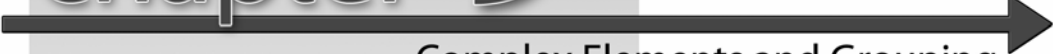


# chapter 9

Complex Elements and Grouping







## 9. Complex Elements and Grouping

### MicroStation Groups

It is a common drafting practice to associate, or “**group**” elements together. Doing this is often beneficial to increase efficiency when modifying or manipulating multiple elements. There are three ways to group elements together in MicroStation:

- *Temporary* – created by making a selection set or by using a fence
- *Semi-permanent* – created by making a complex element or graphic group
- *Permanent* – created by making a cell

### Temporary Group

Temporary groups, or selection sets and fencing, are discussed in Chapter 8.

### Semi-Permanent Group

A semi-permanent group can be a **Complex Element** or a **Graphic Group**. A semi-permanent group is typically created if multiple elements are to be grouped together, yet still have the ability of modifying or manipulating that group in the future.

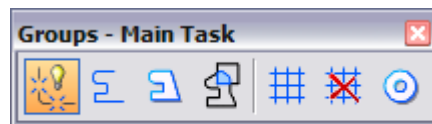
## What is a Complex Element?

A **complex element** is created when individual elements are joined together to behave as a single element. An example might include a line, arc, and line string being joined to form a *complex chain* or *complex shape*.

## Creating Complex Element Status

There are four tools located on the *Groups* toolbox that are designed to add complex status to elements.

### Groups Tool box



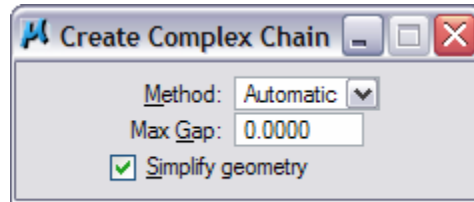
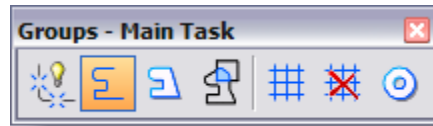
### *Create Complex Chain*

The **Create Complex Chain** tool joins either lines, line strings, curves, and/or arcs into a single element. There are two methods to create a complex chain; *Manual* and *Automatic*.



## Complex Elements and Grouping

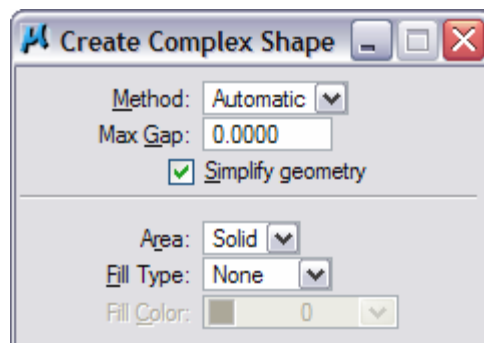
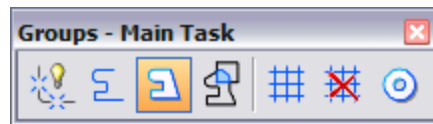
**Note:** Complex chains are created using the active attributes of the model. So the active attributes of the model should be verified or changed prior to creating a complex chain.



### Create Complex Shape

The **Create Complex Shape** tool joins either lines, line strings, curves, and/or arcs into a single element. There are two methods to create a complex shape; *manual* and *automatic*. When creating complex shapes, fill can be assigned to the shape by setting the fill options in the Tool Setting Window.

