GeoMedia

Data Integration and Validation

Transforming an External Dataset for Internal Use
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This Tutorial

Tutorial Objective
The next step beyond exchanging data and viewing it is to put it to work for analysis and other insights. In order to do that, the data needs to be transformed so it can be merged with existing data or made understandable by the analysis algorithms that will process it.

Schema Remodeler is a utility that facilitates the migration of data from one format to another. Schema Remodeler stores and retrieves user-defined mappings and transformations in a specified Transformation Warehouse. With Schema Remodeler, data can be read from one or more GeoMedia supported format(s), transformed, and written to any GeoMedia read-write supported format, or supported export format.

This tutorial serves as an introduction to the Schema Remodeler utility.

Tutorial Data Set
The exercises outlined in this tutorial make use of TIGER linear shapefile data.

Tutorial Text Conventions
There are several conventions used throughout the tutorial:

- Ribbon bar items are shown as: On the Aaa tab, in the Bbb group, click Ccc.
- Dialog box names, field names, and button names are depicted using Bolded Text.
- Information to be entered, either by selecting from a list or by typing, is depicted using Italicized Text.

Tutorial Prerequisites
There are no prerequisites for making use of this tutorial; however, having a basic understanding of the GeoMedia Desktop will be helpful in expediting the execution of certain steps within this tutorial.
Section 1: Transforming an External Dataset for Internal Use

Section Objective
This section will introduce you to Schema Remodeler. You will learn about:

- Creating a transformation warehouse.
- Using transformations.
- Attribute mapping with Schema Remodeler.

Tools Used
Schema Remodeler Utility and GeoMedia Professional.
Exercise 1: Schema Remodeling

Objective:
Remodel an externally supplied dataset to conform to organizational standards so that it can be incorporated into the main database where it can be used for further analysis and decision support.

Task 1: Create a Transformation Warehouse and Select Source and Target Connections.

1. Find Schema Remodeler in the Start Menu.
   Windows 7: All Programs > Hexagon GeoMedia Desktop 2015 > Utilities > Schema Remodeler.


3. Select the default File Name of NewTransformation.dwt

4. Save it to C:\Fusion\Lessons\Lesson 1 Transform an External Dataset for Internal Use.
5. Select the **Sources** tab.

6. Select the **New** button at the bottom of the **Schema Remodeler – NewTransformation.dwt** dialog.

7. The **New Connection** dialog is now displayed.

8. Select **ArcView** from the **Connection type** field.

9. In the **Connection name** field, type **ArcView TIGER 2009**.
10. Browse for the folder C:\ Fusion\Lessons\Lesson 1 Transform an External Dataset for Internal Use\Shape.

11. Select the **OK** button on the **New Connection** dialog.

12. Select the **Target** tab.

13. Select the **New Connection** button.

14. In the **Connection name** field, type in *Buncombe*. 
13. In the **Access Database file** field select the **Browse** button and select  
C:\Fusion\Lessons\Lesson 1 Transform an External Dataset for Internal Use\BuncombeCounty.mdb

14. Select the **OK** button on the **New Connection** dialog.
Task 2: Select Source and Target Feature Classes

1. Select the Feature Sets tab and rename the default Feature Set Name of NewFeatureSet to TIGERRoad.

2. Select ArcView TIGER 2009 in the Source Connection field.


4. Select TIGER_Road in the Target Feature Class field.

5. Click the icon in the Transformations field.

6. Select the Add… button.

7. Select Attribute Filter.

8. Type the SQL expression of ROADFLG='Y' in the Attribute Filter frame Filter Expression field.

9. Select the Validate button.
10. The message of *Transformations are successfully validated* will appear if the SQL expression is typed in correctly.

![Schema Remodeler](image.png)

11. Click **OK/OK** on the **Transformations** dialog.
Task 3: Attribute Mapping

1. Click the **Attribute Mapping** field and then click the icon next to the **Not Mapped** field.

2. The **Attribute Mapping** dialog will now appear.

3. Click the **Find Exact** button on the bottom of the **Attribute Mapping** dialog.

4. The **Source Field Name** attributes of **SMID** and **Geometry** will be mapped to the corresponding **Target Field Name** entries.

5. Scroll through the **Attribute Mapping > map source fields to target fields > Source Feature class**: field and select the **Attribute Name** **STATEFP** attribute.
6. Scroll through the Target feature class and select the StateFIPSCode attribute in the Attribute Name list.

7. Select the icon to move the mapped Source feature class and Target feature class attributes to the Map source fields to target fields area below.

