Instructions for Submitting ONROAD Inputs for the 2017 NEI

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U.S. Environmental Protection Agency
Office of Air Quality Planning and Standards
Air Quality Assessment Division
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The U.S. Environmental Protection Agency (EPA)'s Air Emissions Reporting Rule (http://www.epa.gov/air-emissions-inventories/air-emissions-reporting-requirements-aerr) requires state and local agencies who submit to the National Emissions Inventory (NEI) to submit *model inputs* for mobile sources, rather than emissions, in the form of county-specific databases (CDBs). Emissions estimates may be submitted in addition to model inputs, and emissions estimates will still be accepted from tribes without inputs. If you do not submit onroad input data, EPA will generate emission estimates using EPA-developed county-specific inputs.

 This document addresses submitting onroad MOVES CDB inputs only.

For the 2017 NEI, EPA plans to use the most current version of the Motor Vehicle Emission Simulator (MOVES) model, MOVES2014b, to estimate both onroad and nonroad emissions. Because onroad emissions calculated with MOVES2014b are identical to those calculated with MOVES2014a, States may submit onroad CDBs that are used with either MOVES2014a or MOVES2014b. Note: onroad CDB submissions must be checked using a QA script (provided by EPA) that is specific to the version of MOVES – MOVES2014a or MOVES2014b – on which the CDB is based. The MOVES2014b onroad CDB QA script will be available following the release of MOVES2014b.

For information on submitting MOVES-Nonroad CDBs, see the companion document "Instructions for Submitting MOVES-Nonroad Inputs to the 2017 NEI."

Since the MOVES inputs are county-based, tribal agencies should run MOVES and submit emissions. However, tribal agencies may use the input information from adjacent counties to prepare local inputs that may be suitable for their tribal area MOVES runs.

MOVES inputs must be submitted to EIS as a County Database (CDB), which consists of a set of MySQL database tables specifically formatted to store county-specific inputs for MOVES. Prior to submitting MOVES inputs, agencies may download EPA's draft 2017 CDBs from the 2017 NEI FTP site (ftp://newftp.epa.gov/air/nei/2017/doc/supporting_data/onroad/draft_inputs/) to use as a template. The emissions in the NEI are developed for all months of the year and all counties in every state, plus the District of Columbia, Puerto Rico, and US Virgin Islands. This means that EPA will need to have county-level information for every county for each month of the year. For the NEI, MOVES will be run at the County Scale, which requires a separate county database for each county that contains the data specific to that county.

On a county-by-county basis, agencies can change the CDBs as needed to reflect their own input data, or they may choose to use the EPA-provided defaults. Agencies must check their CDBs prior to submittal using the provided QA Tool that will generate a QA Report to include with submittals. EPA will provide two QA tools, one for MOVES2014a-compatible CDBs and one for MOVES2014b-compatible CDBs. Agencies must ensure that the QA script used to generate the required QA report matches the version of MOVES used to build the CDBs. Agencies should

submit their CDB submittal package to the EIS QA environment to confirm there are no critical errors prior to submitting to the production environment. Agencies that want to accept EPA's defaults and submit nothing may do so via a 'support request' message that states that intent, through the EIS gateway. This same approach also applies to other data categories.

The following sections describe how to create/revise onroad CDBs, QA check them, and submit them to EIS.

Supporting tools and files referenced here can be downloaded from the 2017 FTP site: ftp://newftp.epa.gov/Air/nei/2017/doc/supporting_data/onroad/.

1.1   MOVES Onroad County Database Content

States are asked to supply the CDB tables listed in Table 1 below. The table indicates the contents of the CDBs and the data EPA uses as defaults. It is expected that states will have more accurate information in many cases.

The EPA document, "MOVES2014 and MOVES2014a Technical Guidance: Using MOVES to Prepare Emission Inventories in State Implementation Plans and Transportation Conformity" (EPA-420-B-15-093, November 2015; available at https://www.epa.gov/moves/moves2014a-latest-version-motor-vehicle-emission-simulator-moves), describes what data states are being asked to provide and suggestions on how to obtain the needed information.

The CDB tables are intended to contain the complete set of information needed to run MOVES for all the vehicles in a county for all months of a single calendar year (2017) using county-specific information.

Default 2017 CDBs based on information found in the CDBs used for the 2014 NEI v2 are available here: ftp://newftp.epa.gov/Air/nei/2017/doc/supporting_data/onroad/draft_inputs. These CDBs may be used by states as a starting point for generating CDBs to provide to EPA or states may provide CDBs created independently. Any CDBs submitted to EIS for the 2017 NEI should be complete and ready to run for the calendar year 2017.

