Quick Page Navigation Shortcuts

Some are specified by the CADD Uniformity Task Force

GPK and COGO RULES:

Preference Settings

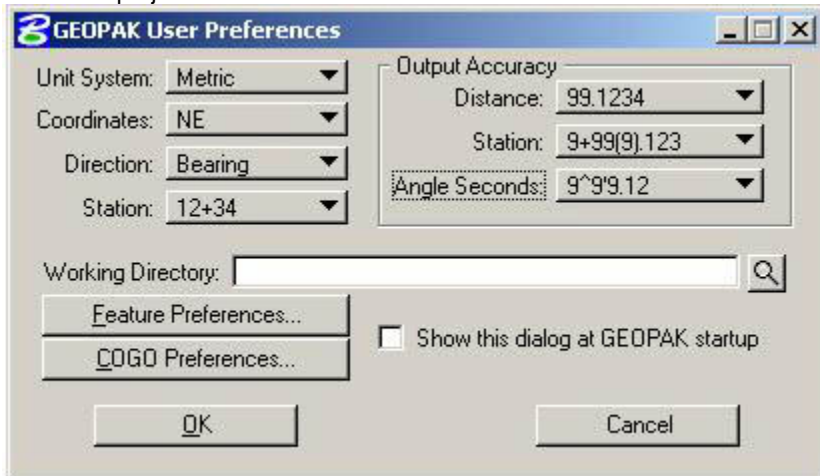Geopak User Preferences Setting

For English projects:


For Metric projects:

NOTE:

- Distance is set to four (4) decimal places for coordinate readout. For inputs of distances, English Unit System is set (key-in) to two (2) decimal places and for Metric Unit System is set (key-in) to three (3) decimal places.
- Stations are set to two (2) decimal places for English projects and three (3) decimal places for Metric projects.
- Angle Seconds are set to a tenth (one decimal place) of a second for English projects and hundredth of a second (two decimal places) for Metric projects.
- Working Directory should always be left blank. This translates to the current folder (or directory) is the active working directory.

Feature Preferences Setting
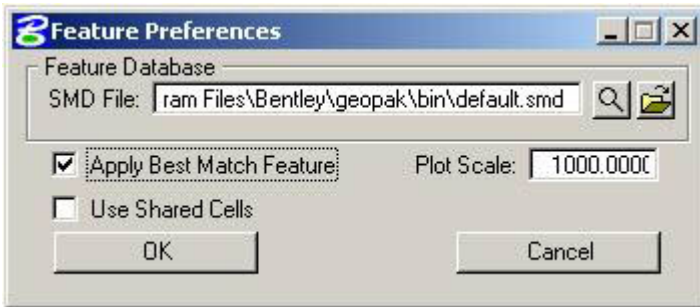
INFO:

SMD (Survey Manager Database) files are used mainly to display Visualization elements (Permanent and Temporary) in COGO. Designer are permitted to, rather than use the default SMD file, create their own customized SMD file. However, it is not recommended that a customized SMD file be created in Roadway or overwrite the existing default SMD file with their own.

Currently, the default SMD file on Roadway's local workstations is competent and Roadway CADD Support is content by its function that a specific Unit wide SMD file will not be created. This may change if more inputs direct us to do so.

COGO Preferences Setting
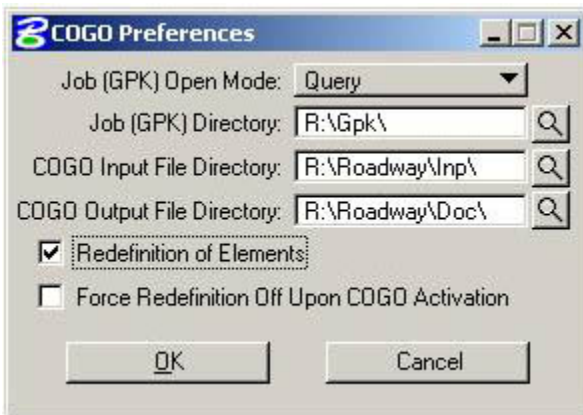
NOTE:

- Job (GPK) Directory should always be **R:\Gpk**. An exception is in a case of NCWedge when this is left blank.
- COGO Input File Directory should always be **R:\Roadway\Inp**. Only COGO input files (chains and profiles) are to be store in this folder.
- COGO Output File Directory should always be **R:\Roadway\Doc**. Only COGO ouput files (points, chains, and profiles) are to be store in this folder. See COGO rule 16 for further details.
- Redefinition of Elements should always be checked on in order for COGO inputs to modify COGO elements stored in the GPK file. This is the restore and read process in Geopak COGO.

