

CTAMS

Geomeia User Tool Documentation

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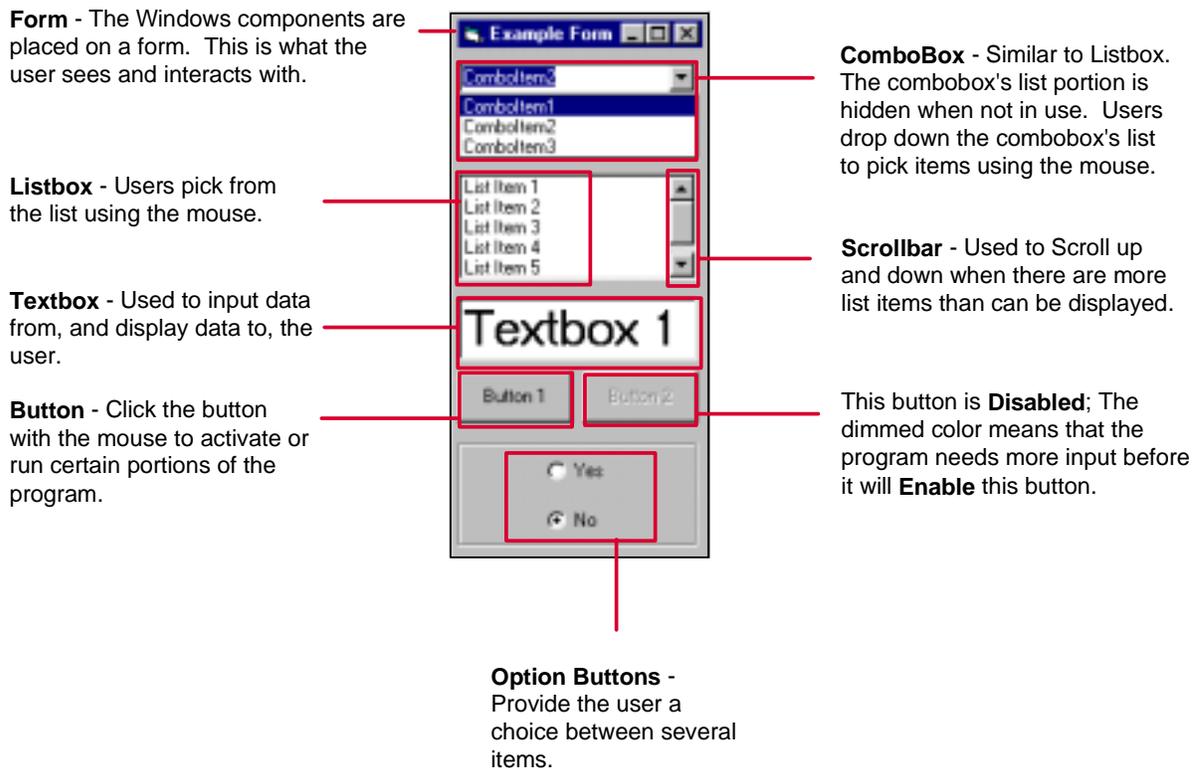
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INTRODUCTION TO WINDOW TERMINOLOGY

Many of the user instructions contained in this documentation refer to the user interface forms and dialog boxes, which send and receive information between the program and the user. Figure 1 illustrates the different Windows components (called controls) referred to in these user instructions. Disabled controls appear “dimmed” to the user.

Figure 1. User Interface Component Reference.



WAREHOUSE CONNECTION WIZARD

The Warehouse Connection Wizard provides users with access to Geomedia warehouses without requiring knowledge of warehouse location and type. Without the WAREHOUSE CONNECTION WIZARD users must know the exact location of a warehouse, in addition to the type of storage format the warehouse is maintained. Certain warehouse types (i.e. MGE, MGSM) require special procedures to be followed in order to connect as a data warehouse. The WAREHOUSE CONNECTION WIZARD was created to alleviate these problems by automating much of the connection procedure. Table 1 contains a comparison of each workflow required to connect to a warehouse using the traditional Geomedia method versus the WAREHOUSE CONNECTION WIZARD.