The posted CDBs may contain tables not shown in Table 1. These tables are generated by scripts during the construction of the CDBs and do not affect the running of MOVES or the results and can be removed from the CDBs if desired.

EPA will add 2017 fuels and meteorological data to CDBs before 2017 NEI MOVES runs, so data do not need to be provided in those tables.

Table 1: CDB Tables and Contents	Description of Content	EPA-Default CDB Table Content
auditlog**	Information about the creation of the database	Carried forward from the creation of the tables for 2014 by EPA. These records reflect the earlier importing of CDBs and not necessarily the current status of the data.
avft**	Diesel sales fractions	Normally this table is empty, but it may contain state-provided data from the 2014 NEI.
avgspeeddistribution	Average speed distributions	State-provided data from the 2014 NEI or national average EPA estimates.
county	Description of the county	EPA provided data.
countyyear*	Description of the Stage 2 program	State-provided data from the 2014 NEI or EPA default values for each county.
dayvmtfraction	VMT distribution across the type of day	State-provided data from the 2014 NEI or EPA estimates.
emissionratebyage*	Emission rates to reflect adoption of California emission standards.	The EmissionRateByAge tables for some counties have been populated using the appropriate data described in the guidance for states adopting California emission standards. See notes below ***
fuelformulation	Fuel properties	Based on EPA estimates for each county from calendar year 2014. EPA will provide the 2017 values, but states must provide placeholder values to pass the QA script.
fuelsupply	Fuel differences by month of the year	Based on EPA estimates for each county from calendar year 2011. EPA will provide the 2017 values that will be used, but states must provide placeholder values to pass the QA script.
fuelsupplyyear	Year for the fuel properties	Set to 2014 in default CDBs
fuelusagefraction	Fuel use by flexi-fuel vehicles.	Based on EPA estimates for 2014.
Hotellingactivitydistribution**	Distribution of hotelling hours using extended idle or auxiliary power units.	Based on EPA estimates for 2014.
Hotellinghours**	Hours of hotelling by long haul combination trucks.	County-specific hours for 2014.
hourvmtfraction	VMT distribution across the hours of the day	State-provided data from the 2014 NEI or national average EPA estimates.
hpmsvtypeday**	Daily VMT by HPMS vehicle type	Alternate method to provide VMT by HPMS vehicle types.

Table 1: CDB Tables and Contents	Description of Content	EPA-Default CDB Table Content
hpmsvtypeyear	Total annual VMT by HPMS vehicle type	VMT data values from the 2014 NEI. States may provide VMT estimates by MOVES source type in SMOKE format directly for use in the 2017 NEI. Alternatively, the annual VMT data may be provided by source type in the sourcetypeyearvmt table.
imcoverage	Description of the Inspection and Maintenance program	I/M program description carried forward from the 2014 data. The model year ranges may need to be adjusted to reflect the effect of the grace period on model year ranges for calendar year 2017.
Importstartsopmode distribution**	Distribution of engine starts by engine soak time.	Empty (using national average EPA estimates).
monthvmtfraction	VMT distribution across the months of the year	State-provided data from the 2014 NEI or national average EPA estimates.
onroadretrofit**	Emission adjustments to reflect local retrofit programs.	Empty (no retrofits assumed).
roadtype**	Describes the road types.	Empty (uses default values).
roadtypedistribution	VMT distribution across the road types	State-provided data from the 2011 NEI or national average EPA estimates.
sourcetypeagedistribution	Distribution of vehicle ages	State-provided data from the 2014 NEI or EPA defaults based on calendar year 2014 estimates.
sourcetypedayvmt**	Daily VMT by source type.	Alternate method to provide VMT by source types.
sourcetypeyear	Vehicle populations	Vehicle population data values from the 2014 NEI
sourcetypeyearvmt**	Total annual VMT by source type.	Alternate method to provide VMT by source types.
starts**	Number of engine starts	Empty (using national average EPA estimates).
startshourfraction**	Distribution of starts by hour of the day	Empty (using national average EPA estimates).
startsmonthadjust**	Variation of the starts per vehicles by month.	Empty (using national average EPA estimates).
startsperday**	Engine starts per day per vehicle.	Empty (using national average EPA estimates).
startssourcetypefraction**	Allocation of total starts to source types.	Empty (using national average EPA estimates).
state	Description of the state	EPA-provided data.
year	Year of the database	Set to 2017.