GPK

1. Roadway's GPK file are created new from scratch. It is not recommended that Roadway copy other units GPK files and rename it to Roadway because the GPK file corruption possibility.
2. All GPK files will be kept in the Root \GPK folder of each project. This central location will allow all design Units to set their Geopak COGO job directory preference to R:\GPK - and never have to change it when switching between projects.
3. In certain instances, a copy version of the Roadway GPK file can be placed in the Wedging folder for NCWedge to work correctly.
4. Since the GPK folder contains multiple GPK files from various units, a unit specific naming convention is necessary to avoid conflict. Therefore the following names are to be used:

   job**RDY**.gpk (Roadway Design)

   job**HYD**.gpk (Hydraulic)
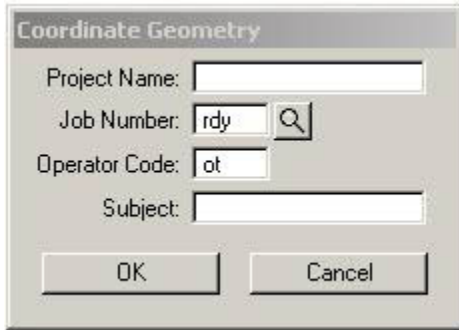   job**LS**.gpk (Location and Surveys)
   job**PH**.gpk (Photogrammetry)
   job**GEO**.gpk (Geo Technical)

5. Other Units may copy Roadway's GPK file and rename it to their respective Unit's name.

COGO

1. COGO Login

Recommendations for Operator Code

If COGO inputs are to be shared by others, then a generic Operator Code account can be established at a squad or a PE group level.

If COGO inputs are NOT (not absolute) to be shared by others, then a specific Operator Code account can be established for the individual Designer.

Both practices are **VALID** and it is really up to the Project Design Engineer or Project Engineer how COGO Operator Codes are handled. Roadway CADD Support recommends that each Designer has their own individual Operator Code for keeping up with project management as project are being developed.

2. COGO point numbers increase in the same direction as the project main line (-L-) direction.
3. COGO point number can be once per chain. The same point number can not be shared by different chains.
4. COGO point number range are assign to each NCDOT Unit. Therefore the following number ranges are to be used:

NCDOT Unit	Beg Pt.	to	End Pt.
LocationSurveys	1	to	5,000
Construction	5,001	to	10,000
Photogrammetry	10,001	to	15,000
Roadway Design	**15,001**	**to**	**20,000**
Hydraulics	20,001	to	25,000
Structures	25,001	to	30,000
Geotechnical	30,001	to	35,000
Design Services	35,001	to	40,000
Traffic Engineering	40,001	to	45,000
Roadside Environmental	45,001	to	50,000

5. As an option, COGO point numbers can be preceded with chain names as a prefix. Examples:

```
****  P O I N T S   U S E D  ****

L15001, L15002, L15003, L15004, L15005, L15006, LPA15460, LPA15461, LPD15490,
LPD15491, RPA15450, RPA15451, RPA15452, RPA15453, RPA15454, RPA15455,
RPA16650, RPA16651, RPA16652, RPA16653, RPA16654, RPA16655, RPD15480,
RPD15481, RPD15482, RPD15483, RPD15484, RPD15485, RPD16680, RPD16681,
RPD16682, RPD16683, RPD16684, RPD16685, Y415400, Y415401, Y615600, Y615601,
Y615602, Y615603, Y915900, Y915901, Y1116100, Y1116101, Y1116102, Y1616600,
Y1616601, Y1616602, Y1616603, Y1616604
```

