Steps Required to Set Up the
"HAPEM (>1 chem)" Example Application
(December 13, 2005**)**

This file provides step-by-step instructions for creating an example application of the "HAPEM (>1 chem)" scenario using the provided input files. Exhibit 1 provides a list of input files and databases that are required to run the application. This table is intended to be used as a reference for the example application.

NOTE: This application is for training purposes only and is not intended to apply to any real world situation.

Exhibit 1. List of Input Files and Databases

File		Source of File	
Name	**Description**	**Downloaded**	**Created by User**
durhw.fix.txt	HAPEM microenvironment file	Included with the download of the HAPEM model	
durhw_cluster.txt	HAPEM cluster category file	Included with the download of the HAPEM model	
clustertransa.txt	HAPEM activity pattern/transition file	Included with the download of the HAPEM model	
census2000.txt	HAPEM population estimates file	Included with the download of the HAPEM model	
comm2000.txt	HAPEM commuting flow file	Included with the download of the HAPEM model	
statefip.dat	HAPEM file with state FIPS, county FIPS, and tract codes	Included with the download of the HAPEM model	
Air Quality files • con43218.txt • con43301.txt • con43367.txt • con43370.txt	HAPEM air quality data files	Downloaded with this example application	
simulation1.txt	HAPEM factors file	Included with the download of the HAPEM model	
autogarage.txt	Additional HAPEM file (input to the indoor source algorithms)	Included with the download of the HAPEM model	

File		Source of File	
Name	**Description**	**Downloaded**	**Created by User**
43218.44.txt 43301 44.txt 43367.44.txt 43370.44.txt	HAPEM output files with final exposure estimates		Created by the HAPEM module
hapem_countyinfo_2000	HAPEM Census Tract database	Downloaded from the EPA website	
HHToxDB_101405	Human Toxicity Value database	Downloaded from the EPA website	

(1) Copy the four air quality files (i.e., con43218.txt, con43301.txt, con43367.txt, and con43370.txt) downloaded with the example application into the "airqual" subdirectory of the "Input Data Directory" (e.g., C:\HAPEM5\input\airqual – Note that this file path assumes that the HAPEM model has not been moved from its default download location on your computer.)

(2) Open TRIM.Risk by clicking on the Start button and selecting Programs > TRIM > TRIM, or by typing "runtrim.bat" from a run or DOS command window.

(3) Double-click on the "Inhalation exposure assessment with HAPEM (Generic)" project in the Project Selection window to open the scenario list.

(4) In the resulting window, select the "HAPEM (>1 chem)" scenario and click the "Duplicate" button at the bottom of the window. When prompted to name the duplicate, type "Example Application - HAPEM (>1 chem)," and click "OK." A scenario with this name will the appear in the window.

(5) Open the "Example Application - HAPEM (>1 chem)" scenario by double-clicking on the name.

(6) The "Example Application - HAPEM (> 1 chem)" scenario window will open. The left side of the window (labeled "Input Panels") lists some of the parameters needed for the simulation. The "Input Panels" have four tabs; "Settings," "Databases," "HAPEM Settings," and "HAPEM Inputs." The right side of the scenario window shows the components of this TRIM.Risk scenario in the "Graph View" pane. Some of the fields on these tabs must be filled in for this example application. Check that filled fields are accurate for your computer, and fill in the blank fields (hitting "Tab" after typing in a value to progress to the next field) based on instructions in Exhibit 2.