Table 1: CDB Tables and Contents	Description of Content	EPA-Default CDB Table Content
zone	Allocations of starts, extended idle and vehicle hours parked to the county	EPA-provided data. Allocations must all be 1.0 (100%). This data should <u>not</u> be changed.
zonemonthhour	Temperature and relative humidity values	Temperature and humidity data are based on EPA-provided data for each county from calendar year 2014.
zoneroadtype	Allocation of road types to the county	EPA-provided data. Allocations must all be 1.0 (100%). This data should <u>not</u> be changed.

*Tables that are not created by MOVES County Database Manager (CDM), but are generated as empty tables by the QA tool that checks CDBs for EIS submittal

**Tables that can be empty but must be present in EIS submittal

*** The following states are given early NLEV programs in the EPA defaults:

- Connecticut (9)
- Delaware (10)
- District of Columbia (11)
- Maryland (24)
- New Hampshire (33)
- New Jersey (34)
- Pennsylvania (42)
- Rhode Island (44)
- Vermont (50)
- Virginia (51)

The following states are given California LEV programs beginning on the following dates:

FIPS State ID	State Name	LEV Program Start Year
6	California	1994
9	Connecticut	2008
10	Delaware	2014
23	Maine	2001
24	Maryland	2011
25	Massachusetts	1995
34	New Jersey	2009
36	New York	1996
41	Oregon	2009
42	Pennsylvania	2008
44	Rhode Island	2008
50	Vermont	2000
53	Washington	2009

1.1.1 County Database Naming Convention

To keep track of the thousands of CDBs used in the NEI calculations, EPA has established a naming convention for the CDB names that will differentiate between databases and make automation of running and processing the inputs and outputs from MOVES easier.

The naming convention for each CDB folder has 20 characters. The first 6 characters identify the county, the next 5 indicate the calendar year of the county database, and the last characters indicate the date on which the database was created.

The first 6 characters consist of the letter "c" followed by the 5-digit Federal Information Processing Standard (FIPS) code for the county, including a leading zero when necessary. The next 5 characters are the letter "y", followed by a 4-digit calendar year. This calendar year indicates the calendar year of the data contained in the database. A CDB can only contain data from a single calendar year. The last 8 digits, following and underscore character, are the date on which the database was created in a YYYYMMDD format.

An example of a CDB name is "c26161y2017_20180601" where this CDB names indicates "c26161" refers to the county FIPS code (in this case Washtenaw County, Michigan). "y2017" refers to the calendar year for the county database and "20180601" identifies the database modification date of June 1, 2018, in YYYYMMDD format.

1.2 Steps to Submit CDBs
The steps for submitting CDBs are discussed in more detail in the subsections that follow:

1. Create CDBs
   a. Edit existing CDBs to meet NEI requirements or
   b. Create new CDBs from scratch or
   c. Revise EPA defaults.
2. Select the appropriate QA Tool based on the version of MOVES used by the submitting agency (MOVES2014a or MOVES2014b)
3. Run EPA's QA Tool to create a QA report that confirms no errors exist.
4. Create a Checklist that indicates where changes have been made to the EPA CDBs
5. Provide documentation for the Agency- supplied inputs.
6. Submit the files to the EIS.

1.2.1 Creating County Databases

When submitted CDBs are used as input to MOVES during a run, MOVES will recognize the tables contained in the folder (based on their name and format) and use the information they contain instead of EPA default values. In this way, a MOVES run can be made more representative of the county to be simulated.

There are many ways to create a county database for submission. We will discuss some of the methods that we expect might be used and provide some suggestions. The methods we will discuss are:

- Using the County Data Manager
- Using XML scripts
- Using MySQL

We will also discuss methods to automate the creation of multiple CDBs.

If you have existing CDBs that can be used for the NEI with little or no editing, using these as a starting point would be the best option. Otherwise, EPA suggests starting with the provided default databases and editing their contents as the easiest way to quickly produce a set of CDBs for your state. However, any method that can generate appropriate tables containing the county specific data in the appropriate format that can be recognized and used by MOVES are acceptable.

Since the CDBs will be in a MySQL format, it is helpful to have some MySQL database application skills, including using standard query language (SQL). However, there are tools available that can help to view, alter and export MySQL tables. The MySQL Query Workbench is distributed with the MOVES application and provides a graphical user interface (GUI) that allows tables to be viewed, altered and exported without SQL commands. We recommend that this application be available for use when creating and editing databases.

Since MySQL CDBs are simply folders containing files that make up the tables, users can simply move and copy the folders and the files they contain as they would any other files on their drives. This feature provides some additional flexibility in generating new CDBs, since these folders and files can be manipulated using standard DOS commands in batch files and scripts.

