in the format “<number><street><direction>” as in “51st Street North” or “33rd Avenue West.”

Search string:
“[ ]\([NSEW]..[t].*\)[ ]\([0-9]\{1,\}[snrt][tdh][ ]\)\([A-Z][a-z]\{1,\}\.*\)[ ]”
Replacement string: “ `\2 \3 \1 ”`

Let’s break this down:

- a space
- (start of first segment - <direction>)
- the <direction>, which must start with a capital ‘N’, ‘S’, ‘E’, or ‘W’, the fourth letter must be a lower case ‘T’ and it may have more than four letters. This covers “North”, “South”, “East” and “West”
- (end of <direction> segment)
- a space
- (start of second segment - <number>)
- at least one digit following by two lower case letters, the first of which must be either ‘s’, ‘n’, ‘r’ or ‘t’ and the second of which must be either ‘t’, ‘d’, or ‘h’. This covers “1st”, “2nd”, “3rd” and “*n*th” for the street numbers.
- (end of <number> segment)
- a space
- (start of third segment - <street>)
- a capital letter, followed by at least one lower case letter, possibly followed by a period. This effectively covers any one word or abbreviation, such as “St.”, “Avenue”, “Blvd.”, “Lane”, etc.
- (end of <street> segment)
- a space

Even this is not absolutely foolproof, but it does narrow it down well enough to handle pretty much any reasonable combination.

Tips and tricks for wildcards and regular expressions

The wildcard character ‘`*`’ can hand out some surprises if one is not careful. The two things to remember are: 1) it does not work alone — it always applies to the character or pattern immediately preceding it, and 2) it will match *regardless* of whether the

preceding pattern exists**.** This is the only code that will actually match the *absence* of something.

Likewise the '`[`' and '`]`' codes can be tricky**.** The thing to remember is that the entire pattern, from the opening through the closing brackets, represents just *one* character.

Combine those two tips, "`[ ]*`" (with a space between the brackets) is a useful construct when you're not sure if there will be a space between two characters in a string, such as "**`100ft`**" and "**`100 ft.`**"

The use of " `.*`" may seem useless at first, because it will match *anything*. But it can sometimes be used in "formula" type strings to good effect**.** Consider the following:

Search string: "`The \(.*\) for \(.*\) is \(.*)\.`"
Replacement string: "`The correct \1 for \2 is \3.`"

This would provide for correctly handling all of these strings:

"The tolerance for this part is +- .001"
"The grade for this road is 1/20."
"The color to be used for that wall is red."
"The rate for the job is $40/hr",
"The time for action is now."

Numbers

Matching numbers can be frustrating because of the great variation in formats**.** So here are some examples of some common formats:

"`[0-9]\{1,\}`" — match whole numbers

This will match any contiguous sequence of one or more digits.

"`[0-9][0-9,]\{3,\}`" — match whole numbers greater than 1,000, with or without comma separators

This will match "1,000", "1000" and "999,999,999,999"
It will also match "1,2,3,4,5", "1," and "123,,,"
It will *not* match "10", "999." "100" or "100,"

"`[0-9][0-9,]\{1,\}\.[0-9]\{1,\}`" — match only numbers having decimal fractions, with or without comma separators

This will match "1.0", "100.001" and "1,234.567"
It will also match "1,2,3.4", "1,.0" and "0,,,.0"
It will *not* match "123", "123." or ."001"

"`[0-9]\{1,\}[ ][0-9]\{1,\}/[0-9]\{1,\}`" — match only mixed numbers, without comma separators

This will match "3 1/2", "8 7/16" and "2271 17/22"
It will *not* match "1,000 1/2" or "3/4"

"`[0-9]\{1,\}^[ ]*[0-9]\{1,\}'[ ]*[0-9]\{1,\}`" — match degree/minute/second bearings

This will match “10^ 17' 33″” (with spaces) and “10°17′33″” (without spaces)
It will *not* match “10^ 17′” or “17′ 33″”

`“[\+\-][0-9]\{1,\}”` — match only whole numbers, without comma separators, that are directly preceded by a plus or minus sign

This will match “-1”, “+1000” and “-100000”
It will *not* match “-1,000” or “1000”

`“[xX]*[0-9A-Fa-f]\{2,\}”` — match hexadecimal numbers of two or more digits optionally preceded by an upper or lower case “X.”