Exhibit 2. Parameters Values on Input Panels of Example Application

Parameter	Instructions for Setting Parameter
Settings Tab	
Run Name	This property is a descriptive name for the run you are performing. Suggested: **ExampleExpoMult**
TRIM Directory	Check that this parameter is filled in with the directory where the TRIM installation is on your computer. If not, navigate to the correct directory using the "Browse" button.
HAPEM Directory	Check that this parameter is filled in with the directory where the HAPEM model is installed on your computer. If not, navigate to the correct directory using the "Browse" button.
Input Data Directory	Location of HAPEM input files, or folders containing input files. Type in: **${str("HAPEM Directory")}\input**
Output Data Directory	Location where the HAPEM output files will be saved. Type in: **${str("HAPEM Directory")}\output\${str("Run Name")}**
MySQL User Name	Check that the MySQL user name is set correctly. This should be the user name you entered during the TRIM installation.
MySQL Password	Check that the MySQL password is set correctly. This should be the password you entered during the TRIM installation.
R Bin Directory	Check that this parameter is filled in with the directory where the R bin directory is on your computer. If not, navigate to the correct directory using the "Browse" button.
Databases Tab[a]	
Human Health Toxicity Database	The name of the human health toxicity database downloaded from the EPA website. Type in: **HHToxDB_101405**
HAPEM County Database	The name of the HAPEM county database downloaded from the EPA website. Type in: **hapem_countyinfo_2000**
Output Databases	
Inhalation Exposure DB Name	Type or copy in the name of the exposure estimates database to be generated. Suggested: **hapemoutdb${str("Run Name")}**
HAPEM Settings Tab	
Simulation Year	2001
Region 1	40
Region 2	40
EPA Region	99
Keep Intermediate Files?	Yes
Random Seed for Selecting Activity Pattern Data	-10
Random Seed for Selecting Micro Factors	-10
Random Seed for Selecting Air Quality Dataset	-1

Parameter	Instructions for Setting Parameter
Include Commuting in Analysis?	Yes
Number of Microenvironments	37
Number of Time Blocks in the Activity File	24
Number of Time Blocks for Analysis	8
Number of Day Types	3
Number of Demographic Groups	10
Number of Emission Source Categories	4
Number of Replicates	30
HAPEM Inputs Tab[b]	
Input - Activity File	Type in: **${str("Input Data Directory")}\ActivityPattern\durhw.fix.txt**
Input - Cluster File	Type in: **${str("Input Data Directory")}\ActivityPattern\durhw_cluster.txt**
Input - Population File	Type in: **${str("Input Data Directory")}\Population\census2000.txt**
Input - Commuting File	Type in: **${str("Input Data Directory")}\Commute\comm2000.txt**
Input - State FIPS File	Type in: **${str("Input Data Directory")}\statefip.dat**
Input - Cluster Transition File	Type in: **${str("Input Data Directory")}\ActivityPattern\clustertransa.txt**
Input - AutoPduct File	Type in: **${str("Input Data Directory")}\Add\autogarage.txt**

[a] Although there are "Browse" buttons on this tab next to each input and output database, do not browse to the databases. Some modules read the entire file path as the database name and are then unable to locate the database. Instead, type in the name of each database; the input databases should be located in your "MySQL Server 4.x\data" subdirectory of the MySQL directory on your computer, and the output databases will be written to this directory as well.

[b] Alternatively, you can browse to these HAPEM files using the "Browse" button next to each parameter input, instead of typing in the file reference as suggested here.

(7) After specifying the parameter values on the "Input Panels," double-click on the "Iterator[Internal-use only (>1 chem)]" module (i.e., the lower portion of the box labeled "HAPEM (Part 2)" in the Graph View pane). Click on the "Iterating Lists" tab and then click "Edit Synchronized Lists." This will open to the "Chemicals" tab of the Synchronized Input Lists Editor.

(7a) Add the following four chemicals to the "Chemicals" tab of the Synchronized Input Lists Editor:

- 43218
- 43301
- 43367
- 43370

To add a chemical, click on the "plus" button ( ) and type the chemical pollutant code (e.g., 43218) in the "New Iteration Name" window that appears and click "OK."

(7b) Enter parameter values in the "Chemicals" tab for the following parameters for each chemical based on the values provided in Exhibit 3:

- SAROAD Pollutant Code;
- Input - Air Quality File;
- Background Concentration;
- Input - Factors File; and
- Units.

To enter a parameter values for a chemical, first use the arrow buttons ( ) in the "Selected Iteration" pane to highlight the chemical name in the "All Iterations" pane. Next, double-click in the "Value" column for one of the properties in the "Selected Iteration" pane, enter the value for the parameter, and press "Tab." Repeat this process for the other parameters. The "Input - Air Quality File" and "Input - Factors File" parameters may be browsed to; alternatively, type or copy in the file paths for these two parameters in Exhibit 3. **Important – Only edit parameter values on the "Selected Iteration" pane, not on the "All Iterations" pane.** After entering values/file paths for all five parameters for a chemical, repeat the process for the remaining chemicals.

To make changes to a chemical profile that has already been added, use the arrow buttons ( ) to highlight the chemical in the "All Iterations" pane. The parameter values for the highlighted chemical can then be edited by double-clicking on the "Value" column in the "Selected Iteration" pane for a parameter and editing the value. To delete a chemical, highlight the chemical in the "All Iterations" pane and click on the "minus" button ( ) in either the "Selected Iteration" or "All Iterations" pane.

