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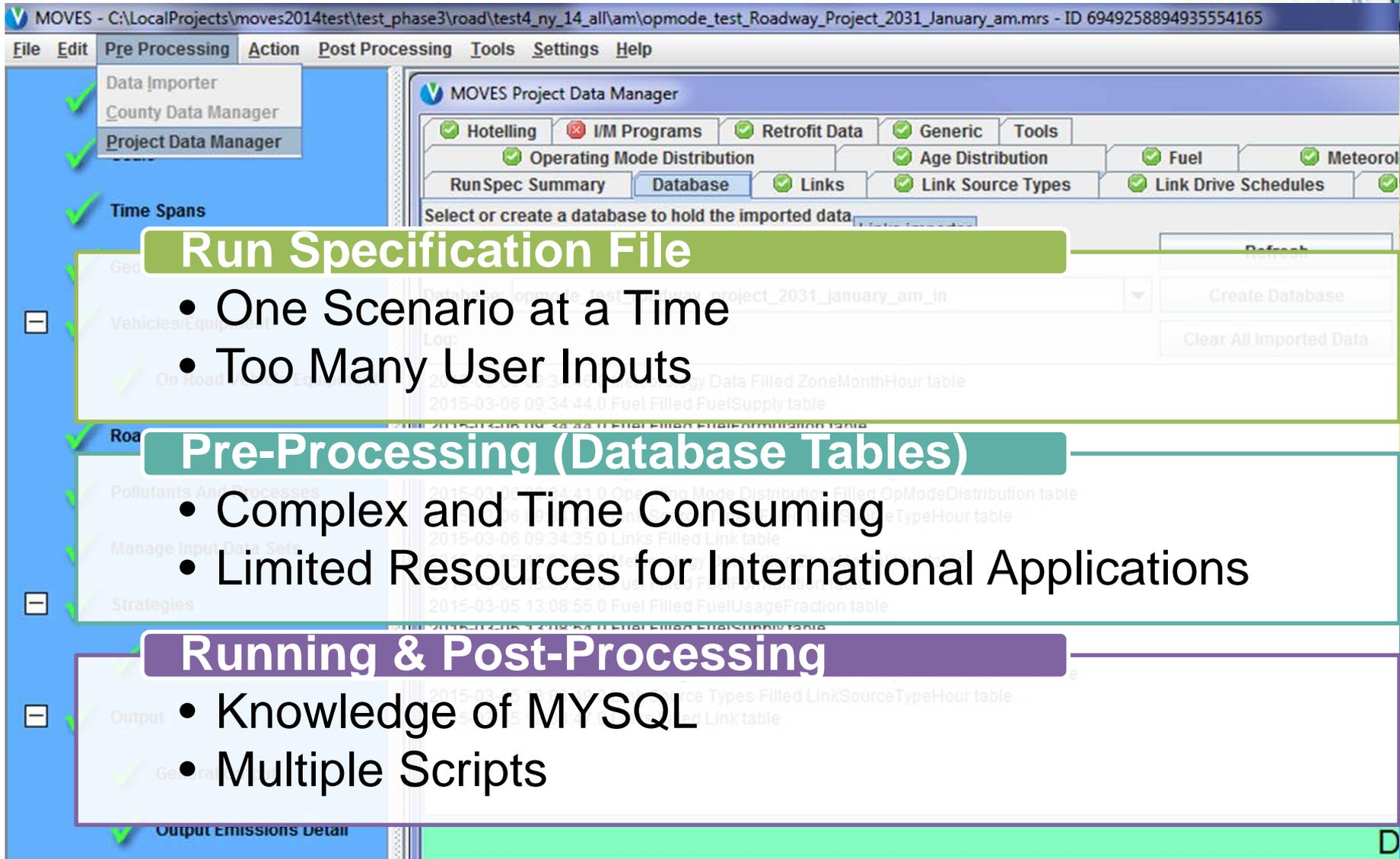
Excel-Based Program for Project Level MOVES Modelling

Emission Inventory Conference, San Diego, California

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MOVES - C:\LocalProjects\moves2014test\test_phase3\road\test4_ny_14_all\am\opmode_test_Roadway_Project_2031_January_am.mrs - ID 6949258894935554165

File Edit Pre Processing Action Post Processing Tools Settings Help

Project Data Manager

- Hotelling
- I/M Programs
- Retrofit Data
- Generic
- Tools
- Operating Mode Distribution
- Age Distribution
- Fuel
- Meteorol
- Run Spec Summary
- Database
- Links
- Link Source Types
- Link Drive Schedules

Select or create a database to hold the imported data

Refresh

Create Database

Clear All Imported Data

Database: opmode_test_roadway_project_2031_january_am_in

Log:

2015-03-06 09:34:44.0 Fuel Filled FuelSupply table

2015-03-06 09:34:44.0 Fuel Filled FuelFormation table

2015-03-06 09:34:44.0 Operating Mode Distribution Filled OpModeDistribution table