This will match “xF0”, “x00ff”, “8010”, “abc” and “0123456789aBcDeF”
It will not match “F”, “0” or “xyz”

Although might seem tempting to use `“[0-9,]\{1,\}”` to match comma separated numbers, it is actually not of much use because it will match any comma, plus other things that are not valid numbers:

“,”
“1,2,3,4,5”
“101,,,101,,,101,,,”
“,,,,,,,,,”
“,1”

Chapter 12 — Auxiliary Bu i lt-in Commands

Auxiliary commands

The commands described in "The Custom Menu Chapter", all perform major functions that are useful all by themselves.

The auxiliary commands described in this chapter don't perform major functions by themselves. Rather, their purpose is to enhance or modify other commands or to control how *Global File Changer* does its job.

The auxiliary commands described in this chapter can be used in combination with regular MicroStation key-in commands or with the built-in *Global File Changer* commands described in The Custom Menu chapter.

The 'Axiom Delete' command

The 'Axiom Delete' command is used to delete the specified file.

Command syntax

The syntax of the command is:

```
Axiom Delete filename
```

Example:

```
Axiom Delete abc.dat
```

The '~First' command

The '~First' command tells *Global File Changer* that the rest of the command line should be executed only while the first design file in a batch is being processed. For all other files, the rest of that command line is ignored.

For example, let's say you will be processing five design files. The command you will be running on each design file is the 'Axiom Report Revision' command which writes one line to a special report file for each design file it processes. You want to make sure that each time you run *Global File Changer* that you start with an empty report file. To do this, the `.key` file:

```
~First Axiom Delete report.rep
Axiom Report Revision report.rep
```

would cause *Global File Changer* to delete the file `report.rep` (but only while processing the first of the five design files). By deleting the `report.rep` file before we

start, we assure that `report.rep` contains only information from this run of *Global File Changer*, not information from yesterday, last week or last month.

The '~Set parse on' command

This command sets the MicroStation parse mode to on.

The '~Set parse off' command

This command sets the MicroStation parse mode to off.

The '~Set Parse Toggle' command

The Set Parse Toggle command toggles the MicroStation parse mode.

Chapter 13 — Batch Mode

What do we mean by '*Batch Mode*'?

In this chapter, 'batch mode' means starting *Global File Changer* directly from the operating system command line (instead of from within graphics). When you use the DOS MSBATCH command, *Global File Changer* will run in batch mode using the settings that were in effect the last time you executed *Global File Changer*'s "Options | Save current settings…" command.

Batch mode is discouraged

There are several reasons for *not* running *Global File Changer* directly from the command line. These include:

1. MicroStation's key-in command parser is not loaded when MicroStation is running in batch mode. Therefore *Global File Changer* cannot execute MicroStation key-in commands in batch mode. Therefore only *Global File Changer*'s built-in commands can be used in batch mode.
2. The MicroStation message fields, the contents of which *Global File Changer* usually writes to its report file, do not exist when MicroStation is running in batch mode. Therefore the *Global File Changer* report file contains far less useful information when *Global File Changer* is run in batch mode.
3. It's much less convenient to run *Global File Changer* in batch mode than in graphics mode.

When you should use batch mode

The only time we recommend running *Global File Changer* in batch mode is when you have all of the following:

1. You have a server that contains a large number of design files and it would be inconvenient to move them to a graphics workstation for processing.
2. Your server is not accessible via NFS (Network File System), which allows you access to disks on other computer systems as if they were your local disk drive.
3. Your server has MicroStation loaded on it despite having no graphics terminal.

How to Run *Global File Changer* in Batch Mode

To run *Global File Changer* in batch mode follow these steps:

1. Run *Global File Changer* in graphics mode on a workstation that has a graphics screen.
2. Set up the three fields on *Global File Changer*'s main screen exactly how you want them to run in batch mode. Tell *Global File Changer* which design filename wildcard you want to run on, the name of your .`key` file, and the name of your report file.

> **Note:** You'll be able to override the design filename wildcard and the name of the `.key` file on the operating system command line when you start *Global File Changer* in batch mode.

1. Execute the "Options | Save current settings…" command. Your current settings are saved in the resource file specified.
2. Copy your `changer.ma` file to the server that lacks graphics capabilities. Put `changer.ma` in the main mdl applications directory, such as "c:\Bentley\Program\MicroStation\mdlapps\".
3. Run MicroStation in batch mode. The syntax of the command you enter (on one line) at the DOS command prompt is:

```
msbatch changer.ma -k key_file design_file_wildcard/s
```

Note that `-k` must precede the `.key` filename and that there must be a space between the `-k` and the filename. Example:

```
/usr/ip32/mstation/msbatch.sh changer.ma -k fit.key
   /usr/maps/*.dgn
```

You may need to specify the full path of some of the files.