6. Group COGO points according in relationship to their respective chain.

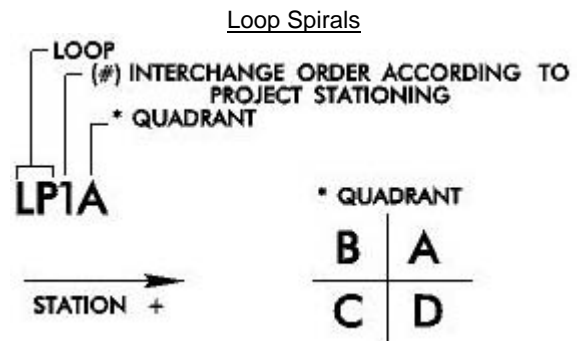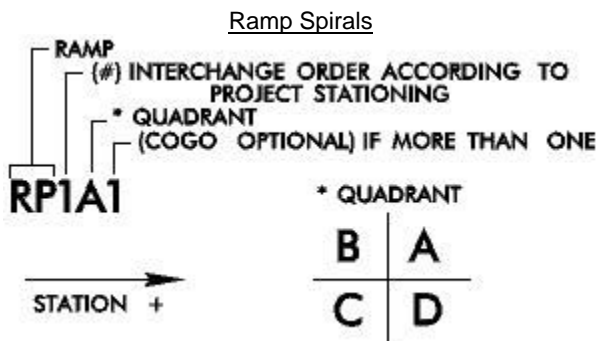| -L-	-Y8-	-RPA-
L15001	Y818500	RPA18740
L15002	Y818501	RPA18741
L15003	Y818502	RPA18742

7. COGO line name starts with Chain name followed by a number in successive order. COGO line elements are rarely used in Roadway. Example:
   L1 | **L**2 | **L**3
8. COGO curve name starts with Chain name followed by a number in successive order. Example

-L-	-Y8-	-RPA-
L1	Y81	RPA1
L2	Y82	RPA2
L3	Y83	RPA3

9. COGO spiral name starts with Chain name followed by a number in successive order. On complex interchange projects which have more than one interchange, a system of spirals and loops naming convention is needed to organize how ramps and loops are designated in COGO and in plans production. It is recommended that the following spiral and loop names format be followed to insure some COGO and plans consistency.

<u>Ramp Spirals</u>

```
┌ RAMP
│  ┌ (#) INTERCHANGE ORDER ACCORDING TO
│  │       PROJECT STATIONING
│  │ ┌ * QUADRANT
│  │ │ ┌ (COGO OPTIONAL) IF MORE THAN ONE

RP1A1                    * QUADRANT
                          B │ A
─────────────▶           ───┼───
STATION  +                C │ D
```

<u>Loop Spirals</u>

```
┌ LOOP
│  ┌ (#) INTERCHANGE ORDER ACCORDING TO
│  │       PROJECT STATIONING
│  │ ┌ * QUADRANT

LP1A                     * QUADRANT
                          B │ A
─────────────▶           ───┼───
STATION  +                C │ D
```

Example:

Spiral Name	Automatic SCS Designation

NOTE:

|		
L1	SPI L1B - CUR L1 - SPI L1B	
LP3C	SPI LP3CB - CUR LP3C - SPI LP3CA	
RP2A1	SPI RP2A1B - CUR RP2A1 - SPI RP2A1A	

Geopak will assigned the letters "A" and "B" to the end of spiral names. Letter "A" designates that the spiral is the ahead spiral and letter "B" designates that the spiral is the back spiral stored in a SCS (Spiral-Curve-Spiral) series.

