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## Chapter 2: GEOPAK Preferences

### Purpose

GEOPAK Preferences control how data is displayed, where data is stored, how to handle complex procedures such as survey data and superelevation, and other aspects of GEOPAK. This chapter will outline the preferences that must be set when working on CFLHD projects. This chapter will not detail every preference, as many are not consequential to CFLHD. The preferences not detailed in this chapter may be set to GEOPAK defaults or as the user desires. Information on preferences not detailed here may be found in the GEOPAK help files.

### User Preferences

User preferences may be accessed from the main GEOPAK pull-down menu, by selecting **Applications>GEOPAK>ROAD>User Preferences**.

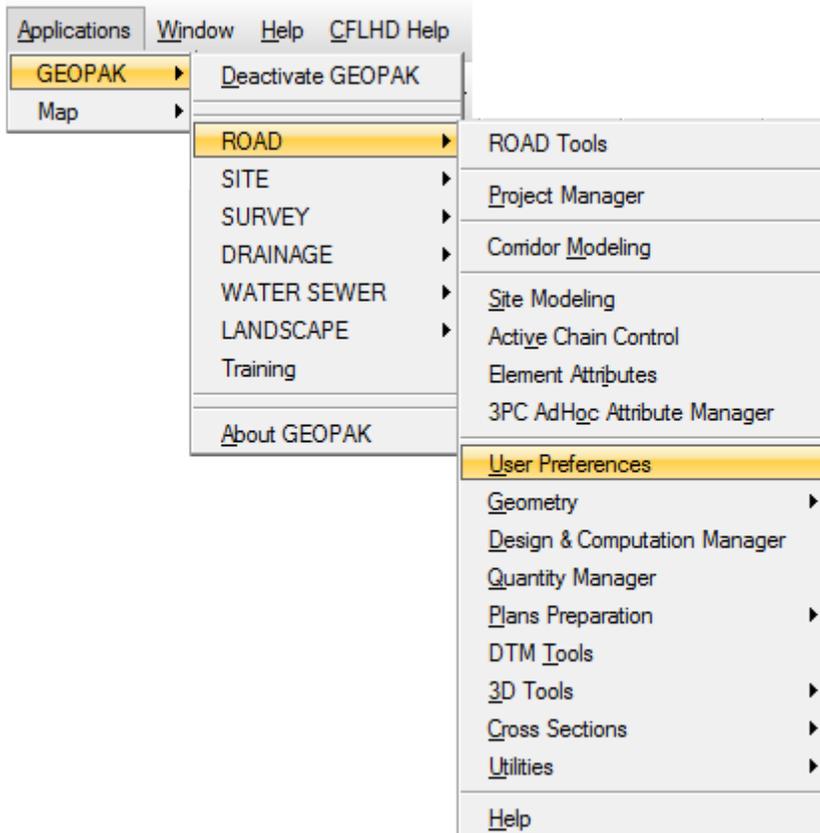


Figure 2-1: Accessing User Preferences

Once selected the User Preferences dialog will activate.

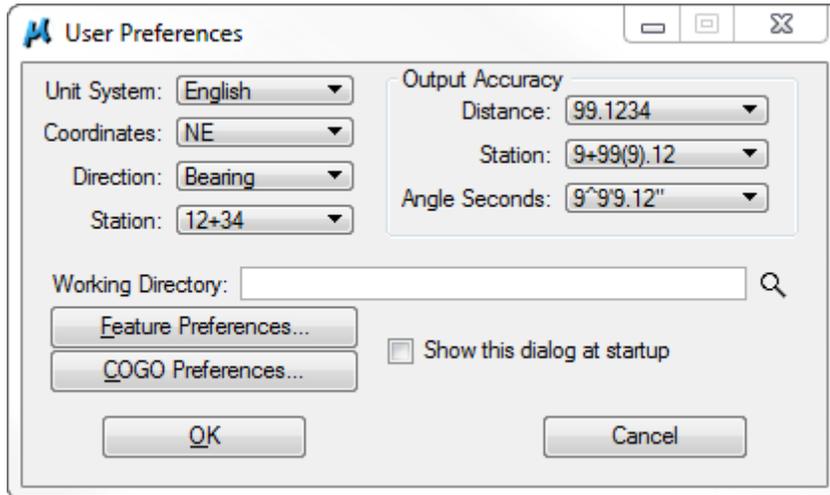


Figure 2-2: User Preferences Dialog

### System and Accuracy Preferences

The preferences set in the top portion of this dialog box are utilized by many GEOPAK functions including; plan view and cross section labeling, DP Station Offset, and Design and Computation Manager.