Use '/s' after the filename wildcard if you want to process files in subdirectories.

Chapter 14 — The Report File

Overview

Global File Changer generates a report as it works so that you can tell what changes it made and any problems it encountered while doing its job. If it wasn't for this report, you wouldn't know whether *Global File Changer* made all the changes you requested.

Following is a sample *Global File Changer* report:

```
Global File Changer 8.0a                              12 April 2002 -- 7:02 pm


Design files:
c:\microstation\msj\axiom\changer\sample\changer.dgn
Command file:
c:\MicroStation\MSJ\Axiom\changer\sample\library.key
Automatic backup?               Yes
Automatic filedesign?           No
Update screen during processing? Yes
Licensing information:          Corporate license -- Axiom International.


c:\microstation\msj\axiom\changer\sample\changer.dgn
  *) (After initializing design file)
      MS) Display complete
  *) (After automatic backup command)
      MS) Saved to c:\microstation\msj\axiom\changer\sample\changer.bak
  1) ; Attach new cell library to all design files
  2) rc=$
  3) rc=sample.cel
      MS) Lib not found: sample.cel
  4) filedesign
      ST)  > Settings Saved

1 files were processed in this run.


Abbreviations used in this report include:
  MS -- Message field
  ER -- Error field
  PR -- Prompt field
  ST -- Status field
  CF -- Command field
```

Notice that for each design file, you see the following:

1. The name of the design file.
2. A line that starts with ***)**
3. A report of what messages were displayed in the MicroStation command window immediately after this design file was opened, but before *Global File Changer* executed any commands. The two character abbreviation at the start of each line indicates in which of the five MicroStation message fields this message was displayed. The abbreviations are described at the end of the report file.
4. The first line of the key-in file. In the example above, the first line of the key-in file is a comment (starts with a semicolon). Comments are for your convenience only. No MicroStation command is executed for comment lines.

5. The second line of the key-in file. In the example above this is `rc=`. This command tells MicroStation to display the name of the current cell library. Notice that before this run of *Global File Changer,* design files `test1.dgn` and `test2.dgn` had no cell libraries attached, but `test3.dgn` had `obsolete.cel` attached as its cell library.
6. Each additional line of the key-in file. After each line of the key-in file is printed, *Global File Changer* prints out any *changes* MicroStation made to its message fields as a result of *Global File Changer* executing that line.