Step-by-step instructions of how to use MySQL query commands to alter the contents of tables are beyond the scope of this document. This approach should only be considered by states with available staff familiar with MySQL query language. The discussion here of creating and editing CDBs will cover alternatives to using the query language alone.

1.2.1.1 *Using Existing County Databases*

For the NEI, EPA prefers to receive existing CDBs that states/local agencies have created for their own use. These may need to be updated for the NEI year (2017) and possibly expanded to cover all months of the year using some of the editing tools described below. They also need to be checked for errors with the NEI CDB QA Tool as explained in Section 1.2.2.

1.2.1.2 *Editing EPA Default Databases*

EPA has provided a set of all CDBs as a draft default for 2017. They contain the values used for the 2014 NEI v2. States only need to submit CDBs for counties for which they have made

changes for 2017. Counties that are not submitted will use EPA default estimates. However, EPA encourages agencies make changes where better county specific information is available. Note: the CDBs submitted must match those in the submitted checklist to avoid a submittal error.

The EPA-provided CDBs should be loaded into your MySQL database system by copying the CDB folders into the MySQL\data directory.

The EPA CDBs can be edited directly in several ways. First, the MySQL Query Workbench allows users to change values in database tables, one value at a time. If only a few changes are needed, this may be the easiest way to make changes. If many changes are needed, the user should consider other options.

The MOVES County Data Manager (CDM) can be used to export the contents of most of the tables found in the CDBs into spreadsheets or comma separated value (CVS) text files to be edited. Once the changes have been made, the CDM can clear the old data and import the new values from the files. This process does not involve using any query language code or knowledge of database commands. However, it requires making the changes one table, one database at a time. The XML scripts described below can also be used to import data from spreadsheets or CSV text files containing altered information directly into existing EPA default CDBs. By including only tables that contain county-specific data, you can limit the tables affected by the XML code to just the tables that will contain the county specific data and keep the default data in the other tables. These updates can be automated to apply to multiple databases at once to apply the changes quickly to all the counties affected.

Of course, the data in any tables can be manipulated directly using the MySQL query language.

1.2.1.3   Using the County Data Manager

The MOVES graphical user interface (GUI) is designed to allow users to create and edit CDBs without using database language commands (SQL) using "importers" contained in the CDM GUI panels. Once data has been imported into a county database, the CDM can generate a XML script that can be used to recreate the database from the input files using the command line interface option of MOVES. The XML feature is useful if many changes are being made or are expected to be made to the input files. The process of creating CDBs using the CDM is described in detail in the MOVES User Guide. Using the CDM to create CDBs will require that you create a run specification for each county for which you wish to create a county database. You can download an example run specification file (c10001y2017.mrs) from ftp://newftp.epa.gov/Air/nei/2017/doc/supporting_data/onroad/.

1.2.1.3.1 Tables Not Created by the CDM

The CDBs created by the CDM do not contain all of the tables expected by EPA in an EIS submittal. However, the CDB QA Tool (provided at ftp://newftp.epa.gov/Air/nei/2017/doc/supporting_data/onroad/) that is required to be run on all

CDBs submitted by states will generate (empty) tables in all tested databases and provide an indication in the report that the tables were initially missing. This script will not populate the tables with data. This will need to be done manually if you want these tables to contain data for that county.

- The EmissionRateByAge table is intended to contain information related to the use of California standards, which is not contained in the MOVES default database and must be obtained separately. The default CDBs provided by EPA already have data in the EmissionRateByAge table for all counties in states that we believe are using California standards. You should not add data to the EmissionRateByAge table if you have not implemented California standards in your state. You can find out more about how to model California standards and obtain the emission rate data on the EPA web site at:

  https://www.epa.gov/moves/tools-develop-or-convert-moves-inputs

- The CountyYear table includes fields describing a county's Stage II program to reduce refueling emissions. The default CDBs provided by EPA already have data in the CountyYear table for all counties that we believe have these programs.

1.2.1.4 *Using XML Scripts*

XML was designed to carry data, not to display data. MOVES has a feature that allows users to supply specific XML information that can be used by MOVES to construct CDBs from a set of spreadsheets or CSV text files. This feature can be used to quickly create CDBs without using the MOVES graphical user interface (GUI) and automate the process to create multiple CDBs using a single command.