Exhibit 3. Inputs for "Chemical" Tab of Synchronized Input Lists Editor

Parameter	Value			
	43218	**43301**	**43367**	**43370**
SAROAD Pollutant Code	43218	43301	43367	43370
Input - Air Quality File	${str("Air Quality Directory")}\con${str("SAROAD Pollutant Code")}.txt[a]			
Background Concentration	0.00	0.00	0.00	0.00
Input - Factors File	${str("Factors Directory")}\simulation1.txt[b]			
Units	ug/m3	ug/m3	ug/m3	ug/m3

[a] There is a different air quality file for each of the four chemicals; you may browse to each file or type in this file reference. If you use the file reference, confirm that the input for the "Air Quality Directory" parameter, specified on the "Parameters" tab of the "Iterator[Internal-use only (>1 chem)]" module, is set correctly for your computer.
[b] You may also use the "Browse" button in this row to browse to this file, which is the same for all chemicals in the example application. If you use the file reference, confirm that the input for the "Factors Directory" parameter, specified on the "Parameters" tab of the "Iterator[Internal-use only (>1 chem)]" module, is set correctly for your computer.

When you have specified the parameter values (Exhibit 3), the "Chemicals" tab should look like the screen shot in Exhibit 4.

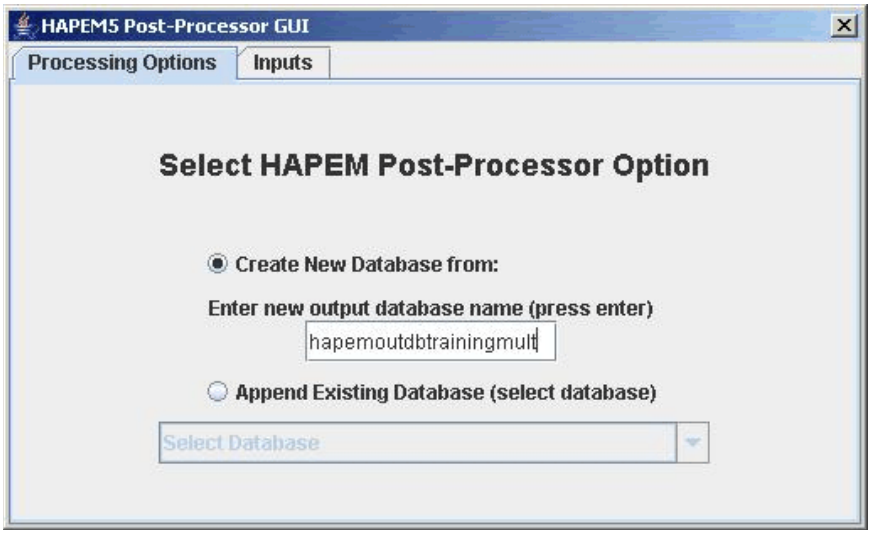
Exhibit 4. Completed "Chemicals" Tab of Synchronized Input Lists Editor

(8) After specifying parameter values on the "Input Panels" (6) and in the Iterator[Internal-use only (>1 chem)] Synchronized Input Lists Editor, the run is ready. Close the Iterator[Internal-use only (>1 chem)] module instance window (by selecting "Close Module Instance" from the "File" menu). Highlight the first HAPEM component, "HAPEM (Part 1)," in the "Graph View" pane by clicking on it, then click on the "play" button ( ) at the top of the scenario window. Choose "Yes" if the "Confirm deletion of Old Output Files" window appears after clicking the "play" button.

(9) After HAPEM (Part 1) and HAPEM (Part 2) are finished (indicated by a circle with a check mark,), the HAPEM5 Post-Processor GUI will automatically open. Typically run time of the two upstream modules is less than one hour.

(9a) Processing Options Tab

- Confirm that the radio button ( ) next to "Create New Database From:" is selected and the name entered in the box corresponds to the "Inhalation Exposure DB Name" entered on the "Databases" tab of the "Input Panels."



After making this selection, click on the "Inputs" tab to open it.

(9b) Inputs Tab

- Step 1: Select the HAPEM5 County/State Database (e.g., hapem_countyinfo_2000) from the drop-down menu.