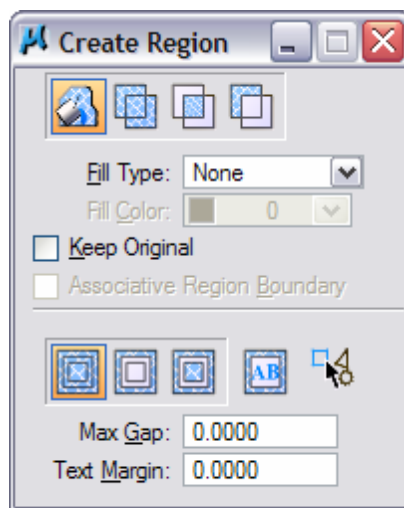
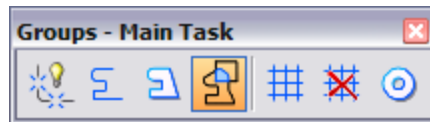
**Note:** Complex shapes are created using the active attributes of the model. So the active attributes of the model should be verified or changed prior to creating a complex shape.





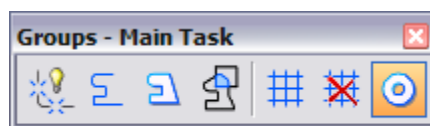
### Create Region

The **Create Region** tool creates complex shapes from a variety of elements types. The way in which the **Create Region** tool identifies the area or region to create as the complex shape is based on how the elements are orientated to one another. The complex shape can be created using the *flood*, *intersection*, *union*, or *difference* methods.



### Group Hole

The **Group Hole** tool creates a relationship between a boundary element and a hole or group of holes (i.e. circles, ellipses, shapes, and/or complex shapes). When this type of relationship is established, the hole element(s) will always appear as a hole when the boundary element is patterned, hatched, or filled.

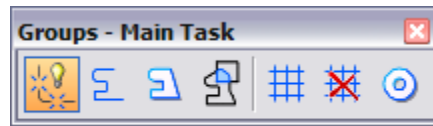




## Dropping Complex Element Status

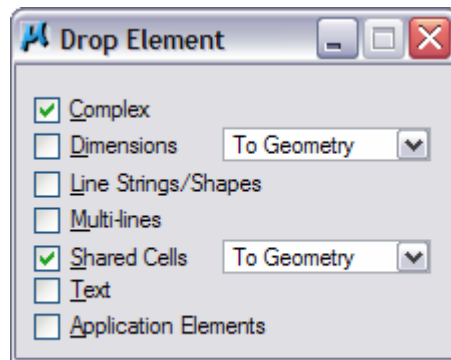
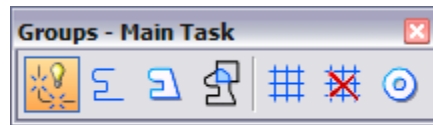
Sometimes it might prove beneficial to “drop” the association of a complex element, making the individual elements act independent of one another. This can be accomplished from the *Groups* toolbox or the *Fence* toolbox.

### Groups Tool box



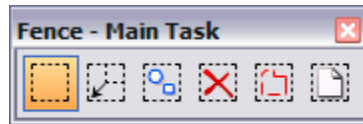
### Drop Element

The complex status of a variety of different elements can be “dropped” by using the **Drop Element** tool. To drop a specific type of element, the appropriate check box needs to be activated in the Tool Settings window and then the element(s) to be dropped is selected.





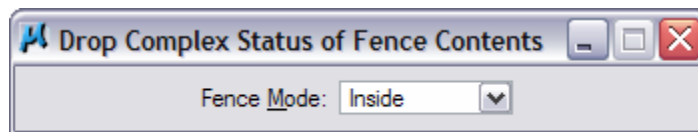
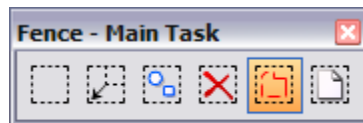
## Fence Tool box



### *Drop Complex Status of Fence Contents*

The **Drop Complex Status of Fence Contents** tool drops complex elements to their individual element status. The elements that are dropped are defined by the fence *mode* options that are available in the Tool Settings window.

**Note:** A fence must be placed in the drawing to be able to use this tool.





## Complex Elements and Grouping

### Graphic Groups

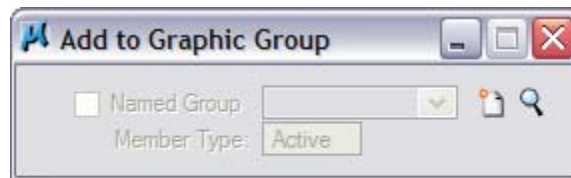
#### What is a Graphic Group?