The MOVES CDM Tools panel can create XML files that can be used to create CDBs. Since XML files are simply text files, the XML file can be edited using any text editor (such as Notepad) to create new XML files that can generate more CDBs. Using naming conventions for the data files and CDBs, modelers may create a set of XML files that will create all of the CDBs for a state. These XML files can be run together in a batch mode to create all of the CDBs for a state using the command line option of MOVES and a DOS batch file. The creation and use of importer XML files is addressed in the MOVES User Guide in Section 2.3.3.3 Tools (http://www.epa.gov/otaq/models/moves).

The XML approach assumes that the states will have all of the information needed for the CDBs for every county to be processed and that this information can be found in the proper format in a set of spreadsheets or CSV text files. The automated process of creating the databases can be repeated whenever the contents of any of the spreadsheets or CSV text files is updated.

States can contact EPA (see contact options at end of instructions) if they need further instructions on how to use XML files to populate their CDBs.

1.2.1.5 Using MySQL

All the tables in the CDBs can be created or edited directly using MySQL commands. Step by step instructions of how to do this are beyond the scope of this document. However, in some cases, it may be useful to use MySQL directly, rather than the tools being provided by EPA. There is no restriction on the use of MySQL or other tools in the creation of the CDBs, as long as the resulting CDBs are properly formatted and populated for use with MOVES.

1.2.1.5.1 Converting Databases from Other Calendar Years

In some cases, states may have CDBs for other calendar years that would make a good start for creating CDBs for the 2017 calendar year. As discussed above a database folder can be easily copied and renamed to reflect a new calendar year. The contents of the tables can then be edited to change the calendar year to 2017, which would allow the tables to be used with a run specification that selected the 2017 calendar year. **NOTE: This update has already been made in the EPA 2017 default CDBs. If you want to use the CDBs already updated to 2017, skip the rest of this subsection.**

If you need to manually update the year of your CDBs, there are ten tables normally found in a CDB that contain calendar year information. These values can be easily changed to a new calendar year using a series of "update" commands. Below is an example of the set of update commands to change the calendar year of the tables to 2017. The "use" command selects the database to be altered. The "c26161y2017_20180601" string refers to the database name, following the EPA naming convention for CDBs. The "c26161" refers to the county FIPS code. "y2017" refers to the calendar year for the county database and "_20180601" as a database created on June 1, 2018, in YYYYMMDD format.

```
use c26161y2017_20180601;

update countyyear set yearid=2017;

update hpmsvtypeyear set yearid=2017;

update hotellinghours set yearid=2017;

update imcoverage set yearid=2017;

update sourcetypeagedistribution set yearid=2017;

update sourcetypeyear set yearid=2017;

update starts set yearid=2017;
```

update startsperday set yearid=2017;

update year set yearid=2017;

update year set fuelyearid=2017;

Section 1.2.1.2 describes how to create and use a MySQL script to execute these commands.

Once the calendar year has been changed, the state or local agency is still left with the task of updating the other values in the tables to reflect the 2017 calendar year. In particular, the model year coverage in the IMCoverage table needs to properly reflect the change in the calendar year. The age distribution values in the SourceTypeAgeDistribution table may also need adjustment to reflect sales and scrappage. Changing the contents of the tables using the CDM is discussed in the MOVES User Guide. The databases can be updated for 2017 using the XML importer discussed above as well.

1.2.1.6   *Automating the creation of multiple databases*

XML importer scripts are the easiest way to create or make changes to multiple existing CDBs without using MySQL commands. The new data for the counties can reside in MS Excel spreadsheets or CSV text files and be edited in those formats or output into those formats from other applications. Using batch files and command line options in MOVES, the XML for each county can be run to create/alter the existing CDBs.

Scripting tools (Perl, Python, etc.) can also be used to create scripts that will process multiple databases using MySQL commands to make the desired changes. You will need staff who are familiar with these tools.

Detailed instructions for creating these tools is beyond the scope of this document, however, you may contact EPA if you intend to use this approach for suggestions.

1.2.2   Use the CDB QA Tool to Create a QA Report to include with your submittal

For Agencies submitting onroad CDBs based on MOVES2014a, from
ftp://newftp.epa.gov/Air/nei/2017/doc/supporting_data/onroad/ download and unzip
"2017v1_CDB_QA_Checks_MOVES2014a.zip", which contains the QA Tool
(CDB_QA_Checks_MOVES2014a_v2.sql) and an example script
(Example_Run_QA_Checks_MOVES2014a_v2.bat) that allows you to automate the QA process for more than one county (discussed below). CDB_QA_Checks_MOVES2014a_v2.sql will create a QA Report that is required in your MOVES CDB submittal. The QA Report generated by the QA Tool script verifies all table contents meet range, naming convention, format and other checks. The report confirms that each CDB contains the appropriate number of tables and that the values within those tables are valid. It is very important that the QA tool be properly run for each submitted CDB, because if it is not and the CDB contains errors that are

not resolved, the data may not work when we go to generate the NEI and we will need to follow up with you at that time, or we may not be able to use your submitted data.