Chapter 15 — Helpful Hints

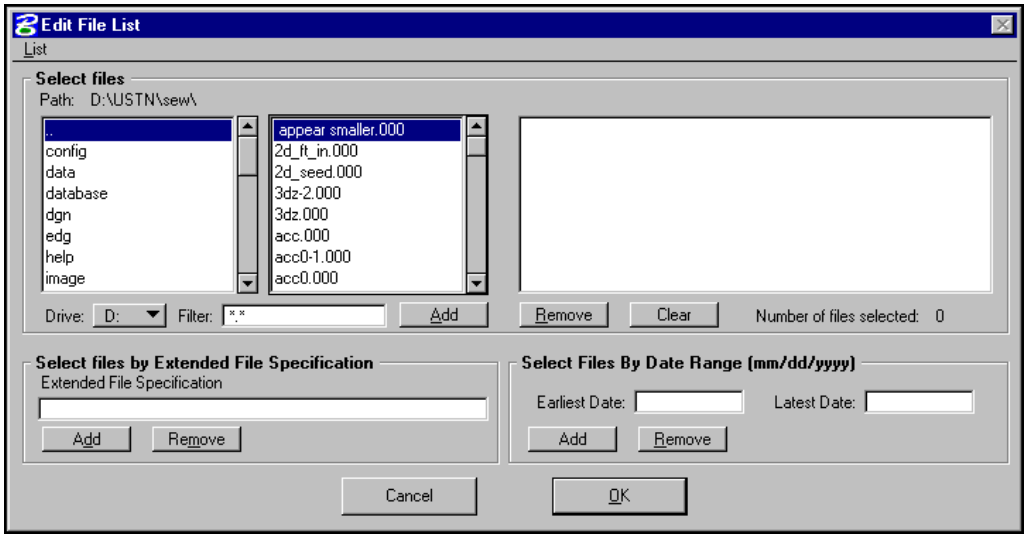
Keeping your files safe

- Always test a new key-in command file on design files in a scratch directory before trying it out on real live design files.
- Make the first command in each of your key-in files a `backup` command. *Global File Changer* will run slower, but you'll have a backup copy of your files in case you made an error in creating your key-in file. Alternatively, set Automatic backup in the Options menu.
- The sample user commands and key-in files are not formally part of the *Global File Changer* product. You should test these files thoroughly before relying on them.
- If you write a key-in file or a user command that effectively demonstrates a valuable use of *Global File Changer*, we'll be happy to include it on our distribution diskette. We'll ensure you got full credit for your creation. If it's really good, we might even offer you a bit of cash for the right to include it.
- All dialog boxes and palettes should be turned off before running *Global File Changer*. Failing to turn off certain dialog boxes will cause a large number of error messages to be displayed to the screen while *Global File Changer* is running. These messages will slow down *Global File Changer* by a factor of 50 to 100.
- *Global File Changer* writes numerous temporary files to the directory defined by environment variable `MS_TMP`. To avoid problems, make sure you have write access to this directory.
- If you encounter errors not covered in this manual, send a detailed email to support@axiomint.com. Please include as much information about your operating system, the problem that you are experiencing and exactly what you did when this problem occurred. Also make sure to include the version number of MicroStation and *Global File Changer* that you are running.

Chapter 16 — *File List Editor*

The *File List Editor* Dialog Box

Use the *File List Editor* dialog box to create a list of files to be processed.



The List menu

The List menu lets you create, save, and re-use different lists of files. There are several applications that can make use of these lists of files. So lists can be imported and exported between applications.

Tip: Although there are some similarities between this menu and a standard “File” menu, the differences are significant. When you Import or Export from this menu, the files do not remain “open”, you are not “editing a file”, and no files are “updated”. Effectively, these are “one shot copy” operations where an entire set of data is copied from the dialog box to a file, or from a file to the dialog box.

There are two possible file formats, each having different advantages and disadvantages.

File list only (text)

This format is a simple text file, with each line in the file containing a fully qualified, unambiguous file specification. No other data is saved.

Definition: "fully qualified, unambiguous file specification" means "including a drive letter, a complete path starting from the root, a filename, and optionally an extension, all with no wildcard characters." An example of this would be "c:\temp\tempfile.tmp".

Files of this format can be edited using any text editor. Notepad is an example of a simple text editor.

The image below shows an example of a list saved with the 'Export' option that can later re-opened with the 'Import option:

This *format* is handy for using as a basis for an "@listfile" (see below). Or even for generating a list of files for *any* application that uses a list of files for input.

The default extension for this format is **.lst,** which stands for "list".

All data (binary)

In this format, all the important data displayed in the dialog box is saved. This includes not only the "selected" files list, but the earliest and latest date fields and the Extended File Specification string.

The data is saved in a specific format which cannot be safely modified by any program other than the File List Editor dialog box.

The default extension for this format is **.efl,** which stands for "Edited File List".

List | Import

Use this option to restore a list of files from a saved file.

All data (binary) — Select this option to restore the complete state of the dialog box from a file. If the file selected is not of the proper format, no changes will be made to the state of the dialog box.

File list only (text) — Select this option if you want only the list of files to be restored. When this option is used, nothing in the dialog box changes except the "selected" files list.

Note: This option will attempt to import *any* file. Everything from the beginning of the file up to the point where the file no longer contains text, will be imported and displayed in the "selected" files list.

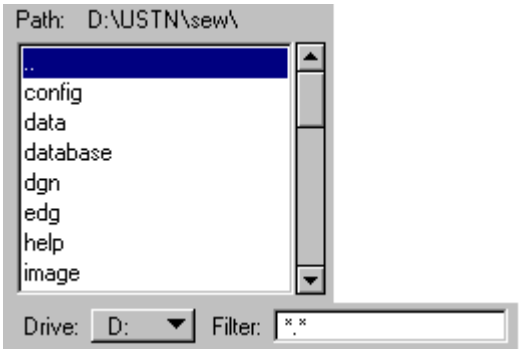
List | Export

Use this option to save a list of files to a file.

All data (binary) — Select this option to save the complete state of the dialog box.

File list only (text) — Select this option to save just the list of files.