A **graphic group** is a collection of elements that are grouped together by an ID number. When the **Graphic Group Lock** is turned on all elements in the same graphic group are treated as a single element. When the Graphic Group Lock is turned off the elements are treated individually. **Quicksets** and **Named Groups** are extensions of graphic groups.

#### *Add to Graphic Group*

The **Add to Graphic Group** tool can be used to:

- Create a new graphic group
- Add elements to an existing graphic group
- Combine two or more graphic groups to make a single graphic group

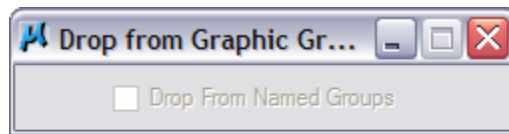
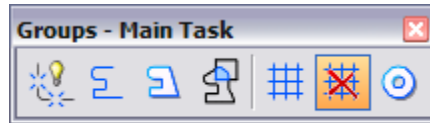




## Complex Elements and Grouping

### *Drop from Graphic Group*

The **Drop from Graphic Group** tool is used to remove one or more elements from an existing graphic group. It can also be used to drop the entire graphic group completely.



**Note:** When the graphic group lock is off, individual elements can be removed from the graphic group. When the graphic group lock is on, the entire graphic group is dropped.



## Complex Elements and Grouping

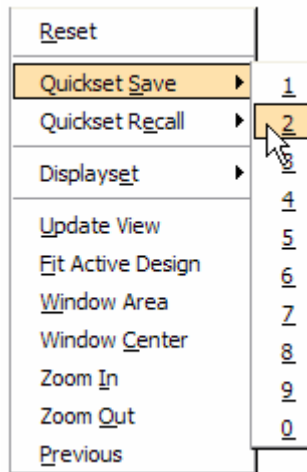
### Quicksets

Selection sets can be saved in MicroStation. A saved selection set is known as a **quickset**. Up to 10 different quicksets can be saved per model. A quickset is also considered a *named group*, which makes managing or recalling a quickset easier. Named groups are discussed in the next section of this chapter.

#### *Creating Quicksets*

To create a *quickset*:

1. Make a selection set of existing elements.
2. Access the *View Control* floating menu by holding down the **[Shift]** key and press the **Reset** button on the mouse.
3. Choose, **Quickset Save** and then a number.

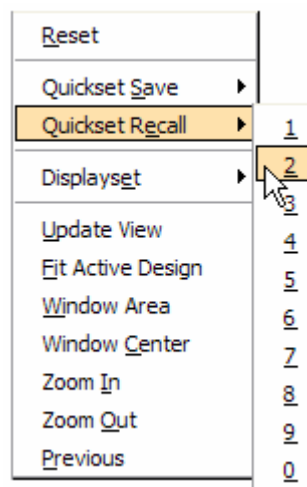




### Recalling Quicksets

Recalling a quickset will activate, or recall, the selection set that was saved when the quickset was created. A quickset can be recalled 3 different ways:

- From the *View Control* floating menu; which is accessed by holding down the [Shift] key and pressing the **Reset** button on the mouse.
- Press the [Ctrl] key and the appropriate quickset **number** on the keyboard.
- Double-click on the appropriate quickset in the *Named Groups* dialog box. Named groups are discussed in the next section of this chapter.

