SAFE SOFTWARE

Example

Restructuring AutoCAD Map 3D Object Data with FME

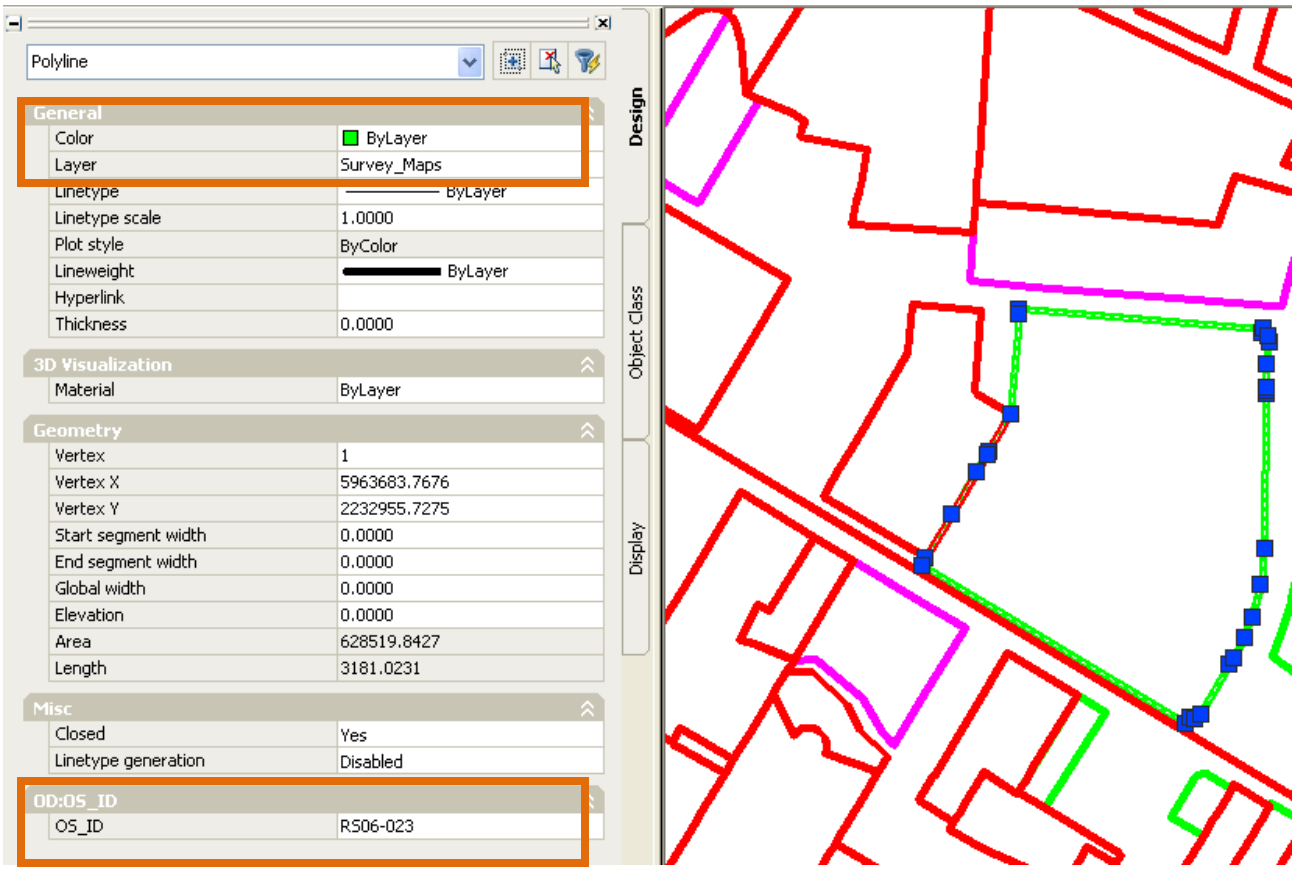
Overview

Restructuring AutoCAD Map 3D object data into the exact data model you need can be very challenging. It often requires workarounds, repetitive tasks and manual steps that can be time-consuming, difficult and inefficient. With FME 2008, you can eliminate these challenges. FME helps you quickly and easily convert and restructure your Map 3D object data so this valuable information can be accessed and used by anyone who needs it.