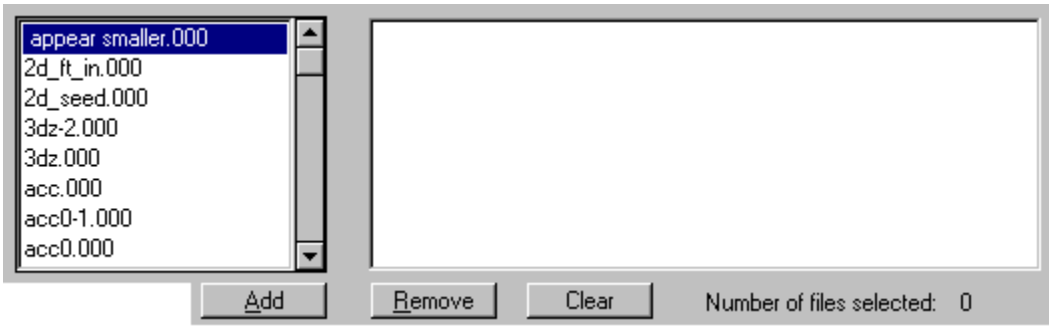
Navigation Section



This section of the dialog box works just like the "File | Open" dialog box in MicroStation and other Windows programs. You can select a drive by choosing from the available drives on the "Drive:" option button, or by entering the drive in the "Filter:" field. You can move up or down the directory tree structure by double clicking on one of the directory names, or by typing in any valid directory path in the "Filter:" field. You can display specific file types in the "Files:" list by specifying wildcards in the "Filter:" field. The "Filter:" field will recognize any valid combination of device, directory and/or filename, including UNC specifiers.

As you make changes to any of these fields, the other fields and lists will be automatically updated.

File List Editing Section



This section of the dialog box is used to add and remove individual filenames from the list of selected files.

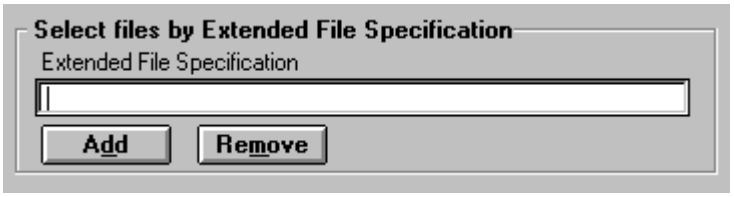
The "Selected Files" list

This displays the files that have been selected for processing, and the files in the current directory. To remove a file from the list, simply double-click on it, or highlight it and press the <Del> key, or highlight it and click the "Remove" button or press <Alt-R> on the keyboard. To remove multiple files from the list at once, select all the desired files, and click the "Remove" button or press <Alt-R> or <Del> on the keyboard. To clear the entire list, click the "Clear" button. To add a file to the list, double click the filename in the "Files:" list. To add multiple files to the list, selected all the desired files from the "Files:" list and click the "Add" button.

As you add and remove files from the "selected" list, the "Number of Files Selected:" field will keep track of the total number of tiles in the list.

Files in the "selected" list, which are also in the "available" list, will be displayed in gray in the "available" list. Since these files are already in the "selected" list, they cannot be added again.

Extended File List Specifications



An extended file specification is based on a simple wildcard, such as "C:\DESIGNS*.DGN, with added options and parameters that are defined below.

To add the specified files to the "Selected Files:" list, click the "Add" button, or press <Alt-d> on the keyboard. To remove all files fitting the extended specification from the "Selected Files:" list, click the "Remove" button, or press <Alt-m> on the keyboard.

/s – include sub directories

"/s" includes all matching files in all subdirectories of the one specified in the preceding file specification.

```
c:\dgnfiles\*.dgn /s
```

/fedate – earliest date

"/fe1-1-1992" includes files with dates that fall in a range beginning on January 1, 1992

/fldate – latest date

"/fl12-31-2002" includes files with dates that fall in a range ending on December 31, 2002

/fodate – on date

"/fo1-1-2002" includes only files modified on January 1t, 2002.

/ft – today

"/ft" includes only files with dates matching the current system date.

Note: Since the forward slash is used to indicate an option, and the backward slash is used to separate directory names, neither can be used for separating month, day and year in dates. Use either periods (12.31.92) or dashes (12-31-92) instead of slashes.

Tip: "/fldate" and "/fedate" may be combined to restrict file dates to a specific range, as in "c:\dgnfiles*.dgn /fe7-1-1997 /fl8-1-2002 /s"

semicolon

Multiple extended file specifications may be strung together by separating them with semicolons " ; ". For example:

```
c:\dgnfiles\*.dgn /s; d:\dgnfiles\*.dgn /s
```

@

'@' prefixed to a file specification indicates a list file. A "list file" is a flat text file containing lines composed of file specifications as defined above. That is, each line can be a simple file specification, a wildcard file specification, a list file specification, a single extended file specification, or multiple file specifications of any of theses types, separated by semicolons. The contents of a list file might look something like this:

```
e:\reffiles\border.dgn
e:\reffiles\ref1.dgn
e:\reffiles\ref2.dgn
```

```
e:\reffiles\ref3.dgn
e:\reffiles\ref4.dgn
e:\reffiles\ref5.dgn
c:\dgnfiles\*.dgn /s /ft
d:\dgnfiles\*.cel /s /ft
@c:\filelists\project1.lst
@c:\filelists\project2.lst
```

<OK>

Use this pushbutton to save the list in the “selected” files listbox and exit the dialog box.