Agencies submitting onroad CDBs based on MOVES2014b, should follow the above instructions for MOVES2014a, but should instead begin by downloading and unzipping the file "2017v1_CDB_QA_Checks_MOVES2014b.zip"

EIS will check to see that each county listed in this report has an associated CDB in the submission. Only include counties in the QA report that you will be submitting. If the counties in the QA report do not match those in the CDB folder, or if any errors are indicated in the QA report, EIS will indicate a critical error and will not accept the submission. The format is .txt, but this file can be opened as a table using Microsoft Excel to make it more readable.

IMPORTANT NOTE: All tables listed in Table 1 above are required, although some may not be populated. If you create the CDBs using the CDM (from scratch) the CDM will create most of these tables. Your CDB will be missing two tables:

- o EmissionRateByAge
- o CountyYear

Running the QA Tool will create these tables in your CDB, but the tables will each contain zero rows (i.e., they will be empty). Leaving these tables empty will not cause the CDBs to fail the script if it is run again. Thus, if you create the CDBs using the CDM, your initial run of the QA will indicate errors (missing tables). However, if you run the QA Tool again, the tables have been created by the previous check and the "missing tables" error will no longer appear in the report. You can then send the second QA report (with no errors) to the EIS.

Also, the QA tool uses tables from the default MOVES onroad database that was distributed with MOVES2014a and MOVES2014b . If you do not have MOVES2014a or MOVES2014b installed, you will need to obtain a copy of the database folder specified in the QA script and place it in your MySQL\data directory.

Name your QA report with your agency Program System Code (PSC), such as "PSC_QA_Report.txt". For example, Delaware's state agency PSC is "DEDNR" and their QA report would be named "DEDNR_QA_Report.txt".

If your state has many counties, you may wish to automate the checking process. Below is an example of a batch file written to check the three counties for the state of Delaware. The batch file deletes the old version of the report text file (named with the PSC), clears the MySQL buffer of previous work and drops the database used to store the aggregated results from the individual checks. Then MySQL is directed to each county database (i.e., c10001y2017_20180601) using the QA Tool script (CDB_QA_Checks_MOVES2014a_v2.sql. Note that the directory path must be included so that the file can be properly located by MySQL. The path you use can be different than the location (C:\MySQL\) shown in this example. The final line in the batch file

exports the results into the report text file. A directory path can be added to this file name as well to help locate the file once it has been populated.

```
del DEDNR_QA_Report.txt
mysql –uXXXXX -pYYYYY -e "flush tables;"
mysql –uXXXXX -pYYYYY -e "drop database if exists all_cdb_checks;"
mysql –uXXXXX -pYYYYY c10001y2017_20180601 < C:\MySQL\CDB_QA_Checks_MOVES2014a_v2.sql
mysql –uXXXXX -pYYYYY c10003y2017_20180601 < C:\MySQL\CDB_QA_Checks_MOVES2014a_v2.sql
mysql –uXXXXX -pYYYYY c10005y2017_20180601 < C:\MySQL\CDB_QA_Checks_MOVES2014a_v2.sql
mysql –uXXXXX -pYYYYY -e "select * from all_cdb_checks.all_county_database_checks;" > DEDNR_QA_Report.txt
```

The XXXXX value is the MySQL user name and the YYYYY value is the MySQL password. The script (CDB_QA_Checks_MOVES2014a_v2.sql) is located in the C:\MySQL\ directory in this example. The file generated by this script (DEDNR _QA_Report.txt) is the quality assurance (QA) report required by the EIS process.

Note that in the above example, "MOVES2014a" should be replaced with "MOVES2014b" if MOVES2014b is the model version on which the submitted CDBs are based.

Example of QA Report Results

In this example, there is an error with the AvgSpeedDistribution table. The submission has a distribution that adds to zero (0.0). This entry (i.e., all zeros) can inadvertently eliminate any VMT associated with that combination and cause an incorrect result. The sum of the fractions in the AvgSpeedDistribution table must add to 1.0 for every combination of SourceTypeID, RoadTypeID and HourDayID, even if the Source Type, Road Type or HourDayID do not have VMT associated with that combination. Never fill distribution tables with zeros. You can use the default distribution if no county-specific values are available.