2015-03-06 09:34:35.0 Link Filled LinkTypeHour table

2015-03-05 13:08:55.0 Fuel Filled FuelUsageFraction table

2015-03-05 13:08:54.0 Fuel Filled FuelSupply table

2015-03-05 13:08:54.0 Link Filled LinkSourceTypes Filled LinkSourceTypeHour table

2015-03-05 13:08:54.0 Link Filled Link table

Output Emissions Detail

Run Specification File

- One Scenario at a Time
- Too Many User Inputs

Pre-Processing (Database Tables)

- Complex and Time Consuming
- Limited Resources for International Applications

Running & Post-Processing

- Knowledge of MYSQL
- Multiple Scripts

Run Specification File

Multiple Scenarios

Both MOVES2010b and MOVES2014

Fewer User Inputs

Pre-Processing (Database Tables)

Automatic Database Tables

Utilizes User Supplied Information

Draws MOVES Default Information

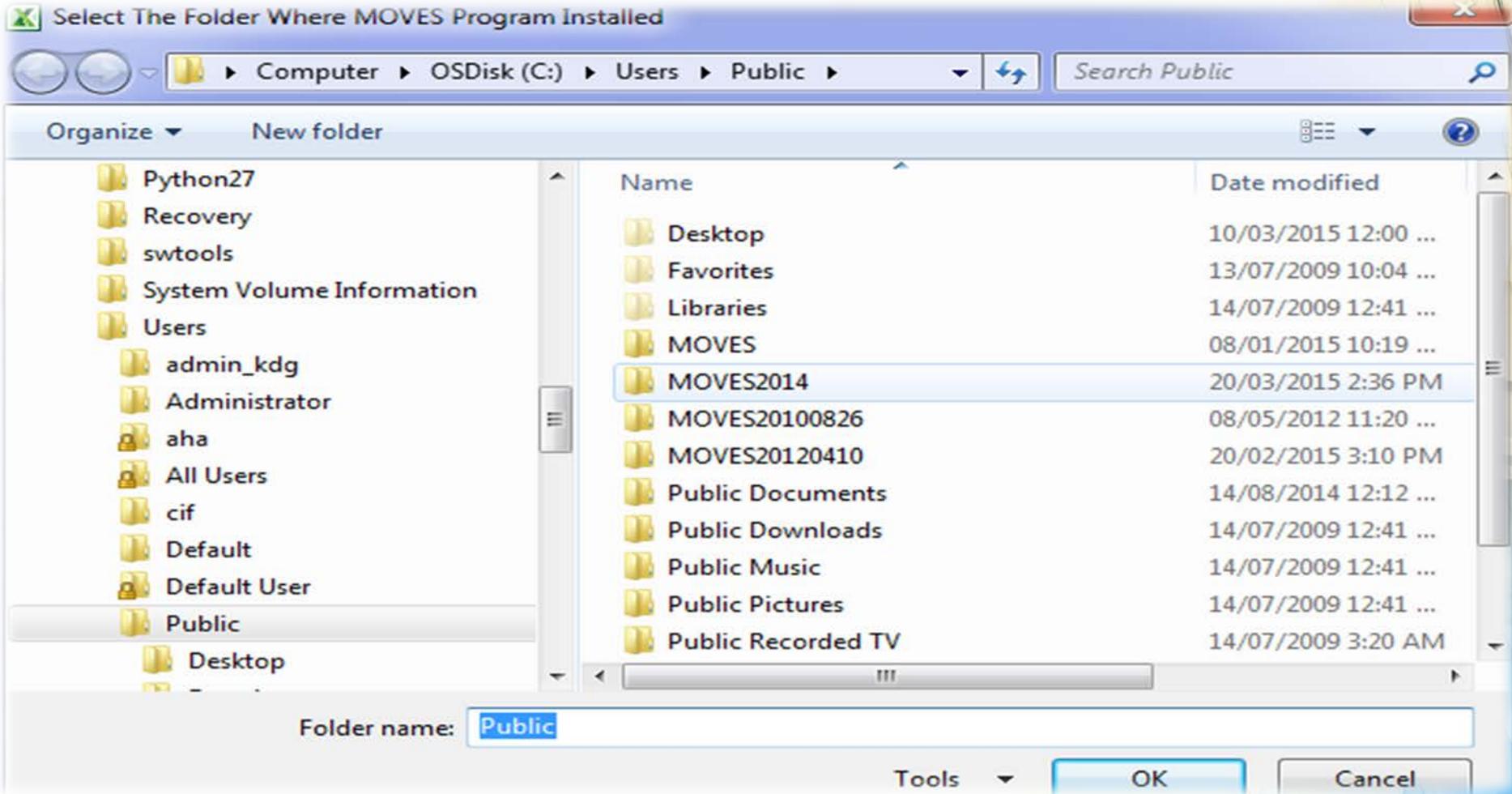
Running & Post- Processing

Automatic Post-Processing

Step1: Prepare & Run MOVES Utility Tool

1	MOVES Utility Tool	Run MOVES Utility
2	<u>Model Information</u>	<u>Enter Model Information</u>
3	Study Name	EI2015
4	Model Type	MOVES2014
5	Study Type	Roadway_Project
6	State	NY
7	County	New York County
8	Model Year	2031
9	Month	January
10	Day Type	weekday
11	Emission Scenario	am
12	Number of Free Flow Speeds to be Modelled	3
13	Number of Intersections to be Modelled	1
14	Number of Road Types to be Modelled	4