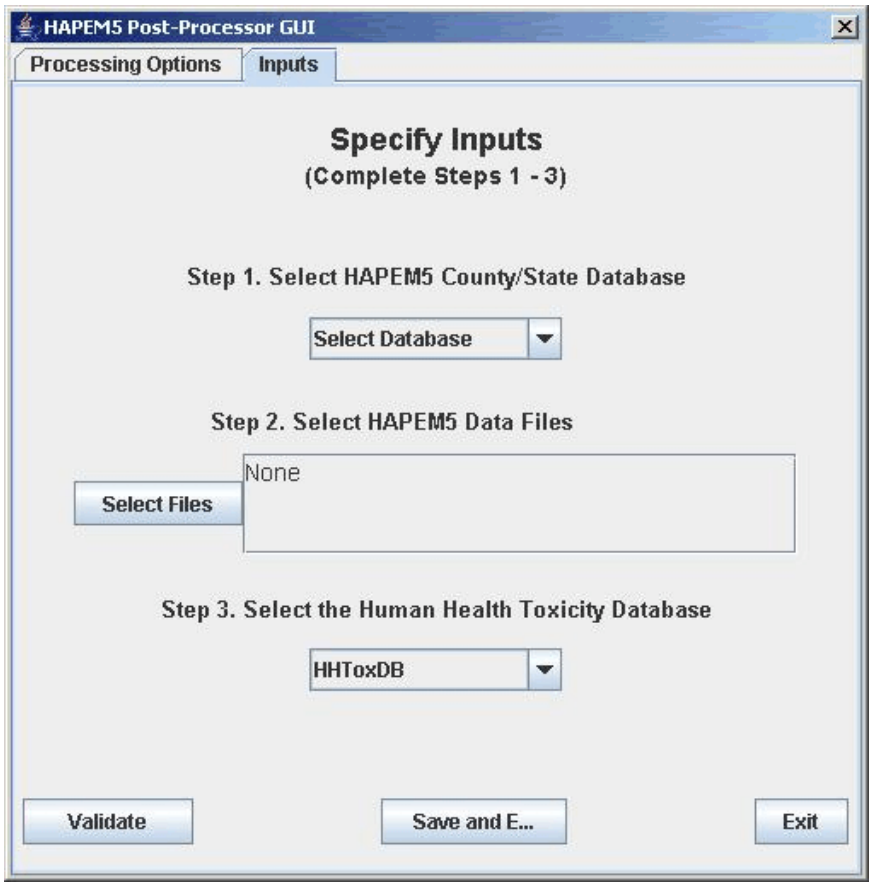
- Step 2: Click "Select Files," navigate to the HAPEM output directory (set in (6) as "**${str("HAPEM Directory")}\output\ExampleExpoMult**"), and locate the four ".dat" files corresponding to the chemical SAROAD codes entered in the Synchronized Lists Input Editor. Once you have navigated to the output directory, hold down the "Ctrl" key to select all four files at once. Selected files will appear in the box under "Step 2."

- Step 3. Select the human health toxicity database (e.g., HHToxDB_101405) from the drop-down menu (this should correspond to the "Human Health Toxicity Database" specified on the "Databases" tab of the "Input Panels" in (6)).

- Click "Validate," at which point you will be prompted to match the SAROAD pollutant code "43367" with a chemical; in the window that

appears, scroll down to the chemical name “ethylene glycol methyl ether” and click “OK.” You will also have to match the SAROAD pollutant code “43370" to the chemical name “ethylene glycol” in the same manner (the program will prompt you to do so after matching SAROAD pollutant code 43367 first).

- Click “Save and Exit” to save selections, exit the GUI, and run the HAPEM5 Post-Processor.



The HAPEM5 Post-Processor GUI will run and the green circle next to the HAPEM PostProcessor module will appear filled in (●) while the model is running.

(10) After the HAPEM PostProcessor module has finished (indicated by a circle with a check mark,), the DAVE Database Selector window will open. In this window, select the name of the inhalation exposure output database (set in (6) by the “Inhalation Exposure DB Name” parameter as **hapeoutdbExampleExpoMult**), and click “Analyze” to view the results. The analyze options allow you to create tables and graphs based on the results of the TRIM.Risk simulation.

For instruction on using DAVE to analyze TRIM outputs, refer to the DAVE User’s Guide.