NMIMT Training
Part 3
MySQL and Modifying the NCD

Harvey Michaels, OTAQ

International Emission Inventory Conference
Portland, Oregon
June 2, 2008
Modifying the NCD

- MySQL
- Graphic tools for MySQL
  - MySQL Query Browser (QB)
  - MySQL Control Center (CC)
- Structure and organization of the NCD
- Adding VMT
- Changing VMT
MySQL

- The NMI M County Database is in MySQL
- NMI M Output is in MySQL
- Documentation on your hard drive: `c:\MySQL\Docs`
- Web URL: [www.mysql.com](http://www.mysql.com)
- Worth understanding at least a little about it
- Put `C:\mysql\bin` in your path
MySQL Query Browser

- A handy utility for examining MySQL Databases and tables
- Can modify individual entries in tables.
- MySQL scripts superior because
  - Can quickly modify many entries
  - Provide a record of what you did
- See installation ReadMe.doc for installation and startup.
- Supported by MySQL
NMI M County Database (NCD)

- Tables are generally named in a way that suggests their primary key.
- Cryptic variables are decoded.
- Let's look.
Exercise 12. Experiment looking at the NCD using Control Center or Query Browser

- Click the database NCD20060201
- Click tables
- Drag tables into panel to the left
Structure of MySQL Databases

- C:\MySQL\data
- Each table consists of three files
  - .MYD - the data
  - .MYI - the index
  - .frm - the format
- So to copy a table you must copy three files.
Exercise 13: Add 2005 VMT to the BaseYearVMT table

- a. Make a copy of the database.
- b. Find out what years have VMT.
- c. Create a text file with 2005 VMT.
- d. Write a MySQL script to import the text file into the BaseYearVMT table.
- e. Run the MySQL script.
Ex. 13a: Make a copy of the NCD

- Copy NCD20060201 using Windows Explorer
  - Look in C:\mysql\data
- Rename the copy NCD20060201a
- Optional: Verify the copy exists using MySQLCC
  - Right click on Databases, Refresh
  - Verify that copy matches original
    - Table names, variables, number of records
- Optional: Verify using the command window
  - Type `MySQL`
  - Type `show databases;`
  - Type `use ncd20060201;`
  - Type `show tables;`
Ex. 13b: What years have VMT?

- Use MySQLCC to look at variables in BaseYearVMT
- Open command window
  - Type `MySQL`
  - Type `use ncd20060201a;`
  - Optional: Type `describe baseyearvmt;`
  - Type `select distinct baseyear from baseyearvmt;`
Ex. 13c: Create a BYVMT text file to import

- Create a folder: C:\NMI \ChangeNCD
- Create an Excel spreadsheet (call it NewBYV.xls) in this folder
- Put in the correct headings
- Fill in the values for vtype=1
- To get values for RoadType, mysql> select roadtype from hpmsroadtype;
- Enter \N (for null) for DataSourceId
- Save as tab-delimited text
- You could have created this text file with FoxPro, Access, Oracle, SAS, etc., etc.
Ex. 13d: Write a MySQL script to import the text file into the BaseYearVMT table

- In the ChangeNCD directory, create a new text file, and name it LoadBYV.sql
- This script will
  - add records if the primary key does not exist.
  - change records if the primary key does exist.
- It will work for every single table in the NCD.
Ex. 13d: Write the script (cont.)

In the script below, notice that

- We use a complete path for the infile
- Forward slashes separate directories
- The order of variables must exactly match the order in the text file. The heading line in the text file is ignored.
- "#" indicates a comment

```
# MySQL Script to alter BaseYearVMT table
use ncd20060201a;
load data
infile 'c:/NMIM/NMIM20050311/changencd/NewBYV.txt'
replace
into table BaseYearVMT
ignore 1 lines
(BaseYear,VClass,RoadType,FIPSCountyId,FIPSStateId,
DataSourceId,VMT)
;
```
Ex. 13e: Run the script to import the text file into the BaseYearVMT table

- Open a command window
- `cd c:\nmim\nmim20050311\changen`d
- Type
  ```
  MySQL -vvv < loadbyvmt.sql
  ```
  - The `-vvv` means verbose
  - Note that you can now run any MySQL script!
Ex. 14: Query the database

- We already did this in exercise 11b
- Verify that our data got added:
  - MySQL>select * from baseyearvmt where baseyear=2005;
Ex. 15: Export SCC table to a text file we can read into Excel, SAS, Oracle, etc.

- Write a script,
  
c:\nmim\nmim20050311\changeNCE\ExportSCC.sql

  use NCD20050318;
  select sccid, scc, segment, sccdesc
  into outfile 'c:/nmim/nmim20050311/changeNCD/scc.txt'
  from scc;
Ex 15 (cont.): Run the script

- From command prompt
  C:\nmim\nmim20050311\changeNCD>
- Type
  MySQL < exportscc.sql
- Open scc.txt using Excel