

## Project Logic Overview

- ▶ NOTE - The words “Merge” and “Project” are used interchangeably.
- ▶ Project logic is one of the key pieces of technology that allows Phoenix to handle very large datasets
- ▶ There are two levels of project data:
  - ▶ “Datasets” contain shot/station information, first-break pick information, and seismic data. They do not contain any model data.
  - ▶ “Merges” contain references to one or more Dataset objects. They contain all the model data (delay time, tomo, etc.)
  - ▶ A dataset may be used by more than one merge.
- ▶ The complexities of project logic are hidden from the user. They simply deal with top-level “Merge” objects.
- ▶ Creating a super-merge is extremely fast

# Dataset

- ▶ Users never directly interact with a Dataset
- ▶ Created from SEGY files, GLI3D files, Flatirons projects, etc.
- ▶ A Dataset manages the following information:
  - ▶ Shot and Station tables. These are stored in a very fast and efficient binary format.
  - ▶ Trace table. The trace table has one row per trace. It can have any number of columns, but will always have ShotID, StationID, and Pick\_User. Additional columns may be added on the fly.
  - ▶ Seismic data in various planes, such as Shot, Station, offset-azimuth (optional).
- ▶ A Dataset does not manage any model (such as tomography) data.
- ▶ Geometry corrections, such as station polarity flips and shot repositions, do NOT modify the dataset shot and station tables. These changes are made instead to the merge shot and station tables.

## Merge (AKA Project)

- ▶ Users create and interact with Merges. The process of creating a merge, for example by importing SEGY data, generates the underlying dataset.
- ▶ A merge has the following data
  - ▶ References to one or more Dataset objects
  - ▶ Shot and station tables. These are generated by merging the tables of the referenced datasets
  - ▶ Any number of delay time models, VNS tomography models, AANS tomography models, and SWI models.
- ▶ It's important to understand that a merge does not contain seismic data or pick information - it depends on the referenced dataset objects for that data
- ▶ All geometry corrections are stored in the merge shot and station tables

## Creating a merge of merges

- ▶ This is the real power of the project logic
- ▶ Simply select the existing merges and give the new merge a name.
- ▶ Phoenix will create a new merge that references the datasets used by the selected merges.
- ▶ New shot and station tables will be created by merging the shot and station tables of the datasets.
- ▶ The trace tables and seismic files of the datasets are not modified
- ▶ The whole process is extremely fast - just seconds even for the largest surveys.