Table 1. Workflow Comparison of Connection Methodologies.

Geomedia Methodology	Warehouse Connection Wizard
Warehouse>New Connection	IowaDOT>Connect to Warehouse
Specify Type of Connection	Specify Warehouse
Define Connection Name	Make Connection
Define Path to Warehouse File	
Define any Connection Filter	
Specify Whether Connection is Writable	
Make Connection	

In addition to automating the procedure, information regarding the contents of the warehouse can also be accessed using the WAREHOUSE CONNECTION WIZARD. The basic interface is shown in Figure 1.

Figure 1. WAREHOUSE CONNECTION WIZARD Basic Interface



Using the Warehouse Connection Wizard

The basic workflow for using the WAREHOUSE CONNECTION WIZARD consists of:

- Activate WAREHOUSE CONNECTION WIZARD from IowaDOT menu.
- Select warehouse to connect to.
- Click on the make connection button to connect to warehouse.
- Use the Legend menu in Geomedia to add features from warehouse.

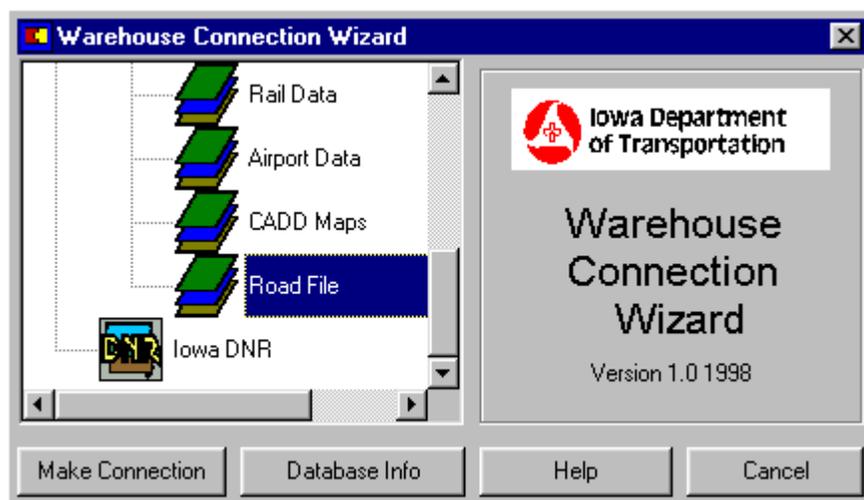
Activating Warehouse Connection Wizard in Geomedia

From within an active Geomedia Workspace choose >IowaDOT>Connect to Warehouse to activate the WAREHOUSE CONNECTION WIZARD. The interface will appear in the middle of the screen. Each general connection category appears as an icon followed by a description.

Selecting a Warehouse for Connecting

Using the mouse, double-click on the name of a general category or its icon to reveal individual warehouse connections. Single-click on any warehouse name or its icon to select it for connection. Doing so will enable the *Make Connection* button on the lower left corner of the interface. Figure 2 shows the WAREHOUSE CONNECTION WIZARD interface with a warehouse selected for connection and the *Make Connection* button enabled.

Figure 2. Selection of Warehouse for Connection



Making the Connection

Once a data warehouse is selected, clicking the *Make Connection* button causes Geomedia to create the data warehouse connection. A connection will not be made to a warehouse already open in the existing Geoworkspace. The WAREHOUSE CONNECTION WIZARD will deactivate when the connection is made.

Add feature classes from the warehouse to the map window following normal directions.

