
Chapter 6

Graphical COGO

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6.1 Objectives

- Create and store coordinate geometry elements using the Graphical Coordinate Geometry tools.

6.2 Definitions

Graphical Coordinate Geometry is a set of tools that allows the user to store or modify coordinate geometry elements (points, lines, curves, spirals, chains, and parcels) by key-in or a mouse click. The elements are stored directly into the coordinate geometry database (.gpk) while being created or modified graphically on the screen.

6.3 Accessing



The Graphical Coordinate Geometry tools can be accessed from the Horizontal and Vertical Geometry toolbox or by selecting **Applications>>Geopak Road>>Geometry>>Graphical Coordinate Geometry**. If the user attempts to activate Graphical COGO without an active session of coordinate geometry, a warning dialog will appear advising the user that a coordinate geometry session must be started.

When Graphical COGO is started, the following dialog appears.



6.4 Dialog

The Graphical COGO dialog contains four toolboxes.

6.4.1 Store Elements



6.4.2 Modify Elements



6.4.3 Manipulate Elements

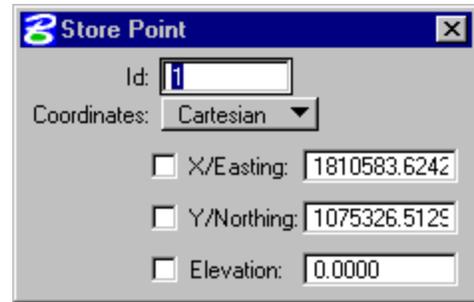


6.4.4 Groups



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When a tool in one of the toolboxes is selected, a dialog box will appear for the user to key-in any required information.



6.5 Store Elements Tools

The Store Elements toolbox is used to store points, lines, curves, and spirals. The following tools are contained in the Store Elements toolbox.



Store Point – stores a point. The user can store a point by either Cartesian coordinates (XYZ), or curvilinear coordinates (station and offset). The XY and/or Z coordinates or the station, offset, and/or elevation can be locked or a data point can be used to place the point.



Store Equally Spaced Points – stores a given number of points spaced equally between two specified points.



Locate Point – stores a point by distance and direction. The distance, direction, offset, and slope can be locked. A line segment can also be stored.



Store Line – stores a line segment between two previously stored points.



Store Line by 2 Points – stores a line segment and its endpoints. The distance and direction of the line segment can be specified.



Store Tangent Line – stores a line segment that is tangent to a curve. The two endpoints of the line segment are also stored.



Store Curve by 3 Points – stores a circular curve by specifying the beginning and ending points, and a point on the curve.



Store Curve by Center – stores a curve by specifying the beginning point of the curve, the center of the curve, and the ending point of the curve.



Store Tangent Curve Constrained – stores a curve tangent to the specified curve or line.



Store Tangent Curve Unconstrained – stores a curve through a specified point, and tangent to the specified line or curve.



Stores Tangent Spiral – stores a spiral tangent to specified line or curve.

6.6 Modify Element Tools

The Modify Elements toolbox is used to modify previously stored cogo elements. The redefine toggle must be turned on to modify existing elements. The following tools are contained in the Modify Elements toolbox.



Partial Delete – deletes part of an element creating two separate elements. Additional points will be stored if needed.



Extend Plan View Element – extends or shortens any cogo element.



Trim Elements – trims or extends elements to intersect with another element.



Intersect Elements – stores a new point at the intersection of two elements. The original elements are not modified.



Extend Element to Intersection – lengthen or shorten an element to another element. Works functionally the same as its Microstation counterpart.



Extend Elements to Intersection – lengthens or shortens two elements to intersect each other. Works functionally the same as its Microstation counterpart.



Construct Circular Fillet – stores a circular curve between two elements. Works functionally the same as its Microstation counterpart.



Construct Chamfer – stores a line and its endpoints between two elements. Works functionally the same as its Microstation counterpart.



Cut Element – cuts an element into segments.

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6.7 Manipulate Elements

The Manipulate Elements tools allow the user to adjust previously created elements. If an element is moved, the redefine toggle must be turned on. The following tools are in the Manipulate Elements toolbox.



Move Plan View Element – moves or copies an element.



Rotate Plan View Element – rotates the element about a specified point.



Copy Parallel – moves or copies an element parallel to the original element.



Delete Element – deletes an element from a .gpk file. **Warning:** There is no undo for this command.

6.8 Groups

The Groups tools allow the user to create a chain or parcel. The following tools are contained in the Groups toolbox.



Store Chain – stores a chain from previously stored elements. The user selects the first element, then data points to accept the each element. When all elements are selected, the user is prompted to data point for the direction of the stationing.



Store Parcel – stores a parcel, takings, or easements from previously stored elements. The user can either automatically select the elements as with Store Chain, or manually select the elements. When all of the elements are selected, the user is prompted for the direction of the parcel, and the point of beginning.