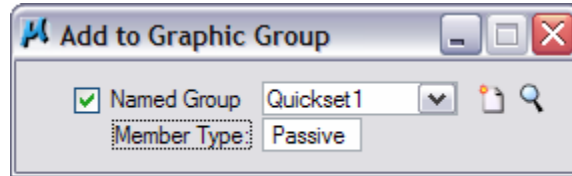




## Complex Elements and Grouping

### Named Groups

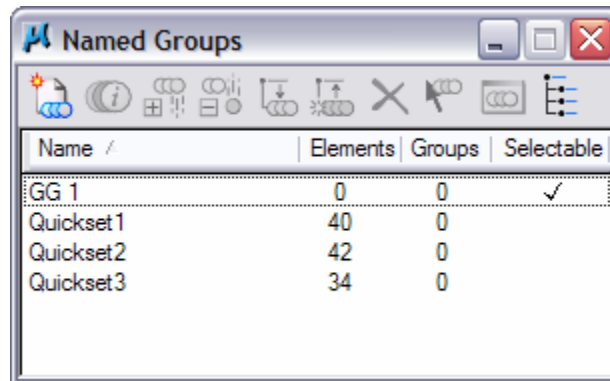
A **named group** is simply a *graphic group* or *quickset* that has been assigned a name. A **named group** can be created from the **Add to Graphic Group** Tool Settings window.



By selecting the *Create New Name Group* icon, the **Create Named Group** dialog box will appear.



After a name is assigned to the named group, the new named group can be managed from the *Named Groups* dialog box by choosing, **Utilities > Named Groups**.



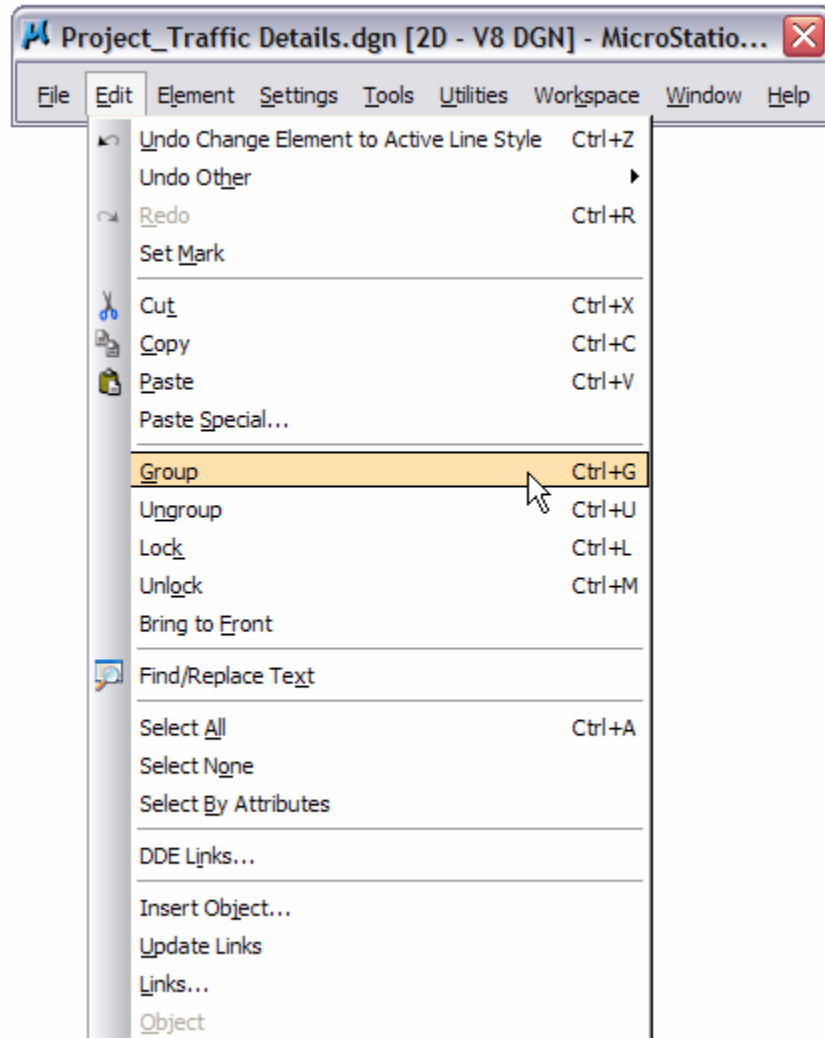


## Permanent Group

A permanent group, cells, can be created by the **Group** command or by the use of a **Cell Library**. Cell Libraries are discussed in Chapter 13.

