
Introduction

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I.1 Introduction

GEOPAK is a comprehensive software package that covers every project phase from conceptualization to final quantities. The software works within the MicroStation graphic environment providing true *interactive design*. For example, a horizontal alignment can be created graphically, it can be calculated with the coordinate geometry component of GEOPAK or some interactive combination of the two. Dynamic on-screen design provides immediate interpretation of plan view geometrics for making design choices through visualization.

Using GEOPAK will help ensure consistency and accuracy of design work and generate significant timesaving in the overall effort of producing construction plans.

For GEOPAK support, please contact the CADD Support Center.

I.2 File Names

GEOPAK uses and/or creates files during the design process. The files you need to be familiar with are listed below:

job###.gpk	This binary file is created when the user starts a coordinate geometry (COGO) session for the first time or through Project Manager and may be appended to during the design process. All coordinate geometry elements are stored in this file. Multiple users can access this file at the same time, and only one file should be created for each project. The "###" is the only variable in this name. It represents a job number (up to 3 alphanumeric characters) unique to a project and is defined by the user upon creation. MoDOT users should use the last 3 digits of the job number. Example J1P0999 -> job999.gpk
fname.inp	Any ASCII input file for running GEOPAK processes. Name is user defined with a .inp extension. Example: shape.inp
fname.log	ASCII file used to capture results from processing input files, proposed cross sections, and earthwork.
fname###.ioc	ASCII input file for loading data during a COGO session. "###" represents the job number and "oc" is the operator code (users initials). Example: align999.iho
fname###.ooc	ASCII output file created by GEOPAK during a COGO session. Variables are the same as defined above. Example: align999.oho
fname.dat	A binary file that contains string and point information to be used for digital terrain model construction.

fname.tin A binary file containing triangular surfaces also known as the digital terrain model (DTM)

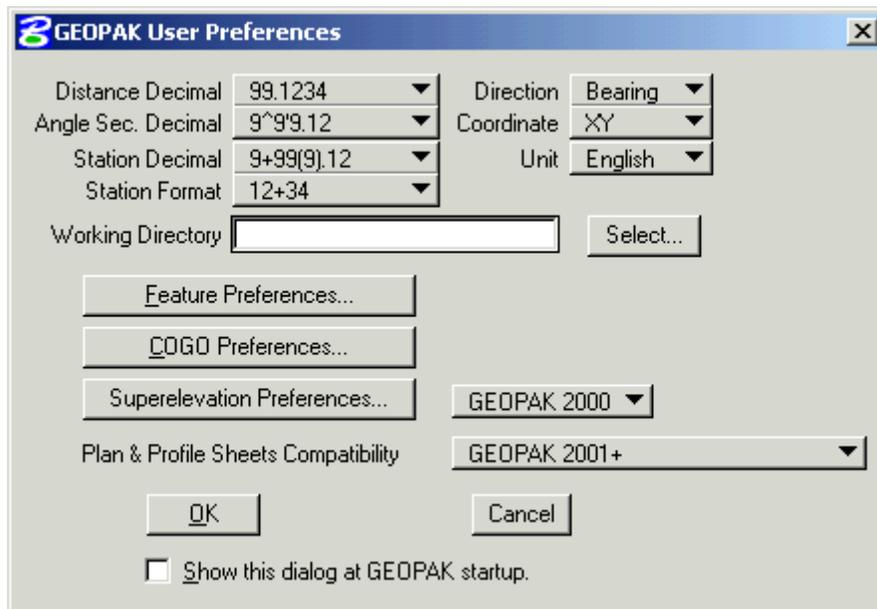
project.prj Binary file resulting from the creation of a new project.

I.3 Accessing GEOPAK

GEOPAK is started upon entering a MicroStation File. To verify that GEOPAK is active, scan the MicroStation menu bar where the Applications menu appears. Simply pull down **Applications > GEOPAK Road**. When each GEOPAK tool is selected, the corresponding dialog will appear. To utilize the full potential of GEOPAK, usage of the GEOPAK dialogs may be interspersed with generic MicroStation commands. In addition, several dialogs may be opened simultaneously.

To close a dialog, simply click the X in the upper right corner of the dialog. In addition, the Coordinate Geometry dialog and Design and Computation Manager may be closed by selecting the **File > Exit** option. Other various dialogs will have a **Cancel** button, which will exit the dialog. Exiting the MicroStation file automatically closes all GEOPAK dialogs.

