How to Use the Calibrate Gravity Model

Estimating friction factors for model calibration

The Calibrate Gravity Model is a Cube Voyager catalog and application. You can use this model to estimate a set of friction factors to apply to your model in order to replicate the trip length frequency that you observed in a survey or other data source.

This document describes how to install and use the Calibrate Gravity Model.

To install the Calibrate Gravity Model

1. Navigate to the Citilabs Support Web page, at:

   http://www.citilabs.com/support

2. Under **Catalogs, Applications, and Scripts**, download the zip file containing the Cube Gravity Model.

3. Extract the zipped files to the directory where you store your Cube models.

Citilabs, Inc.
312 Clay Street, Suite 180
Oakland, California 94607, USA

World Wide Web
www.citilabs.com

Document Revision 001-0

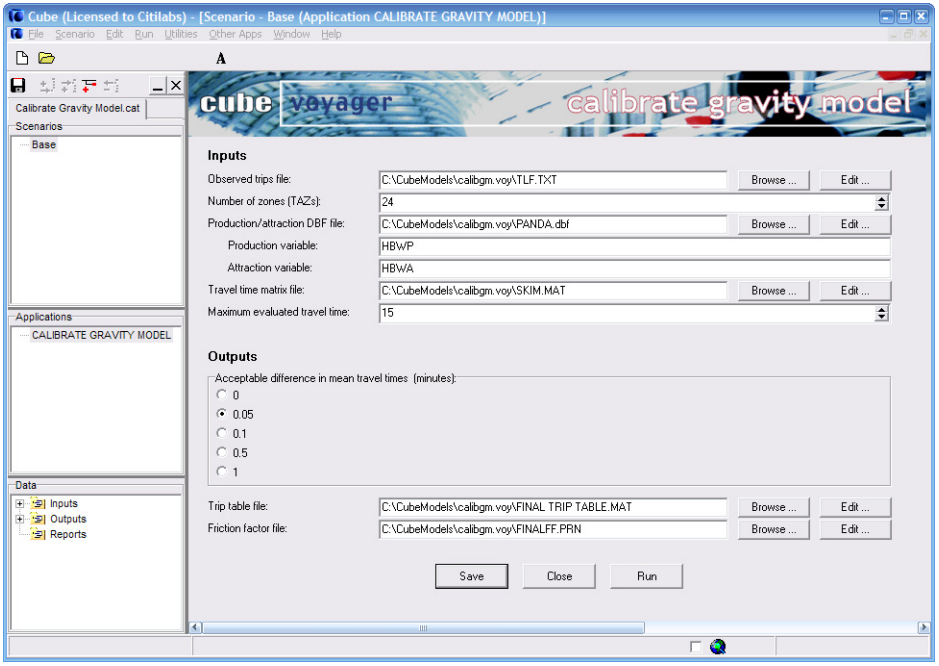
August 29, 2006

To use the Calibrate Gravity Model

1. Open the Calibrate Gravity Model with Cube Base.
   a. On the **File** menu, choose **Open Catalog**.
   b. Navigate to the directory where you installed the model.
   c. Select **Calibrate Gravity Model.cat** and click **Open**.

   Cube opens Scenario Manager for the Calibrate Gravity Model.
2. Under **Scenarios** in Scenario Manager, double-click **Base**.

   Cube opens the model menu for the Base scenario.



3. Enter appropriate inputs and outputs to calibrate your model.

Inputs

Field	Description
Observed trips file	Text file that describes the number of observed trips, in one-minute increments. The text file must contain two columns of nine characters each: • First column (line characters 1 through 9) contains the travel time • Second column (line characters 10 through 18) contains the number of trips
Number of zones (TAZs)	Number of traffic analysis zones in the network. **Travel time matrix file** and **Production/ attraction DBF file** should have the same number of zones.
Production/attraction DBF flle	DBF file that stores the trip production and trip attraction data for the model.
Production variable	Field in the DBF file that stores the trip production variable for which you want to estimate friction factors.
Attraction variable	Field in the DBF file that stores the trip attraction variable.
Travel time matrix file	Travel time matrix file in TP+/Voyager format. The first table in the matrix file should contain the travel time values, in minutes.
Maximum evaluated travel time	Maximum travel time for which the model estimates friction factors. Ideally, corresponds to maximum travel time in **Observed trips file**.

Outputs

Field	Description
Acceptable difference in mean travel times (minutes)	Acceptable difference in mean travel times between observed trip lengths and those estimated by the model. When the friction factors produce results within this tolerance level, the Calibrate Gravity Model stops running and produces the final results. Possible values are: • 0 — No difference • 0.05 — Three seconds • 0.10 — Six seconds • 0.50 — Thirty seconds • 1.0 — Sixty seconds
Trip table file	File name of trip table resulting from calibration process.
Friction factor file	File name of final calibration friction factor file. This text file contains two columns: • First column (line characters 1 through 9) contains travel time, in minutes. • Second column (line characters 10 through 18) contains estimated friction factor.

NOTE: If you want to calibrate more than one trip purpose, create a scenario for each purpose: Right-click a scenario name under **Scenarios**, select **Add Child**, and define appropriate inputs and outputs.

4. Click **Run** to run the model.

   While running, the model writes the results from each iteration to `DISTRIBUTION_It`***`xx`***`.PRN` and `FFREVISED_It`***`xx`***`.prn`, where XX is the iteration number. For information purposes, these intermediary results files can facilitate review.

   The model stops running after reaching the specified tolerance level or completing 100 iterations, whichever comes first.