The Database Info Button

Once a data warehouse is selected, click the *Database Info* button to view more information regarding the warehouse. Available information includes:

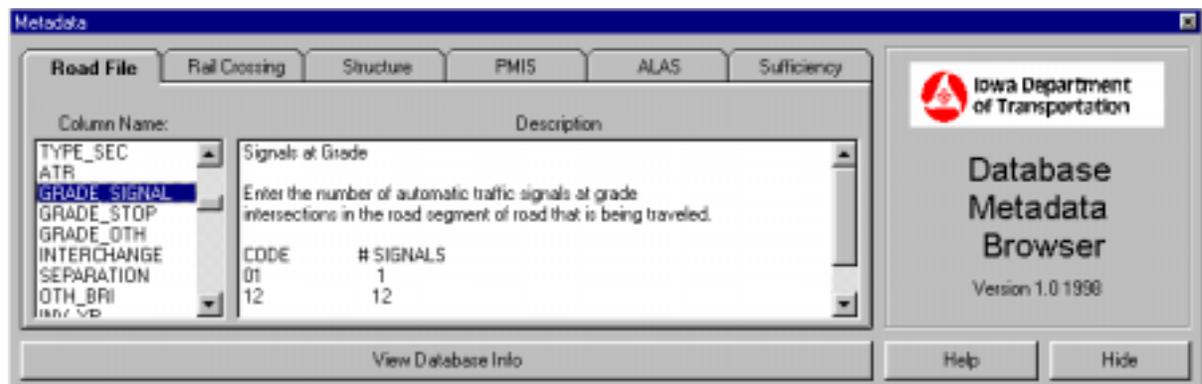
- What feature classes are available in this warehouse.
- When the warehouse was created.
- When individual feature classes were created.
- Who is responsible for maintaining the warehouse data.
- Any accuracy information as applicable.
- Other information as necessary.

DATABASE METADATA BROWSER

The Database Metadata Browser allows users online access to database column information. The Database Metadata Browser tool was created to help users to determine what the name of a column in the database signifies or what a particular code in a column represents. The basic interface is shown in Figure 3.

For example, the Road File column RTE_IND stands for 'ROUTE INDICATOR' and the number 3 represents 'MUNICIPAL'.

Figure 3. Database Metadata Browser Interface



Using the Database Metadata Browser

The basic workflow for using the Database Metadata Browser consists of:

- Activate Database Metadata Browser from IowaDOT menu.
- Select appropriate database tab.

Activating Database Metadata Browser in Geomedia

From within an active Geomedia Workspace choose *>IowaDOT>View Database Metadata* to activate the Database Metadata Browser. The interface will appear in the middle of the screen. The Database Metadata Browser is a floating toolbar and may remain open in standby mode as long as Geomedia is running.

Viewing Column Information for a Database

A single tab on the Database Metadata Browser interface represents each database table with column information available. A single-click on the appropriate tab allows the user to view information regarding a particular database. Figure 3 shows database information being

accessed for the Road File, with specific information being displayed for the GRADE_SIGNAL column from the Road File.

To change which column the *Description Box* is describing, single-click on any line in the *Column Name* list box.

MILEPOST QUERY TOOL

The Standard Query Language (SQL) query that must be written to select a series of segments referenced by milepost is rather involved. An example of such a query to select all the Pavement Sections between mileposts 106 and 113 on interstate routes 35 follows:

```
Select * from PMIS where ST_RTE = "0035" and BEG_MILE <= 113 and END_MILE >= 106
```

The Milepost Query Tool provides users the ability to easily select roadway sections referenced by milepost, without having to understand or learn the SQL commands necessary to run the query. The basic interface is shown in Figure 4.

Figure 4. Milepost Query Tool Interface



Using the Milepost Query Tool

The basic workflow for using the Milepost Query Tool consists of the following:

- Activate Milepost Query Tool from IowaDOT menu.
- Select the query route.
- Select the beginning and ending mileposts.
- Select the database to query.
- Execute the search query.

Activating Milepost Query Tool in Geomedia

From within an active Geomedia Workspace choose >*IowaDOT*>*Query Segments by Milepost* to activate the Milepost Query Tool. The interface will appear in the middle of the screen.

Selecting the Query Route

Users select the query route by clicking on the *Route* combobox located near the top of the interface. All state primary system routes appear in the list. Users can type the route name directly or use the mouse to find the desired route. Use leading zeroes when entering the route number (see Figure 4).