### *Group Command*

The **Group** command is used to “group” multiple individual elements together if no future modifications are necessary. The group command can be accessed by choosing, **Edit > Group**.

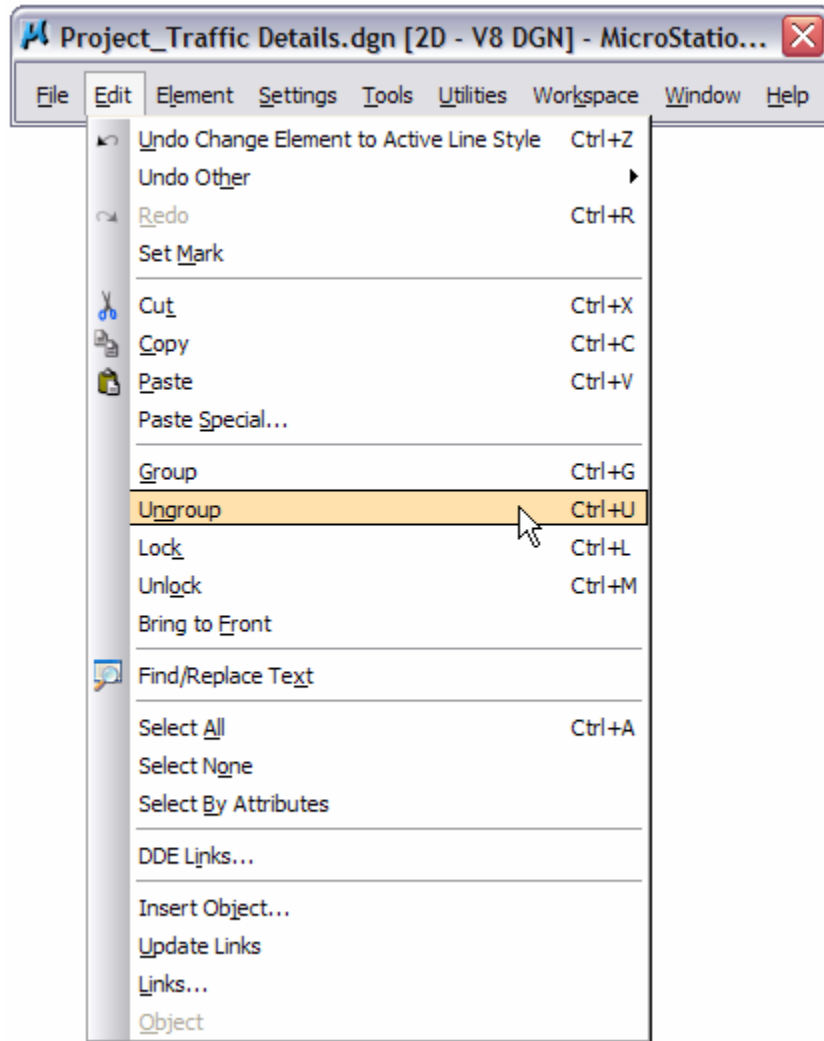




## Complex Elements and Grouping

### *Ungroup Command*

The **Ungroup** command is used to “ungroup” existing cells that were created using the Group command. The Ungroup command can be accessed by choosing, **Edit > Ungroup**.