The setting of the decimal places only affects rounding of the screen output. Internally, GEOPAK still computes to double precision accuracy.



Generic preferences are set here. Project specific preferences may be set through Project Manager and will take precedence over preferences set here. See the chapter on Project Manager for more information.



The setting of the Unit option button, English or Metric, is critical to getting the correct results for GEOPAK earthwork and cross-section reports.

The following chart describes the settings to use when working on CFLHD projects.

GEOPAK User Preferences		
Preference	Setting for CFLHD	Notes
Unit System	<b>Dependent on project</b>	Determines whether GEOPAK operates according to the English or Metric system of measurement. The Unit parameter affects every GEOPAK component.
Coordinates	<b>NE</b>	Sets either NE (Northing/Easting) or XY coordinate values in Labeling components.
Direction	<b>Bearing</b>	Sets the direction format for such variables as line direction in Labeling, and components within the Design and Computation Manager.
Station Format	<b>1+234 (M) 12+34 (E)</b>	Sets the format for station variables in Labeling, and components within the Design and Computation Manager.
Distance	<b>999.123 (M) 999.12 (E)</b>	Sets the number of decimal places for most non-station and non-angle variables in the GEOPAK Labeling, and components within the Design and Computation Manager. Variables affected by the Distance Decimal parameter include point coordinates, curves parameters such as length and radius, inverse distance, elevations, etc.
Station	<b>9+99.123 (M) 9+99.12 (E)</b>	Sets the number of decimal places for station variables in Labeling, and components within the Design and Computation Manager.
Angle Seconds	<b>9°9'9.123" (M) 9°9'9.12" (E)</b>	Sets the number of decimal places for angle variables in Labeling and components within the Design and Computation Manager. Variables affected by the Angle Sec. Decimal parameter include curve delta and degree, bearings and inverse angles.

Table 2-1: CFLHD User Preference Settings

### Working Directory

The Working Directory sets the default location for GEOPAK to look for needed files such as the .gpk file, input files, and specified MicroStation files. If left blank, GEOPAK refers to the directory of the opened MicroStation file. Either the Working Directory or the COGO Job Directory should always be defined so that GEOPAK can find the .gpk file.



Note that the specified Working Directory is superseded in hierarchy by any set COGO Preferences.

## Feature Preferences

Feature preferences pertain to how survey data is interpreted by GEOPAK. Information for each element is stored in a Survey Manager Database, or .smd file. The .smd file controls how survey elements and visualized COGO elements are displayed in MicroStation. For example, the .smd file determines which cell will be used to represent a fire hydrant, or what level, color, weight and line style will be used to depict a fence line that was surveyed in the field. The .smd file also controls whether a point recorded in the field will be part of the DTM. The .smd file is specific to CFLHD and for consultants, the .smd file is available at CFLHD website through the **V8i\_Resource.zip** download.

The **.smd** file can be found on the CFLHD network at:

[N:\V8i\\_resource\CFL\\_Local\GEOPAK\SMD\CFLHD\\_2013\\_Features\\_Code.s.smd](N:\V8i_resource\CFL_Local\GEOPAK\SMD\CFLHD_2013_Features_Code.s.smd)

This **.smd** file only controls survey information and therefore does not need to be set once the survey mapping has been completed.

## Workflow 1: Attaching the Correct .smd File

To access this workflow, follow this link:

[http://flh.fhwa.dot.gov/resources/cadd/cfl/documents/Workflow\\_2.1\\_v8i.pdf](http://flh.fhwa.dot.gov/resources/cadd/cfl/documents/Workflow_2.1_v8i.pdf)



CFLHD .smd file is automatically attached when entering MicroStation using the project configuration file (\*.pcf).

## COGO Preferences

The COGO preferences dialog box allows the user to specify the Job Open Mode, what GEOPAK will do when a new or incorrect job number is specified, setup COGO directories, and redefinition of COGO elements.

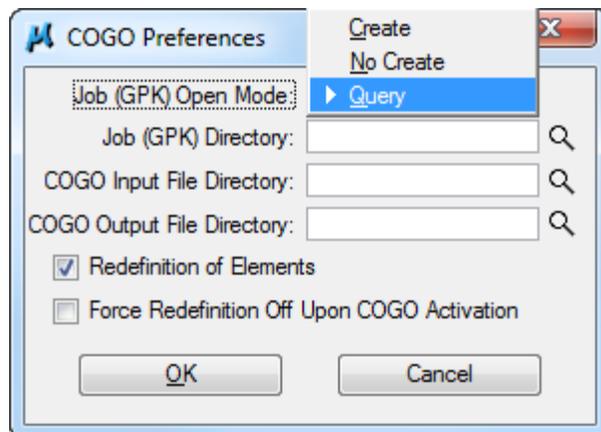


Figure 2-4: COGO Preferences

## Job Open Mode

The job open mode specifies what happens when a job number is input.