Entering the Beginning and Ending Mileposts

To enter the beginning milepost, use the mouse to highlight the 000.00 in the *Begin Milepost Textbox*. Users need not enter the decimal distance if the desired milepost is a whole number. For example, if the beginning milepost is 5, the user does not need to enter 5.00, just 5. Repeat this process to enter the ending milepost. Please note that the ending milepost must be greater than the beginning milepost for the query tool to allow the query to be executed.

To select the entire route, do not change any of the beginning or ending milepost information.

Selecting the Database to Query

Before a query can be executed a database must be selected. A list of DOT GIS databases referenced by milepost is located at the bottom of the interface (see Figure 4). Select one of these databases using the mouse to click the option button next to the database.

Executing the Database Query

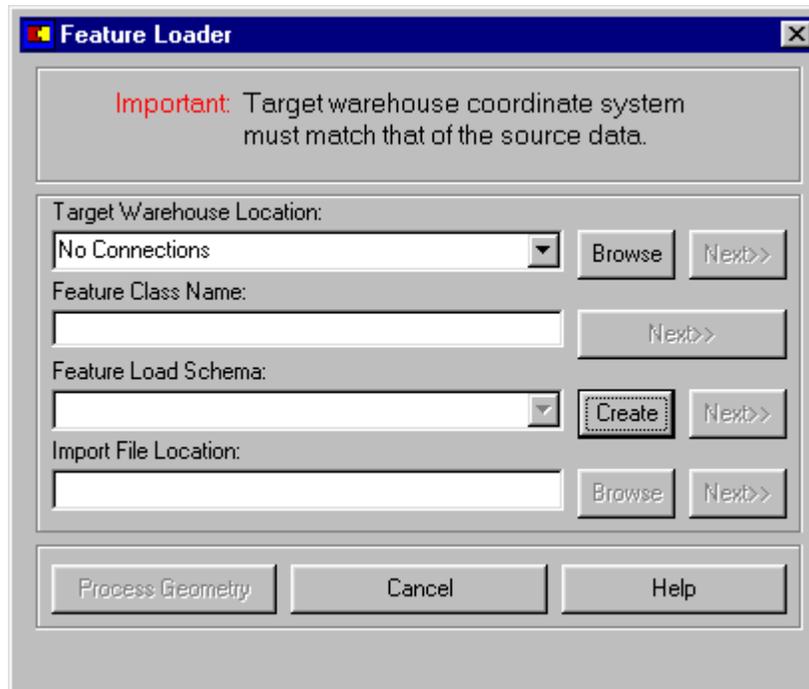
Once the user has selected a route to query, entered the beginning and ending mileposts, and chosen the database to query, the query may be executed by clicking the *Search* button with the mouse.

The query will be performed and the results will be added as a new map layer in the Geoworkspace. The query may be saved with the Geoworkspace or inserted into an Access Warehouse following the appropriate Geomedia instructions.

FEATURE LOADER

The Geomedia environment does not support the ability to import GPS and other feature data for display on a map. While not accessible to users, the Geomedia software does contain functionality to allow importing of geometry features. Feature Loader was written to access this functionality. The initial startup interface is shown in Figure 1.

Figure 1. Feature Loader Main Interface



Feature Loader processes point, line, or polygon features, along with associated attributes, stored in a text file, and imports these data into an Access Warehouse, which can be displayed as a legend entry in Geomedia. The format of the import text file is explained to the Feature Loader software using a Feature Schema file. The Feature Schema file is defined prior to importing using Feature Loader's Feature Schema Setup. Before any text file can be imported into Geomedia, a Feature Schema must exist to explain to the software how the text file is formatted. Once a Feature Schema is defined for a particular text file format, it can be used to import any text file stored in that format.

Using Feature Loader to Define a Feature Schema

A Feature Schema consists of two separate components:

- A Geometry Schema specifying the location of coordinate information in the Import Text File.