<Cancel>

Use this pushbutton to cancel any changes made to the list in the “selected” files listbox and exit the dialog box.

Select files by date range

To add the files from the “Files:” list to the “Selected Files:” list, which fall within the date range specified , click the “Add” button. To delete the files in the “Selected Files:” list which fall within the date range specified , click the “Remove” button.

Earliest date

Use this field to enter a beginning “cutoff” date for a range of files to be added to the “selected” files listbox. Files whose last modification date is before this date will not be added to the “selected” files listbox when the <Add by dates> pushbutton is clicked or removed from the “selected” files listbox when the <Remove by dates> pushbutton is clicked.

Latest date

Use this field to enter an ending “cutoff” date for a range of files to be added to the “selected” files listbox. Files whose last modification date is after this date will not be added to the “selected” files listbox when the <Add by dates> pushbutton is clicked or removed from the “selected” files listbox when the <Remove by dates> pushbutton is clicked.

Note: The “Filter:” is combined with the dates when adding files to the “selected” files list. In other words, only those files which fall within the specified date range, *and* which are displayed in the “available” files list, are added to the “selected” files list when the “Add” button is clicked.

Messages

“xxx” is not currently accessible.

This message indicates one of two things:

1. A file specification was entered into the “Files:” field, but it does not correspond to any resource accessible to the system. This usually just ends up being a mis-typed or mis-remembered directory name or UNC path.
2. A resource is truly not accessible to your system. Some likely reasons for this are: a) you do not have, or no longer have, access permissions for the resource, b) the resource’s name has changed, c) a resource is down, offline, or inaccessible for some other “mechanical” reason, d) drive letter mappings have been changed on your computer, e) a directory has been deleted or moved.

If you get this message and have checked your entry, contact your systems administrator to determine why the resource is not accessible.

Note: The term “resource” is borrowed from the UNC definition "\\<server-name>\<resource-name>\". In our context we mean “a specified device/directory combination in either DOS or UNC format”. This specifically *excludes* the filename and extension. Examples of this might be “c:\dgn_files\” and “\\server\drive_c\dgn_files\”.

Problems installing or re-installing

There are a few things that you can check if you have problems with installation. Our installation program looks for a file named AXIOM.CFG which is usually found in your MicroStation directory …\CONFIG\APPL. This file should at the very least contain the following:

```
#------ Axiom base directory.            ------#
AXI < C:/WIN32APP/axiom/

#------ Axiom installed variable         ------#
```

```
MS_DGNAPPS < $(AXI)aximenu.ma

#------ Axiom installed variable         ------#
MS_MDL < $(AXI)
```

There may be additional entries, but each entry should be unique.

Chapter 17 — We'll Make (A lmost) Any Enhancements You Want

We welcome your suggestions

Global File Changer is already a powerful program. Nonetheless, we realize that you, a skilled and creative MicroStation user, will think of ways in which it can be improved. We invite you to tell us your ideas.

Axiom International didn't become the number one MicroStation third party overnight. For years we've listened to you, the skilled MicroStation professional, and have implemented the features you've requested. Every widely acclaimed product we've ever developed, including *FileFixer*, evolved in this manner.

We'd like to make *Global File Changer* perform every function you could ever imagine such a product being able to do. We intend to make you such a satisfied *Global File Changer* customer that you can't wait for the next user group meeting so you can tell your friends and associates how much you like *Global File Changer* and how strongly you recommend it.

Your suggestions on how to improve *Global File Changer* are most welcome.

Chapter 18 — New Features and Fixes

3.3b — 15 May 2002

Version 3.3b handles some problems that occurred in the 3.3a release for MicroStation 95/SE/J.

The custom function to copy level symbology was failing on some donor files. This was fixed.

The custom tool to merge files was failing on some large files. This was fixed.

The custom tool to copy dimension settings was sometimes failing. This was fixed.

A difficulty with selecting text nodes by font was handled.

8.0b — 13 May 2002

This enhancement to the MicroStation Version 8 *Global File Changer,* focuses on bylevel and level selection improvements.