I.4 User Preferences



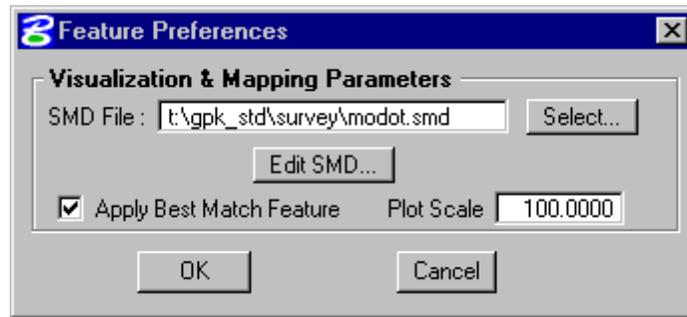
The **User Preferences** dialog is used to set items that determine how distances, directions, and stationing is displayed and calculated, as well as the units that are used. The **User Preferences** dialog can be accessed from **Applications>>GEOPAK Road>>User Preferences**. The following dialog appears.

Most of the settings in this dialog will be set when the project is setup.

The **Working Directory** is used to tell GEOPAK where the data files for a particular project can be found. If a user does not want to work within a specific project, they can delete the information out of this field, and GEOPAK will use the directory that the open MicroStation file is located in.

I.4.1 Feature Preferences

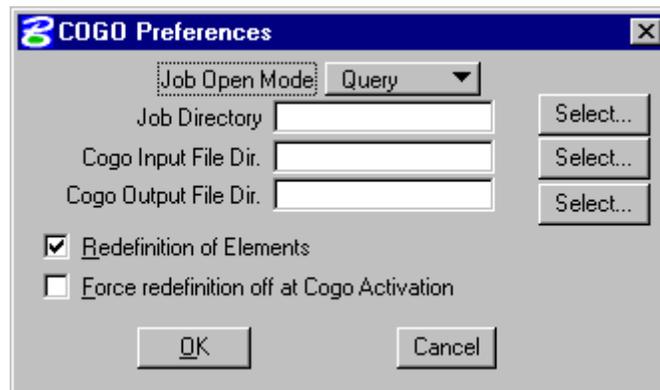
The **Feature Preferences** button will activate the following dialog.



The **SMD File** is used to control the symbology of survey elements. Users will not be able to edit the **SMD File**, however, the **Edit SMD...** button can be used to view the feature codes. The **Apply Best Match Feature** toggle should be checked to allow for proper import of survey data. The scale of the features can be controlled using the **Plot Scale**. This should be set to the scale of the plan sheets to be created.

I.4.2 COGO Preferences

The **COGO Preferences** button will activate the following dialog.



The **Job Directory** can be set to indicate the location of the coordinate geometry database (.gpk). If this field is not set, GEOPAK will look for the coordinate geometry database (.gpk) in the **Working Directory**. The **COGO Input File Dir.** and **COGO Output File Dir.** can be set to indicate the location of the COGO input and output files respectively. If these fields are not set, GEOPAK will look in the **Job Directory**.

The **Redefinition of Elements** toggles on or off the COGO redefine option. This option is discussed further in Chapter 5. The **Force redefinition off at Cogo Activation** will turn the COGO redefine toggle off whenever GEOPAK's coordinate geometry tools are activated.

I.4.3 Superelevation Preferences

There are two options for using GEOPAK Superelevation, **GEOPAK 2000** and **Classic**. **GEOPAK 2000** will use the tools made available in GEOPAK 2000 and later versions. The **Classic** option will bring up the tools available prior to GEOPAK 2000.

****Note:** The **Classic** option will not be supported within MoDOT. Only the **GEOPAK 2000** option will be supported.

The **Superelevation Preferences** have been set by CADD Support and do not need to be modified by the user.

I.4.4 Plan & Profile Sheets Compatibility

Three options are available for creating Plan & Profile Sheets, **Classic**, **GEOPAK 2001+**, and **GEOPAK 2001+ with Raster Manager**. MoDOT has adopted the **GEOPAK 2001+** Plan & Profile Sheets tool in preparation for GEOPAK 2004. The **Classic** tool is not supported in GEOPAK 2004 and will no longer be used in training, although it is permissible to use the **Classic** tool for jobs that will be let before December 31, 2004.