- A Database Schema specifying the location of any attribute information in the Import Text File.

The basic workflow for using Feature Loader to define a Feature Schema is as follows:

- Activate Feature Loader from the IowaDOT menu.
- Determine type of schema to create (point, line, and polygon).
- Create Feature Schema, using Feature Loader's Feature Schema Setup Interface, describing the format of the import text file.
- Save Feature Schema.

Creating the Feature Schema

To create a Feature Schema, activate the Feature Loader in Geomedia by using *IowaDOT > Import Geometry From Text File* located on the Geomedia menu bar. The main Feature Loader screen will appear. To create a Feature Schema click the *Create* button located halfway down the form.

The Feature Schema Setup form is shown in Figure 2. A user cannot begin editing any part of the form until the *New* button is clicked. Once the user clicks *New*, the Feature Schema ID textbox will become editable. Enter a name for the new schema to be created. The name can be up to 50 characters in length and cannot contain spaces.

Figure 2. Feature Schema Setup Interface

Choose a name that describes the type of features that the schema will be used to create.

For example, use `PC_ALAS_Node_Schema` to describe a schema for importing PC-ALAS node locations.

Defining the Geometry Schema

A schema describing line geometry contains different information than a schema describing point geometry. The Feature Schema Setup form contains input textboxes necessary for every type of geometry. For these reasons, not every textbox on the Feature Schema Setup form will be filled in. The software will direct the user to fill in the appropriate information by highlighting the required textboxes of the form, based on the type of geometry to be imported.

Specifying Geometry Type

Users specify the type of geometry to be imported by clicking on the appropriate geometry option button in the Geometry Type section of the Feature Schema Setup form. Clicking on one of these option buttons causes the appropriate textboxes on the remaining areas of the form to become active.

Point Import Information

For point geometry, the import text file can be fixed-width **or** comma-delimited. Users specify how the file is formatted by clicking on the appropriate option button in the *Point Import Information* section of the Feature Schema Setup.

Vertex Information

The row number and position of the information concerning the number of vertices a line or polygon contains is entered in the Vertex Information area of the form. This information is only applicable for line or polygon geometry.

X and Y Coordinate Information

Users input the row and position in the text file where information concerning the x and y coordinate information is located for each feature.

Saving the Geometry Schema

Once all the necessary inputs are entered for a particular geometry type, the *Save Schema* button will become active. Clicking this button will save the schema for the geometry to the schema database. Additional attributes may now be defined for the geometry.

Defining the Database Schema

The Feature Schema is also used to define the type and location of any additional attribute information contained in the Import Text File.

Using the ALAS Node example, the Import Text File contains additional data such as the node, county, and township numbers for each node.

These additional data are specified using the Database Schema Setup activated by clicking the *Attributes* button. The *Attributes* button is enabled once the geometry schema is saved. Clicking the *Attributes* button lowers the Database Schema form shown in Figure 3.

Figure 3. Database Schema Setup Interface

Column Name	Data Type	Row	Beg Column	End Column
<input type="text"/>				
<input type="text"/>				

Buttons: New, Add, Finish, ^Close^

Entering Column Name Information

For each attribute that will accompany geometry, a corresponding column must exist in the warehouse database. Columns are defined by first clicking the *New* button located at the lower left of the form.

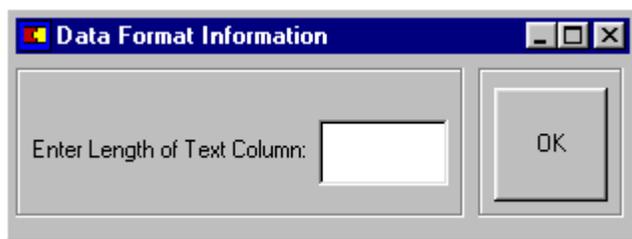
Clicking the *New* button enables the Column Name textbox for editing. Users enter the column name by clicking on the textbox and typing the name. Spaces should not be entered

into the Column Name textbox. Doing so will cause undesired results in code execution. Column names can be up to 50 characters in length.