## Lab 9 – Complex Elements and Grouping

### Objectives

*The purpose of this lab will be to:*

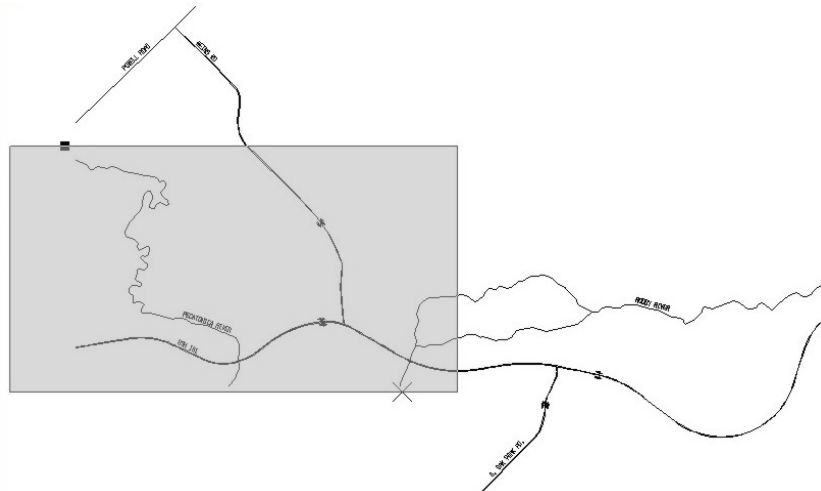
- Create a complex chain.
- Create a complex shape
- Drop complex status of an element.
- Group and ungroup elements.
- Add and remove elements from a graphic group.

### Open the Design File

1. Open **MicroStation Manager** or the **Open** dialog box.
2. Set the directory to:  
**C:\Envision Group\_Training\MS V8i Fundamentals\CIVIL**
3. Select the file named:  
**Project\_Mapping.dgn**
4. Select **Open**.

### Create a Complex Chain

1. **Window** into the area as shown.



**Complex Elements and Grouping**

2. Set the *active* attributes as shown.

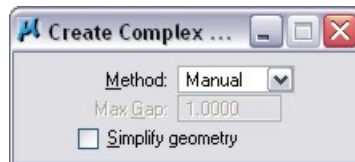


**Note:** When a complex chain and/or shape is created, it is created with the active attribute settings. This is why you set the attributes as desired in the first step.

3. Select the **Create Complex Chain** tool [6,2].



4. Set the *Method* to **Manual**.

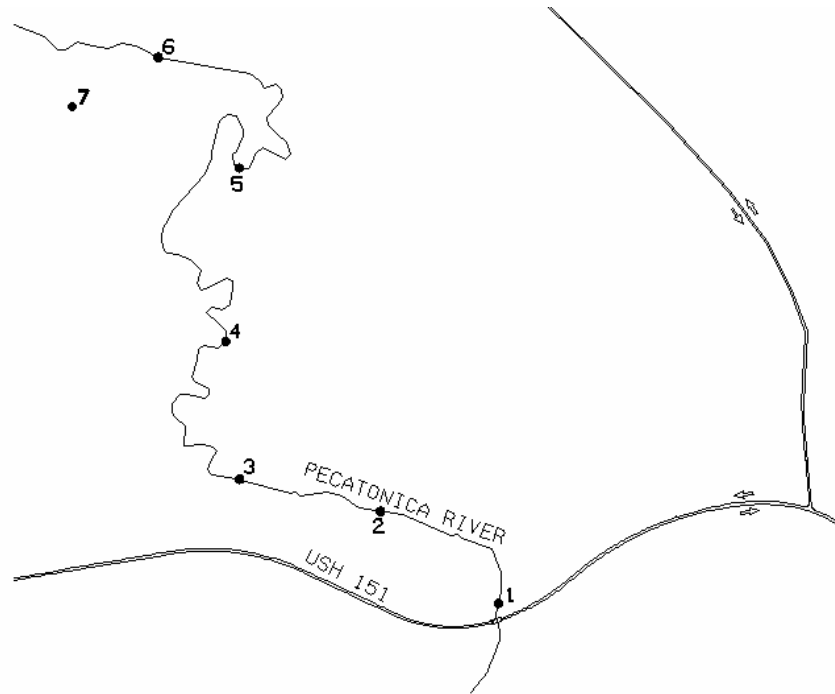




## Complex Elements and Grouping

Create a complex chain out of the individual elements making up the river.

5. <D> on the elements to be included as part of the complex chain (points 1-6).
6. <D> to accept the command (point 7).



7. Hover over the newly created complex chain to see the popup info for verification that the complex chain was created.