Figure 2-5: Coordinate Geometry

When coordinate geometry is accessed, a job number must be specified. This number corresponds to the file **jobXXX.gpk**, where **XXX** is the job number, shown above as 101. GEOPAK uses the following three rules to search for the specified job number:

- If the Job Directory is defined (in the COGO Preferences dialog box) then GEOPAK looks for the .gpk file exclusively in the Job Directory. CFLHD recommends setting the Roadway\Geopak directory as the Job Directory location.
- If the Job Directory is not defined and the Working Directory is defined (in the main GEOPAK Preferences dialog box) then GEOPAK looks for the .gpk file exclusively in the Working Directory.
- If neither the Job Directory nor the Working Directory is defined then GEOPAK looks for the .gpk file exclusively in the directory that the active design file resides in.



Both A/E Contractors and CFLHD roadway designers should get GEOPAK job numbers from their Design Team Leader or Project Manager.

If the .gpk file is found in the directory selected according to these rules then the job will be opened and Job Open Mode doesn't come into play. On the other hand, if the .gpk file is not found then the option chosen for Job Open Mode controls how GEOPAK deals with not finding the .gpk file as follows:

- **Create:** When set to Create, the job will be opened if it is found, or created if no job matching the number exists in the working directory. This option can be dangerous if an incorrect working directory has been specified. In this case, a new .gpk file will be created with no warning to the user.

- **No Create:** When set to No Create, GEOPAK will open the job, if found, or show the following dialog box if the job number is not found.
- **Query:** The Query option is the option preferred by the majority of users. If the job is found, it will be opened, if not a dialog box will open stating that the job could not be found and asking if the user would like to create the specified job in the working directory.

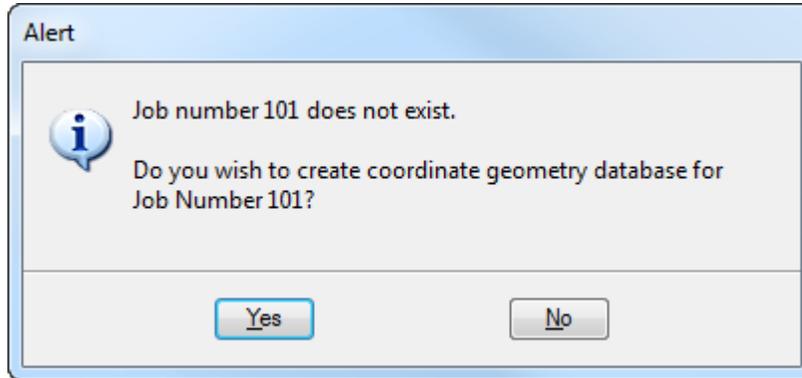


Figure 2-6: Create Job Number



The job open mode **Query** is the CFLHD recommended mode.

### Job (GPK) Directory

The working directory is the default search path for GEOPAK and is the default location for created and stored files.

The job directory is the CFLHD preferred method for designating where a project's **(.gpk)** file resides. Any **(.gpk)** that is created will be placed in that directory if the job directory is specified. Additionally, this overwrites the default search path for the project **(.gpk)**.

### COGO Input & Output File Directories

Normally, input and output files are stored in the project directory, in which case, these fields would be blank. However, CFLHD has set directories for input and output files in subfolders under Roadway/Geopak, which can be keyed into these fields. In lieu of typing, pressing any of the **Select** buttons invokes the Select Directory Manager, wherein the desired directory may be specified.

### Redefinition of Elements

When the toggle is activated, existing elements in the Coordinate Geometry component can be redefined. For example, point number 8523 that was previously defined to coordinate values can be set to new coordinate values when this toggle is active. Otherwise, the Coordinate Geometry component would not store the new coordinate values with point number 8523 and a warning message "Element already exists" is displayed on the screen. This serves as a protection to the integrity of the coordinate geometry database



**(.gpk)**. The same functionality can be achieved by the Redefine toggle in the Coordinate Geometry window. CFLHD uses this function as a training tool for new CADD users.

#### Force Redefinition Off at COGO Activation

When this toggle is activated, and coordinate geometry is invoked, the Redefine button is not active, so that no redefinition of elements is permitted. However, at any time during the session, the Redefine toggle may be activated. Again CFLHD only uses this function training purposes.