The RoadType table has a warning (no rows). Since MOVES will use default values for this table if no rows are supplied, the warning is provided to inform the user that no data has been supplied, but MOVES will run successfully without user input.

The "status" category may **_not_** contain any "Error" entries to successfully pass QA. The report will pass if only these entries appear:

1) Completed – this indicates a successful check.

2) Warning – This indicates the user-supplied values that may not have been intended (i.e., distributions that sum to zero), but will not cause MOVES to generate inappropriate results.

3) Comment – This will indicate that the table contains no user supplied rows to be checked.

Name your QA report with your agency Program System Code (PSC), such as "PSC_QA_Report.txt". For example, Delaware's state agency PSC is "DEDNR" and their QA report would be named "DEDNR_QA_Report.txt".

1.2.3 Create Your CDB Checklist

From the 2017 NEI webpage, download the QA checklist "MOVES_Onroad_County_Checklist.xlsx". This spreadsheet will contain rows for every county in the nation. You can trim this list to only include the counties in your state.

This checklist is intended to indicate which tables your agency has revised from EPA's defaults for each county's CDB. It also indicates counties for which the submitter accepts EPA default estimates as equivalent to their submittal. The list you submit should include all the counties in your state, even if you are only submitting CDBs for some of the counties.

Example of Checklist

DEDNR_2017_Checklist.xlsx - Excel   Brzezinski, David

stateid	statename	countyid	countyname	Accept EPA Default Values	auditlog	avft	avgspeeddistribution	county	dayvmtfraction	fuelformulation	fuelsupply	fuelsupplyyear	fuelusagefraction	hotellingactivitydistribution	hotellinghours	hourvmtfraction	hpmsvtypeday	hpmsvtypeyear	imcoverage	importstartsopmodedistribution	monthvmtfraction	onroadretrofit	roadtypedistribution	sourcetypeagedistribution	sourcetypedayvmt	sourcetypeyear	sourcetypeyearvmt	starts	startshourfraction	startsmonthadjust	startsperday	startssourcefraction	state	year	zone	zonemonthhour	zoneroadtype	countyroadtype	emissionratebyage
10	DELAWARE	10001	Kent County	x																																			
10	DELAWARE	10003	New Castle County					x								x	x	x						x	x														
10	DELAWARE	10005	Sussex County					x								x	x	x						x	x														

Name your checklist with your agency Program System Code (PSC), such as "PSC_Checklist.xls (or xlsx)". For example, Delaware's state agency PSC is "DEDNR" and their checklist would be named "DEDNR_Checklist.xls".

The purpose of the checklist is to provide a method to determine which parts of the state submission contain new information. This will greatly assist EPA is using this information for making projections to other calendar years.

1.2.4 Documentation

All submissions must include documentation. At a minimum, the documentation should address all of the changes made by the state to the EPA provided CDBs. For each change, the document should state briefly the source of the state supplied information used to populate the CDB. References to other documents with more detail are encouraged.

If you created the CDBs from scratch (not editing the EPA provided CDBs), please document where local data were used and where default data from MOVES were used.

You may include additional documentation files which are referenced by the main documentation. These additional files can be in any format (e.g., .pdf or .xls).

Name your documentation with your agency Program System Code (PSC), such as "PSC_Documentation.doc (or docx)". For example, Delaware's state agency PSC is "DEDNR" and their documentation would be named "DEDNR_Documentation.doc". Any additional files provided can keep their original names and do not need to conform to any standard.

1.2.5 Bundle CDB Submittal Components and Create the XML for EIS Submittal

Once you have prepared the parts of your submittal, you'll need to zip them together in a specific way and reference them with the EIS/CDX required XML file. The CDBs are folders located in the MySQL/data directory on your system. Once you have completed creating/editing the CDBs for your state, these folders and their contents are to be included in the zip file for submission. The graphic below shows that the individual CDBS are zipped into one zip file. That zip file and the remaining parts (QA report, checklist, and documentation) are then zipped into a zip folder.