Entering Column Data Type Information

Users must specify the type of data that each column will contain. This is done using the Data Type combobox. The Data Type combobox lists the available column data types. Choosing the 'Text' data type will prompt the user for further input as to the number of text characters the column can hold. Figure 4 shows the Data Format Information form.

Figure 4. Text Format Input Form.



Entering Column Data Position Information

For each column, the user must enter the row number, beginning position, and the ending position of the data to place in the column. For comma-delimited point geometry files, the column row, beginning, and ending positions cannot be entered. Instead the user must input the columns in the order they are delimited in the text file. Before comma-delimited point geometry is processed, the user will be prompted to specify which columns contain the x and y coordinate information.

Adding the Column Schema to the Geometry Schema Database

Once the appropriate column information is entered on the form, the *Add* button will become enabled. Clicking the *Add* button will append the column information to the Database Schema. The information previously entered will appear in the listboxes at the bottom of the form for reference. The Column Data textboxes at the top of the form will be cleared. Add additional column information by repeating the previous process.

Once all columns are added, click the *Finish* button to save the entire schema, which now consists of a Geometry Schema and a Database Schema. These two schemas comprise the Feature Schema.

Once the schema is saved it is available for importing the text files defined by the schema. Importing the data is described in the next section.

Importing Geometry Using the Feature Loader

Prior to importing any geometry from a text file into Geomedia the following conditions must exist:

- A valid schema must exist that defines the format of the import text file. (See previous section on creating an import schema.)
- A warehouse must exist that can store the imported data. The warehouse must have a Warehouse Coordinate System matching the coordinated system of the import data file.

Follow user instructions listed in Geomedia Help for defining the proper coordinate system of the target warehouse.

If these conditions are met, Geometry is imported using the following basic workflow:

- Activate Feature Loader from the IowaDOT menu.
- Determine type of geometry to create (point, line, or polygon).
- Set target warehouse for storing new geometry.
- Specify Feature Schema to use to import text data.
- Specify the name of the new feature to add to the warehouse.
- Process geometry import file.

Setting the Target Warehouse

Set the target warehouse by choosing an already open warehouse connection from the Target Warehouse combobox, or if no connections are available, the combobox will display “NO CONNECTIONS”. If no connections are available, click the *Browse* button to open a warehouse connection. The warehouse must have read/write access in order for the software to import the geometry.

Setting the Feature Name

The new feature to be imported must be given a name unique to the target warehouse. The Feature Loader software will notify the user if the name entered is not unique. The name cannot contain spaces. Using spaces will produce an error in the software.

Once an acceptable name is entered, the *Next* button will enable. Click the *Next* button to proceed to the next section of the form.

Setting the Feature Load Schema

All geometry that will be imported from a text file must have a valid schema defining how to import the text data. All available schemas are listed in the Feature Load Schema combobox. Click on the appropriate schema to set the import schema. Doing so will enable the *Next* button. Click the *Next* button to proceed to the Import File Section of the interface.

Setting the Import File Location

Set the import file location by clicking the *Browse* button next to the import file textbox. Once the file location is specified, the *Next* button will enable. Click the *Next* button to activate the *Process Geometry* button.

