MOVES3 Database Conversion Tool Help

Introduction

The database conversion tool supplied with MOVES3 can be used to convert input databases developed with any version of MOVES2014 (including MOVES2014a and MOVES2014b) to be compatible with MOVES3.

It is important to note that when running MOVES for regulatory purposes, the latest local information should be used wherever possible. This tool should only be used when the input databases developed for MOVES2014, MOVES2014a, or MOVES2014b still contain the latest local information. If you have newer data than what are contained in your input databases developed for previous models, EPA recommends that you create a new input database using the MOVES3 interface.

Using the Tool

There are two different versions of the database conversion tool supplied with MOVES3, both accessible via the Tools menu in the MOVES Graphical User Interface (GUI):

- "Convert MOVES2014a/b Input Database to MOVES3": Select this option if you have a County Domain, Project Domain, or Nonroad input database that was developed using MOVES2014a or MOVES2014b
- "Convert MOVES2014 Input Database to MOVES3": Select this option if you have a County Domain, Project Domain, or Nonroad input database that was developed using MOVES2014 (*not* MOVES2014a or MOVES2014b).

Follow the instructions provided in the GUI for selecting the old database to be converted, entering the name of the new database to be created, and running the tool.

Note that since Custom Domain is not supported in MOVES3, Custom Domain input databases created using any version of MOVES2014 cannot be converted for use in MOVES3.

Additional Steps Necessary to Use Converted Databases with MOVES3

After running the tool, additional work is required to use the converted databases with MOVES3. 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 MOVES3 Technical Guidance: Using MOVES to Prepare Emission Inventories for State Implementation Plans and Transportation Conformity (EPA-420-B-20-052) 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*, *FuelSupply*, and *FuelUsageFraction* tables. When ready, import the fuels data.
- Use the Fuels Wizard to make any changes to the fuel formulation parameters.

Age Distribution

- The data in the *SourceTypeAgeDistribution* table are carried over to the new database. However, if the inputs in this table are based on previous model defaults for some source types, those data should be discarded and the MOVES3 defaults (for those source types only) should be used instead.

Average Speed Distribution

- The data in the *AverageSpeedDistribution* table are carried over to the new database. However, if the inputs in this table are based on previous model defaults, these data should be discarded and the MOVES3 defaults should be used instead. To do so, click the Clear Imported Data for the *AverageSpeedDistribution* table, export the default data, review them and make any changes as necessary, and then import this table.

I/M Programs

- The data in the *IMCoverage* table are carried over to the new database. However, if the inputs in this table are based on previous model defaults, these data should be discarded and the MOVES3 defaults should be used instead. To do so, click the Clear Imported Data for the *IMCoverage* table, export the default data, review them and make any changes as necessary, and then import this table.

Hotelling

- Default hotelling assumptions in MOVES3 have been significantly updated from previous models. Additionally, the tables used to import local data instead of model defaults are different in MOVES3. Therefore, the hotelling inputs are not converted by the tool; instead it simply produces empty hotelling tables.
- If no additional work is done to the input database on this tab, MOVES will run with model defaults for hotelling.
- However, if local hotelling activity data are available, they can be input into MOVES3 using one or more of the following tables:
    1. *HotellingHoursPerDay*, used to input hours of hotelling activity by day type.
    2. *HotellingActivityDistribution*, used to allocate hotelling activity by vehicle model year across the following operating modes: Extended Idling (OpModeID 200), Diesel Auxiliary Power Unit (201), Electric or Battery (203), or Auxiliary Power Unit Off (204).
    3. *HotellingAgeFraction*, used to allocate hotelling activity across vehicle ages.
    4. *HotellingHourFraction*, used to allocate hotelling activity by day type across hours of the day.
    5. *HotellingMonthAdjust*, used to adjust hotelling activity by month.

Idle

- The ability to model Off-Network Idling (ONI) is a new feature in MOVES3. This category includes workday idling for heavy-duty trucks (e.g., loading and unloading at warehouses), as well as idling for light-duty vehicles (e.g., waiting to pick up passengers at a school). Note that ONI is different from hotelling (which is performed by long-haul combination trucks only) and idling on the roadway (e.g., at stoplights and in congested traffic).
- If no additional work is done to the input database on this tab, MOVES will run with model defaults for ONI.
- However, if local ONI activity data are available, they can be input into MOVES3 using one of two primary input tables:
    1. *TotalIdleFraction*, used to input the total amount of idling activity (as a fraction of source hours operating) by source type, model year range, month, and day type. If this table is used, the *IdleModelYearGrouping* table should not be used.
    2. *IdleModelYearGrouping*, used to input the total amount of idling activity (as a fraction of source hours operating) by source type and model year range. Note, if this table is used, the following two input tables should also be supplied:
        - *IdleMonthAdjust*, used to adjust idling activity by month.
        - *IdleDayAdjust*, used to adjust idling activity by day type.

Starts

- Default start assumptions in MOVES3 have been significantly updated from previous models. Additionally, the tables used to import local data instead of model defaults are different in MOVES3. Depending on which starts tables were used, the data may or may not have been carried over to the new database:
    - If the original database included data in the *Starts* table, these data have been carried over and no additional work is necessary.
    - If the original database included data in *StartsPerDay*, *StartsHourFraction*, *StartsMonthAdjust*, *StartsSourceTypeFraction*, or *ImportStartsOpModeDistribution*, these data were not converted by the tool, as these tables have changed significantly from previous models.
- If no additional work is done to the input database on this tab (except in cases where the original database included data in the *Starts* table), MOVES will run with model defaults for starts.
- However, if local starts activity data are available, they can be input into MOVES3 using one of the following tables:
    - *Starts*, used to input the total number of starts by source type, vehicle age, month, and day type. If the *Starts* table is used, none of the shaping tables below are used except for the optional table *StartsOpModeDistribution*.
    - *StartsPerDayPerVehicle*, used to input the number of starts per vehicle by source type and day type. This table is used by MOVES in conjunction with vehicle populations in the *SourceTypeYear* table to calculate total starts per day.
    - *StartsPerDay*, used to directly input the total number of starts by source type and day type.

    - Note: Only one of the following tables should be used to input the number of starts: *Starts*, *StartsPerDayPerVehicle*, or *StartsPerDay*.
- If either the *StartsPerDayPerVehicle* or *StartsPerDay* table is used, the following optional shaping tables can also be used:
    - *StartsAgeAdjustment*, used to adjust starts by source type and vehicle age.
    - *StartsMonthAdjust*, used to adjust starts by source type and month.
    - *StartsHourFraction*, used allocate starts by source type and day type across hours of the day.
- The *StartsOpModeDistribution* table is another optional input that can also be used in combination with any of the above tables to input data on vehicle soak distributions (i.e., how long vehicles are off before starting again).