10. COGO chain are stored in the GPK file as alignment name labeled on the plans. COGO chain input file are saved as *[[chain name]_chn]RDY.i[operator code]. Example: L_chnRDY.iot | Y8_chnRDY.iot | RP1A_chnRDY.iot

    COGO chains output file are saved as *[TIP]_chain.o[operator code]. Example: R2006_chain.oot

    It is recommended that on big projects, COGO chain input files have the description of the chain in the Subject field for ease of locating alignments on the plans. Example:
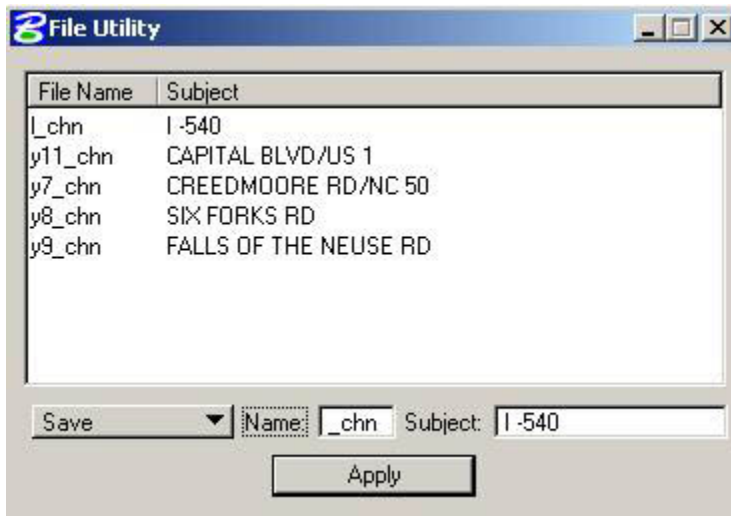
*NOTE:

- o Maximum file name length saved is limited to five (5) characters in the Geopak File Utilities Dialog Box.
- o Maximum file name length displayed is limited to eight (8) characters in the Geopak File Utilities Dialog Box.
- o Maximum file name length saved (and resave) is limited to 64 characters in the Geopak COGO key-in field.

11. COGO profile are stored in the GPK file as the same name as the corresponding chain name. COGO profile input file are saved as *[[profile name]_pro]RDY.i[operator code]. Example: L_proRDY.iot | Y8_proRDY.iot | RP1A_proRDY.iot.

    COGO profiles output file are saved as *[TIP]_profile.o[operator code]. Example: R2006_profile.oot

    It is not recommended that the existing ground profile be stored in the GPK file because of potential GPK file size corruption. However, if the existing ground profile are to be store in the GPK, then the character string "EX_" must be included as a prefix to the profile name to differentiate between the two.

    It is recommended that projects on new location, COGO profiles data are derived from **Geopak Profile Generator**.

    It is recommended that on widening projects, COGO profiles data are derived from **NCWedge**.

12. It is recommended that one COGO input file be processed for one COGO element. All project horizontal alignments should not be written in one COGO input file. All project vertical alignments should not be written in one COGO input file. Profiles and chains should not be combined in one COGO input file.

13. The usage of remark statements ("/*------- */") is encouraged in COGO inputs.

14. Designers are encouraged to store only pertinent COGO elements relative to the TIP project in the GPK file. Point,chain, and profile names store in the GPK file that are not under standard naming conventions or they are not as apparent to other Designers are discourage. For example, a chain stored in the Roadway GPK file as "MyChain" is not apparent to other Designers as to what it is.
15. A CADD Project Log Sheet, GPK DATA, is recommended to be completed as project moves to different phases of plans production. This Word document file should be save in the project "Doc" folder and archived with the rest of the project files. Note that this is a different form that a PEF fill out.
16. Chains description and profiles prints in a text ouput log file are to be stored in the **R:\Roadway\doc** folder as a record as project moves to different phases of plans production.

APPLICATIONS:

Creating a Roadway GPK File

1. Login to COGO.
2. Key-in **RDY** in the Job Number field and the Operator Code.
3. When prompted to create a new GPK file, Choose **Yes**.

4. Verify that new GPK file has been created in the R:\GPK folder.

See Geopak COGO Concept Course (Pre-V8)

See Geopak COGO Intrinsic Precision (Pre-V8)

Geopak COGO Key-ins (under development)

Advance COGO Alignment Writing Techniques (under development)