8. Confirm that the Source feature class field of STATEFP and the Target feature class field of StateFIPSCode are matched and moved to the entries below.
9. Follow steps 30 through 34 and create the following Source and Target attribute matches with the following inputs.

<table>
<thead>
<tr>
<th>Source Attribute</th>
<th>Target Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>COUNTYFP</td>
<td>CountyFipsCode</td>
</tr>
<tr>
<td>ZIPL</td>
<td>ZipCodeLeft</td>
</tr>
<tr>
<td>ZIPR</td>
<td>ZipCodeRight</td>
</tr>
<tr>
<td>FEATCAT</td>
<td>FeatureCategory</td>
</tr>
<tr>
<td>DIVROAD</td>
<td>DividedRoad</td>
</tr>
<tr>
<td>FULLNAME</td>
<td>RoadName</td>
</tr>
<tr>
<td>LFROMADD</td>
<td>LeftAddressFrom</td>
</tr>
<tr>
<td>LTOADD</td>
<td>LeftAddressTo</td>
</tr>
<tr>
<td>MTFCC</td>
<td>TIGERCode</td>
</tr>
<tr>
<td>RFROMADD</td>
<td>RightAddressFrom</td>
</tr>
<tr>
<td>ROADFLAG</td>
<td>RoadFlag</td>
</tr>
<tr>
<td>RTOADD</td>
<td>RightAddressTo</td>
</tr>
</tbody>
</table>

Constant Value = 'Buncombe County'  Jurisdiction
10. When finished it should look like this:

![Attribute Mapping dialog]

11. When finished click OK on the Attribute Mapping dialog.

12. Select File > Save Transformation Warehouse As and save the .dwt to C:\Fusion\Lessons\Lesson 1 Transform an External Dataset for Internal Use\Buncombe.dwt.

13. Select the Execute button.
14. Processing messages will appear in the bottom left, and the log file results will appear when the process is finished.

15. Exit the Schema Remodeler dialog.
A log file called `SR.log` is created in the `C:\Warehouses` folder as shown below:

```
******************* Schema Remodeler Log File ********************************
Input Connection 1:      ArcView TIGER 2009
Type:                    AV.GDatabase
Location:                C:\Fusion\Lessons\Lesson 1 Transform an External Dataset for Internal Use\Shape

Input Connection 2:      TransformationWarehouse
Type:                    Access.GDatabase
Location:                C:\Fusion\Lessons\Lesson 1 Transform an External Dataset for Internal Use\Buncombe.dwt

Output Connection:       Buncombe
Type:                    Access.GDatabase
Location:                C:\Fusion\Lessons\Lesson 1 Transform an External Dataset for Internal Use\BuncombeCounty.mdb
Commit Interval:         500

Transforming:            TIGERRoad to Buncombe.TIGER_Road
Table:                   ArcView TIGER 2009.tl_2009_37021_edges
Records Returned:        37445

Processing TIGERRoad: Inserting new records (500/37445), Errors: 0
Processing TIGERRoad: Inserting new records (1000/37445), Errors: 0
Processing TIGERRoad: Inserting new records (34000/37445), Errors: 0
Processing TIGERRoad: Inserting new records (34500/37445), Errors: 0
Processing TIGERRoad: Inserting new records (35000/37445), Errors: 0
Processing TIGERRoad: Inserting new records (35500/37445), Errors: 0
Processing TIGERRoad: Inserting new records (36000/37445), Errors: 0
Processing TIGERRoad: Inserting new records (36500/37445), Errors: 0
Processing TIGERRoad: Inserting new records (37000/37445), Errors: 0
```

```
16. **Exit Schema Remodeler** (**Save** any unsaved changes).
Task 4: Examine the Results

1. Open GeoMedia and examine the TIGER_Road data.
   Open GeoWorkspace:
   C:\Fusion\Lessons\Lesson 1 Transform an External Dataset for Internal Use\Schema Remodeler.gws

Generate a Schema Report

2. Select Manage Data tab > Schemas > Report Schema
3. Select Buncombe County Connection
4. Select Tiger_Road Feature Class
5. Click Report

6. Observe:
The fields that were mapped from the Shapefiles with Schema Remodeler along with the geometry fields.
7. Close when done.

**Open a New Data Window**


9. Name it “Remodeled Tiger Data”.

10. Select Tiger_Road feature class in Buncombe County.

11. Click OK
12. Observe:

All Jurisdictions are Buncombe County.

All RoadFlag values are set to 'Y'.

Other attributes have their data values mapped across from the source data as you defined.

13. Close the GeoWorkspace when done.