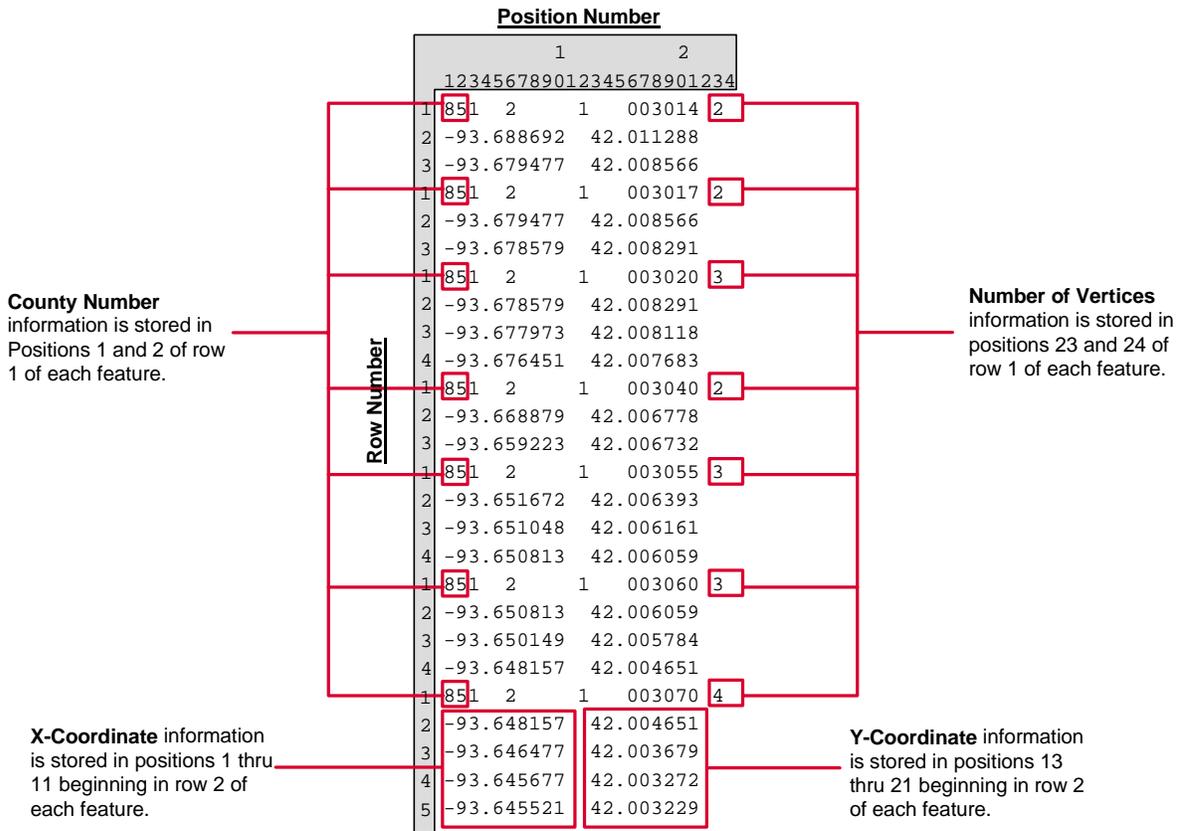
Processing the Geometry Text File

To process the geometry, click the *Process Geometry* button located at the bottom of the Feature Loader interface. A progress bar will show geometry import progress. When the file is finished, add the new feature to the map legend following Geomedia's instructions for adding features to the map.

EXAMPLE 1 – SCHEMA SETUP AND IMPORTATION OF LINE FEATURES

This example will illustrate how to setup a schema and import line features from a text file. The text file for this exercise comes from an MGE ASCII Unload of Iowa DOT primary road data. Following the previously discussed workflow, a Feature Schema must be created to describe the format of the Import Text File to the Feature Loader import software. A sample from the text file appears in Figure EX1.

Figure EX1. Import Text File Format



Creating a Feature Schema

After starting up Feature Loader in Geomedia, click the *Create* button to activate the Feature Schema Setup screen.

Step 1. The first step necessary is to define the schema name. Click the *New* button and Enter 'Primary_Rd_Schema' into the Schema Name box. When finished, click the *Set* button.



Step 2. Select the type of geometry the schema file will define. Click the *Line Geometry* option button in the Geometry Type box. Doing so will cause the appropriate textboxes needed for inputting line Geometry Schema information to enable.



Step 3. Fill out the Vertex Information box, specifying where row and column positions are located in the text file.

In the text file, the number of vertices is located at positions 23 and 24. In addition, the x and y coordinate information begins on row 2 of the text file, with the x coordinate extending from position 1 to position 11 and the y coordinate extending from positions 13 to 21. Once all the necessary boxes are filled the *Save Schema* button will enable.