Step2: Select MOVES Installation Folder



Step3: Select Post-Aggregation Options

MOVES Input File Generator

Select Options for Final Emission Rate Output:

- Option1: MOVES Source Use (Vehicle) Type
- Option2: 16 SCC (MOBILE6.2) Classes
- Option3: FHWA Class 1-3; FHWA Class 4; FHWA Class 5-7; and FHWA Class 8-13
- Option4: FHWA Class 1-3; FHWA Class 4-7; and FHWA Class 8-13
- Option5: FHWA Class 1-3; FHWA Class 4; and FHWA Class 5-13
- Option6: FHWA Class 1-3 and FHWA Class 4-13
- Option7: FHWA Class 1; FHWA Class 2; FHWA Class 3; FHWA Class 4; FHWA Class 5-7; FHWA Class 8-13

Ok

Cancel



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MOVES Utility Tool - Example

- am
- md
- on
- pm
- CreateInputDatabase.BAT
- MOVESUtility_V2014.0.3.xlsm
- RunMOVES.BAT
- RunPostProcessor.BAT
- test2_cust_14_all_Roadway_Project
- weight.csv

- fuelFormulation.xls
- fuelSupply.xls
- fuelUsageFraction.xls
- link1.xls
- linkSourceTypeHour.xls
- opModeDistribution1.xls
- sourceTypeAgeDistribution.xls
- test2_cust_14_all_Roadway_Project_2031_January_am.mrs
- test2_cust_14_all_Roadway_Project_2031_January_am.xml
- test2_cust_14_all_Roadway_Project_2031_January_am_EF.sql
- zone.xls
- zoneMonthHour1.xls
- zoneRoadType.xls

Run Specification File

Vehicles - Pre-Selected

Auto-Validation for Fuel-Vehicle Combination

Major Pollutants - Pre-Selected

Process Types Selection – Automatic

Chained Pollutants Selection – Automatic

Output Specifications - Automatic

Link	Free Flow Links – Average Speeds
	Approach Links – Operating Mode Distribution
	Departure Links – Adjusted Average Speeds
Source Type	Default - MOBILE6.2 Vehicle Count (MVCount)
Hour Fractions	User-Supplied - MOVES or MOBILE6.2

Age Distribution

MOVES Default / MOBILE6.2 Default

Custom Registration Distribution

Zone Month Hour

Default Data for the U.S. (No User Inputs)

Custom Domain - Min/Max Temperatures

Custom Domain – Rel. Humidity 6: & 15: LST

Fuel Properties

Default Data for the U.S. (No User Inputs)

User-Selectable Options for Canada

User-Supplied Option for Usage Fractions

AVFT

Normalized Default Fractions

OpMode Distribution

Offnetwork Links - Automatic

Approach Links – Normalized for Idling

Offnetwork

Automated Based on User Inputs

Other Tables for Custom Domain

SCCRoadTypeDist - Major Roads Only

Automatic Zone and ZoneRoadType Tables

Input Database

Run CreateInputDatabase.BAT First

Running MOVES

Then Run "RunMOVES.BAT"

Post-Processing

Auto-Generated Post-Processing Script

Run "RunPostProcessor.BAT"

Error Handling

Built-In Validation Process

User Experiences

CAL3QHCR and AERMOD

Roadway Environmental Assessment

Transit Facilities & Parking Lots

Canadian and the US Applications

Setup Time Comparable to MOBILE6.2



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Limitations & Future Works

Limitations & Future Works

Multiple Zones

Second-by-Second Drive Cycle

User-Defined Operating Mode Distribution

Improvements to Intersection Link Method

Add County Scale

- FHWA 2012, “An Introduction to MOVES: Project Level Modeling”, FHWA resource Centre, EPA Office of Transportation and Air Quality, 2012.
- EPA 2013, “Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas”, EPA Office of Transportation and Air Quality, November 2013.
- EC 2011, “Benzene in Canadian Gasoline: Effect of the Benzene in Gasoline Regulations”, Annual Report 2009, Environment Canada, August 2011.
- EPA 2014, “Official Release of the MOVES2014 Motor Vehicle Emissions Model for SIPs and Transportation Conformity”, Federal Register Vol. 79, No. 194, Tuesday, October 7, 2014 Rules and Regulations 60343.
- Skabardonis, A., and R. Dowling. “Improved Speed-Flow Relationships for Planning Applications”. In Transportation Research Record 1572, TRB, National Research Council, Washington, D.C., 1997, pp. 18-23.
- Statistics Canada. “Canadian Vehicle Survey report 2009”, Statistics Canada, Catalogue no. 53-223-X.

THANK YOU!

Q & A

Live Demonstration (*On Request*)

See Paper for Technical Details

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