We added a new V8 level picker to the Element Selection dialog box to allow easy selection based on levels that exist in the active design file. Current level selection by number and number range is still supported.

We activated a color picker including a bylevel selection to Element Selection as well as bylevel selections for style and weight.

The 'Modify text' custom tool now accepts a –1 for bylevel color selection and contains bylevel choices for line style and weight.

8.0a — 24 April 2002

Global File Changer version 8.0a works with MicroStation version 8.

3.3a — 13 March 2002

Global File Changer now has the ability to convert a single text element into a text node when doing text replacement. This is done by using '\n' ("newline") in the "Replacement string" field of the "Replacement Strings" dialog box.

The *Global File Changer* User's Guide is now available in Windows Help format. It is accessible via "Help | Contents" from the main *Global File Changer* dialog box.

Now, *Global File Changer* also features the ability to have a 'Relative' or 'Absolute' replacement of cells, normal and shared. You can also scale these cells by entering new values for new sizes.

The 'Custom | Copy design file settings from another design file' command will now also copy level names (if they exist) from the source design file to the target design file(s).

The 'Custom | Modify text function now allows searching for special characters using their hexadecimal representation.

We expanded the documentation on using wildcards and regular expressions in text replacement.

Now, if you press any key while *Global File Changer* is running, you will be given the choice to skip processing the current file or stop processing entirely.

Added a new Custom command named "Count cells in design files."

Element Selection for *Global File Changer* now features the ability to select a block of elements within *coordinates* for 2D and 3D files. You will be able to do things with this that you are not able to do with 'Fence' commands.

We experienced a problem when using Element Selection in *Global File Changer* to select text by height. Text of certain heights would not always be selected. This has been handled.

We made subtle enhancements to the operation of the Element Selection box.

There were problems with selecting shared cells in some specific levels on the element selection. These were fixed.

When selecting dimension elements to process, users would sometimes get an MDL abort in seldimty.mc at line 204. This has been handled.

Elements of certain custom linestyles could not be selected. This has been handled.

Converting strings with special characters was causing an abort when using regular expressions. This has been handled.

After processing *Global File Changer* on a list of design files, it leaves the user in the last design file it processed. Now, *Global File Changer* returns to the original design file when it is done processing.

"Custom | Report revision letter on each design file" was not creating a report file. Now it does.

3.2a — 29 February 2000

Now, whenever <Start> is not activated (when it is "grayed out"), the most important reason that it is grayed out (there can be multiple reasons) is displayed near the bottom of the main dialog box.

No cells were being processed when using the "Center" option in the "Scale Cells" custom feature. This has been handled.

On *Global File Changer's* main dialog box, <Alt-S> was the hot key for both "Selection" and the <Start> button. This was handled by making <Alt-T> the hot key for the <Start> button.

Added a File menu with Open…, Save, and Save As… options in the Replace Cells dialog box. Now you can save your "Replace Cells" settings and reuse them in the future!

When running *Global File Changer* via MSBATCH.BAT, it wouldn't accept filespecs as command line parameters, it would always use the last value saved in the "Which design files do you want to process?" field of the main dialog box. This has been handled so that now you can tell *Global File Changer* which design files to process from the command line.

If you specified multiple filespecs in the "Which design files do you want to process?" field, then brought up the "Edit File List" box (by pressing the corresponding <Select…> button), *Global File Changer* used to complain about not being able to access what it considered was an invalid path. Plus, the "Filter" field was likely to have invalid data in it. This has been handled.

Global File Changer is now compatible with *Design File Manager*. Specifically, when *Design File Manager* is running, system administrator permission is required to run *Global File Changer*.

3.1e — 13 July 1999

The option to speed up processing by not refreshing the screen for each new drawing was interfering with regular use outside the program. This only happened on some platforms. Now the option only affects screen refreshes within *Global File Changer*.

Using wildcard search strings in the Custom | Modify Text | Parameters | Set Text Replacement Parameters function would cause bad results some times. Now all forms of input will work properly.

3.1d — 18 June 1999

Corrected a problem with normal wildcard search/replace strings being treated as regular expressions in some situations. This was affecting the Custom | Modify Text | Parameters | Set Text Replacement Parameters function. Additionally, wildcard search strings are no longer case sensitive. Regular expression strings remain case sensitive.

Corrected a problem in Custom | Scale Cells when scaling around Center. Now scaling around Center works as reliably as Center.

The user interface was overwriting user input with the previously entered string for the "Which file contains..." field. Now the user input is left alone.