CDB Submission Example
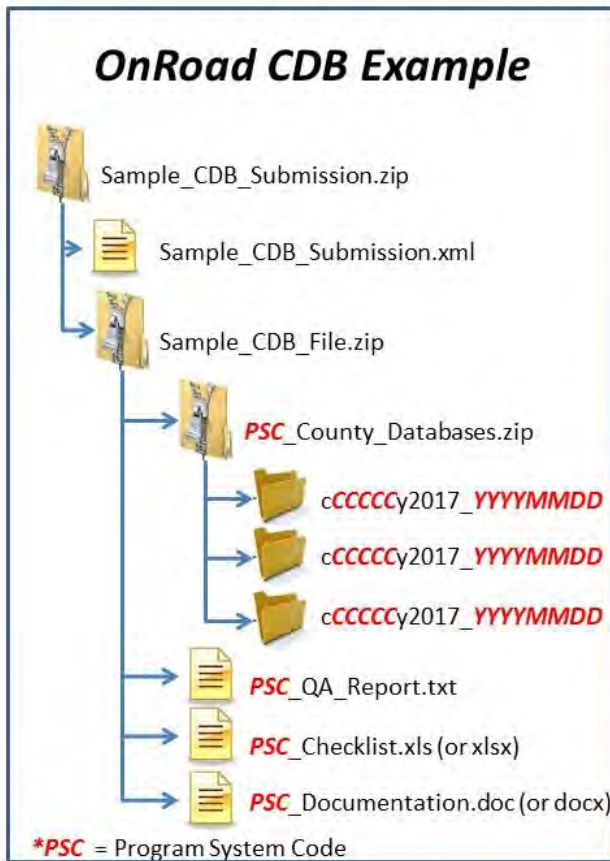
1.2.5.1 *Creating the EIS/CDX-required XML*

To create the xml file

2. Use the EIS Access Bridge Tool
    1. Download the "Area Emissions Inventory Bridge Tool" from http://www.epa.gov/air-emissions-inventories/emission-inventory-tools.
    2. Open the file in Microsoft Access.
    3. Choose the "Export Onroad/NonRoad XML Wrapper" from the Main Menu
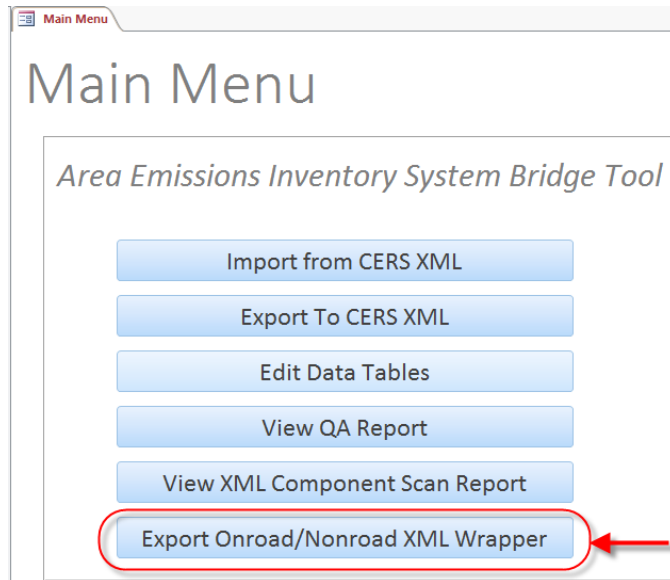
4. Fill out the form with the appropriate information

a. File Location = The name and location where the resulting XML file will be generated.

b. Data Category: Choose "Onroad"

c. Emissions Year: Set to 2017

d. Submission Type: Choose either "QA" or "Production"
e. Activity Database Type: Set to "CDB"
f. Activity Database File: The name of the packaged set of zip files. Using the earlier example: "Sample_CDB_Submission.zip"
g. User Identifier: Your EIS User ID
h. Author Name: Your name (optional)
i. Organization Name: The name of your organization (optional)
j. Program System Code: The program system code of your organization
k. EPA Dataset: Leave blank
l. Keywords: Any keywords you would like to submit about the document (optional)
m. Comment: Any comments about the document (optional)
5. Press the "Begin Export" button. Your file will be generated to the location specified.

NOTE: Each CDB submittal is a total replacement to any CDBs previously submitted by that agency. Thus, if a state submits every county in one submittal, then submits only one county in a subsequent submittal, only the one county will be present in EIS.

You can check the feedback on your submittal in EIS by choosing your agency and the "Feedback Reports" tab as shown in the figure below:

EIS Gateway—Agency Organization Detail: Feedback

1.3   Additional Resources

For additional assistance contact:

Submittal Issues

-Sally Dombrowski – dombrowski.sally@epa.gov; 919-541-3269

Inventory Issues

-Laurel Driver – driver.laurel@epa.gov; 919-541-2859

CDB Content Issues

-Jaehoon Han – han.jaehoon@epa.gov, 734-214-4299

MOVES Issues

-mobile@epa.gov