Step 4. Save the Geometry Schema and proceed to add feature attributes by clicking the *Save Schema* button. Doing so will enable the *Attributes* button. The Database Schema dropdown form will lower when the *Attributes* button is clicked (see the following figure).



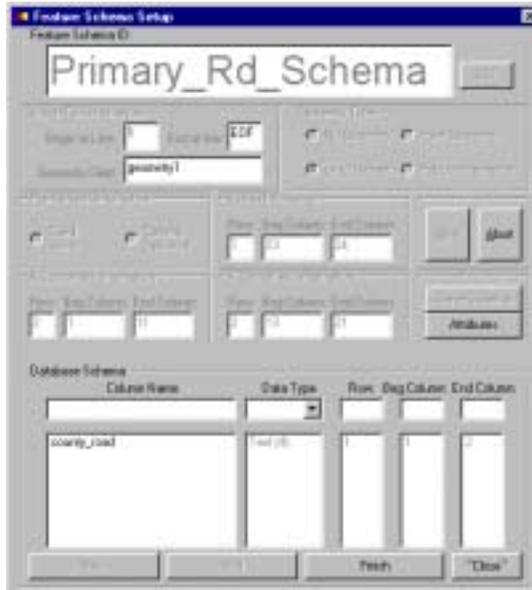
For this example, the text file contains additional county and route information along with the geometry coordinate information. The county and route information must be specified in the Database Schema dropdown form in order for the county and route column to be setup in the database. To add the county column, first click the *New* button in the lower left corner of the dropdown form.

A blinking cursor will appear over the Column Name textbox. Enter 'County_Number' in this area. The data type of the county number column is to be a text string of length 4 characters. Use the Data Type pulldown to set the column type to 'Text'. The Data Format Information form will appear to input the length of the text field. Enter 4 here to represent 4 characters.



Enter the row number of the data along with the beginning and ending column positions in the appropriate textboxes. For this example, the county number information is located in columns 1 and 2 of row 1, therefore, '1', '2', and '1' need to be entered in the respective textboxes.

Once all the required textboxes have data, the *Add* button will enable. Click the *Add* button to add the county field to the Database Schema. The data added to the schema will appear in the listboxes below the Column Input line.



Repeat the above process to add a column called 'Route' having a length of 6 characters. The row number for the route data is 1, and the positions range from 16 to 19. After clicking the *Add* button to add the final column, click the *Finish* button to complete the Database Schema.

This completes the schema creation component of Example 1.

Importing Geometry Using an Existing Feature Schema

Start Feature Loader in Geomedia.

Step 1. Set the target warehouse to receive the import data. Click the *Browse* button to set the target warehouse to 'C:\warehouses\roadtest.mdb'.



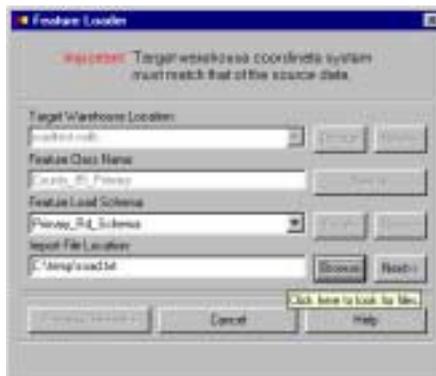
Step 2. Enter a name for the new Feature Class. In the textbox type 'County_85_Primary'. Click the *Next* button when finished.



Step 3. Specify which schema to use for importing the feature. Click the Feature Load Schema combobox and set the schema to 'Primary_Rd_Schema'. When finished, click the *Next* button.



Step 4. Specify the location of the Import Text File. Click the *Browse* button to set the Import Text File location to 'C:\temp\road.txt'. When finished click the *Next* button.



Step 5. Process the Import Text File by clicking the *Process Geometry* button. When the processing is finished, the following form appears:



This completes the Feature Load component of Example 1.