MOVES5 Database Conversion Tools Help

Introduction

The database conversion tools supplied with MOVES5 can be used to convert input databases developed with any version of MOVES3 or MOVES4 to be compatible with MOVES5. However, these tools should only be used when the input databases developed for MOVES3 or MOVES4 still contain the latest local information. If you have newer data, EPA recommends that you create a new input database using the MOVES5 interface.

Using the Tools

The tools are accessible via the Tools menu in the MOVES Graphical User Interface (GUI):

- "Convert MOVES3 Input Database to MOVES5"
- "Convert MOVES4 Input Database to MOVES5"

Select the appropriate tool based on what version of MOVES was used to develop the old input database. Then follow the instructions provided in the GUI for selecting the database to be converted, entering the name of the new database to be created, and running the tool.

Additional Steps Necessary to Use Converted Databases with MOVES5

After running the tool, additional work is required to use the converted databases with MOVES5. First, you will need to select the newly converted database on the Create Input Database panel.

> **Note**: If this panel is grayed out, you will need to completely fill out the RunSpec in accordance with the data in your converted database so that you get green checks for all the other panels.

Once on the Create Input Database Panel, you may need to click the Refresh button if your new database does not automatically appear in the list. After selecting it, click the Enter/Edit Data button to open the County, Project, or Nonroad Data Manager (depending on the type of RunSpec being edited). The following sections detail the tabs that may need additional attention before running the model. See the MOVES5 Technical Guidance: Using MOVES to Prepare Emission Inventories for State Implementation Plans and Transportation Conformity (EPA-420-B-24-043) for more information.

Fuels

- The fuels tables are not converted by the tool; instead, it simply produces empty fuels tables. From the Fuels Tab, export the default fuels, review them, and make any changes as necessary to the *AVFT*, *FuelFormulation*, *FuelSupply*, and *FuelUsageFraction* tables, following the technical guidance.
    - The AVFT Tool can be used to incorporate the latest fuel type distributions and projections.
- When ready, import the fuels data.
    - After importing, use the Fuels Wizard to make any changes to the fuel formulation parameters if necessary.

Age Distribution

- In general, the data in your input database's *SourceTypeAgeDistribution* table are carried over to the new database. However, the tool makes the following changes:
    - Following the MOVES5 Technical Guidance, the tool uses the MOVES5 national default age distributions for the long-haul source types (53 and 62) instead of the data in your input database.
    - Age distributions prepared for MOVES3 and MOVES4 accounted for ages 0-30, and the fraction assigned to age 30 included all vehicles ages 30+. MOVES5 requires age distributions to include ages 0-40, with the fraction assigned to age 40 to include all vehicles ages 40+. Therefore, the converter tool estimates age fractions in the new database for ages 30-40 based on the age 30 fractions in your input database. The specific algorithm used for this estimation is described in Population and Activity of Onroad Vehicles in MOVES5 (EPA-420-R-24-019).
- **Important**: If you have the original data used to derive the 0-30 age distributions, you will get more accurate results if you reanalyze the data following the MOVES5 Technical Guidance to develop 0-40 age distributions. To use your reanalyzed data, click the Clear Imported Data button for the *SourceTypeAgeDistribution* table and then import your reanalyzed data.

I/M Programs

- The data in your input database's *IMCoverage* table are carried over to the new database.
- If any I/M programs are applicable to model year 1960 (the oldest model year in previous versions of MOVES), the transferred data are updated to apply to model year 1950 (the oldest model year in MOVES5).
- **Important**: If the inputs in your table were based on previous model defaults, these data should be discarded and the MOVES5 defaults should be used instead. To do so, click the Clear Imported Data button for the *IMCoverage* table, export the default data, review and make any necessary changes, and then import this table.

Hotelling

HotellingActivityDistribution (converted MOVES4 input databases)

- If this optional table contains local data that cover model year 1960 (the oldest model year in MOVES4), the transferred data are updated to cover model year 1950 (the oldest model year in MOVES5). No additional steps are necessary when converting this table.

HotellingActivityDistribution (converted MOVES3 input databases)

- The *HotellingActivityDistribution* table schema was changed in MOVES4, along with the definitions of the hotelling operating modes. This table is used in MOVES4 and later to allocate hotelling activity by vehicle model year and fuel type across the following operating modes:
    - Extended Idling (OpModeID 200)
    - Diesel Auxiliary Power Units Use (201)
    - Shore Power / AC Plug-in (203)
    - Battery Use / Engine Off (204)
- This is an optional table, so the converter tool only handles this table if it contains data.
- When converting a MOVES3 database to MOVES5:

- Since MOVES3 could only model diesel hotelling activity, the converter tool assigns the diesel fuel type (fuelTypeID 2) to all transferred data. Additionally, if the transferred data cover model year 1960 (the oldest model year in MOVES3), the transferred data are updated to cover model year 1950 (the oldest model year in MOVES5).
- The converter then adds rows for other fuel types, using the default values.
- If local hotelling activity distribution data are available for alternative fuel types, export the imported data for this table, review and make any necessary changes, and then reimport this table.

HotellingAgeFraction

- The *HotellingAgeFraction* is an optional table. If it is provided, MOVES5 requires it to contain data for ages 0-40.
- Previous versions of MOVES only covered ages 0-30 and this tool is not able to estimate activity for ages 31-40 for this table. Therefore, if you wish to use this table with MOVES5, you will need to reanalyze your local hotelling data to provide data for all ages 0-40, and then import the reanalyzed data using the MOVES5 data importer.

Idle

IdleModelYearGrouping and TotalIdleFraction

- The *IdleModelYearGrouping* and *TotalIdleFraction* are optional tables. If either of these tables contain local data that cover model year 1960 (the oldest model year in MOVES4), the transferred data are updated to cover model year 1950 (the oldest model year in MOVES5). No additional steps are necessary when converting these tables.

Starts

Starts and StartsAgeAdjustment

- The *Starts* and *StartsAgeAdjustment* are optional tables. If either are provided, MOVES5 requires them to contain data for ages 0-40.
- Previous versions of MOVES only covered ages 0-30 and this tool is not able to estimate activity for ages 31-40 for these tables. Therefore, if you wish to use either of these tables with MOVES5, you will need to reanalyze your local starts data to provide data for all ages 0-40, and then import the reanalyzed data using the MOVES5 data importer.

StartsOpModeDistribution

- The *StartsOpModeDistribution* is an optional table. If it is provided, MOVES5 requires it to contain data for ages 0-40.
- Previous versions of MOVES only covered ages 0-30. Therefore, the converter tool will create soak distributions for ages 31-40 using the age 30 soak distributions in your input data. No additional steps are necessary when converting this table.