With more than one search/replacement string set in the list in Custom | Modify Text | Parameters | Set Text Replacement Parameters window Removing one would access memory illegally. This has been corrected.

The whole processing of selecting elements by named levels has been cleaned up. Previously user input was only being accepted if the level name was in quotes, now it will work with or without quotes. The name wasn't being completely processed so selection by named levels wasn't successful.

Within Selection | Element Selection | Text | Text Attributes, leaving the justification field empty wasn't being handled properly. Tabbing through the fields was enough to cause problems. Now all contents are handled properly.

The title for the "Copy Design File Settings" had a period, which is non-standard, so it was removed.

The title for the Custom | Scale Cells dialog box was previously showing as "Define Cell Names", it was corrected to "Scale Cells".

The Custom | Replace Cells dialog box hadn't been insisting that a cell library be specified; now it does. In investigating problems in this area it was noted that MicroStation can not save a cell library if it has a long file name. The name gets truncated at nine characters.

A tricky situation is created when running Custom | Modify Text with Selection; if you go back into Modify Text it won't know that you want it to operate only on selected elements, it modifies all text elements. Further explanations and notes have been added to this User Manual.

3.1c — 17 March 1999

Corrected a problem with recognizing February 29, 2000 as a valid date.

3.1b — 30 December 1998

To increase compatibility with all platforms and all systems and all document viewers the use of tabs in the reports was completely eliminated and replaced with simple spaces. Tabs in the source code were also replaced with spaces making it uniform throughout, this streamlines future maintenance of the program.

3.1a — 24 December 1998

The standard Axiom method for saving and loading application settings was implemented in *Global File Changer*. The standard system was enhanced to give the ability to tell *Global File Changer* to use a specific settings file via the MicroStation environment variable of CHANGER_RSC. Then to make things even better the ability to load and save settings to a user selectable file was added.

Global File Changer was trimming the extra white spaces from each line of a key-in file as it processed it, this action was interfering with commands that rely on extra spaces such as `"CT= "` so the white space trimming was disabled.

The standard Axiom routine for displaying a report file to a window was put into use making *Global File Changer* overall operation simpler.

Enhancements have been made to the Axiom File List Entry and Editing modules. These updated routines were incorporated in *Global File Changer* giving you a smoother, more flexible and more powerful interface.

The Axiom Element Selector has been worked over making it more intuitive to use.

The standard Axiom "About" dialog box was hooked into *Global File Changer* giving users the ability to easily get information about the version of their copy of *Global File Changer*.

If, in processing a list of files, *Global File Changer* encounters a file that can not be opened (or isn't a proper design file) a message to that affect will be entered in the report file.

An error was found and fixed regarding the formatting of the CPUID in a message you might get if running an old and invalid license.

3.0i — 3 November 1998

Due to changes in only distantly related parts of a library module The Copy Dimension Parameters feature stopped working. The errant module was rectified without causing any negative effect so the Copy Dimension Parameters feature once again is working.

Given specific settings the Axiom Element Selection module would fail. This situation was safeguarded against making this module very robust.

3.0h — 12 November 1998

A change in a low-level function of "Copy Dimension Parameters" prevented it from actually doing the job of Copying Dimension Parameters. This custom feature was reworked so that it performs as expected.

Under certain specific conditions with specific .SEL files, *Global File Changer* would MDL abort in selscan.mc line 2168. The error in the Axiom Element Selection Module was tracked down and fixed.

New – "Apply" button in Selection Dialog Box. All elements in the active design file which match a selection criteria can be immediately selected simply by clicking this button.

New – Regular Expression Text Replacement. Text search and replacement can now be done using either simple wildcard substitution, or with regular expressions. Regular expressions are an extremely powerful and versatile tool for manipulating text.

New – "Save settings on exit" menu selection. You can now tell *Global File Changer* to save all your settings automatically when the application exits, instead of having to remember do it manually each time you want the settings saved.

Fix – Replace Cells custom command. In some cases, the settings saved from a previous "Replace Cells" command would not be correctly retrieved from the settings file. This has been fixed.

3.0g — 10 September 1998

An option was added to the menu to allow all the current settings to be immediately saved as the defaults

An "Apply" button was added to the selection dialog box to allow all the elements that meet the currently selection criteria to be selected in the design.

The parameters for the `#Axiom Replace Cells` command were not always being saved and restored correctly. This sometimes caused the command to fail and has been fixed in this version.

3.0f — 7 May 1998

The standard Axiom Edit File List dialog box for selecting files to be processed was added.