This example highlights a common customer problem related to Map 3D object data restructuring. We'll examine how FME was used to address this data model transformation challenge.

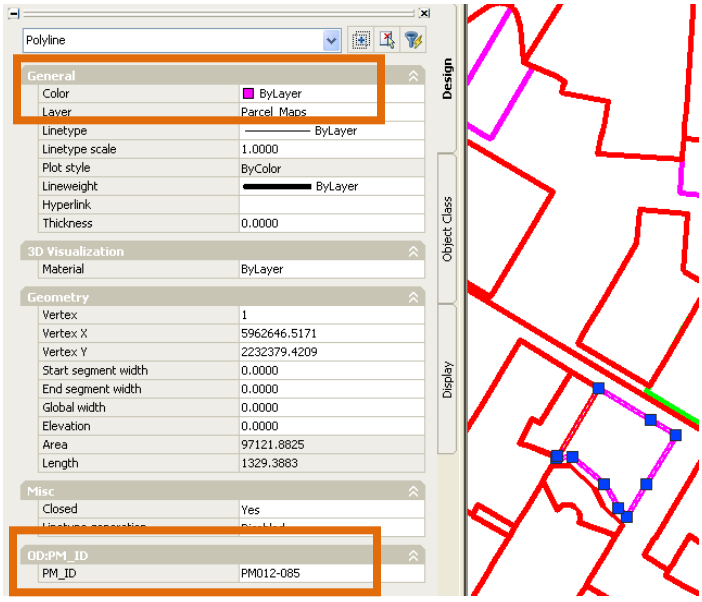
The Problem

In this example, the customer had a completed drawing with three types of recorded map polygons (survey, parcel and subdivision). When the polygons were initially created, they were made with an object data table that was named according to the record map type, as depicted in the following images:

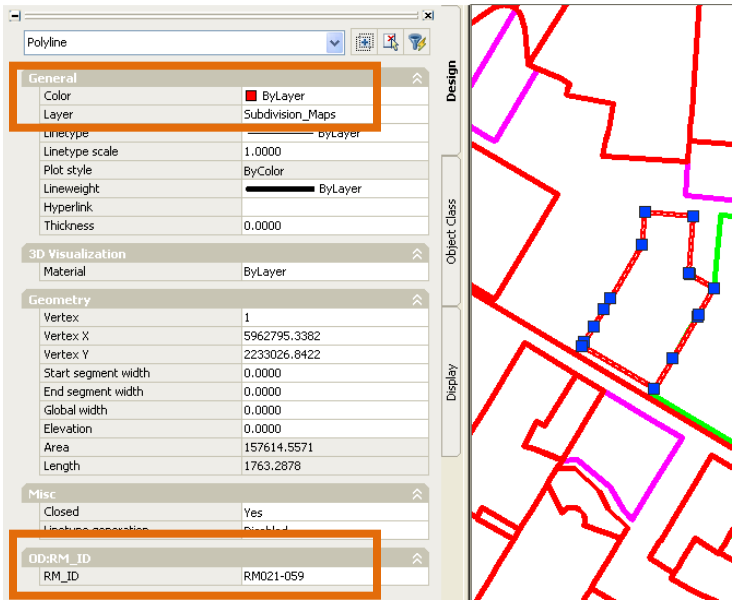


As highlighted in orange above, survey maps had an object data table named OS_ID with a data field called OS_ID.

Authored by: California CAD Solutions



As highlighted in orange above, parcel maps had an object data table named PM_ID with a data field called PM_ID.



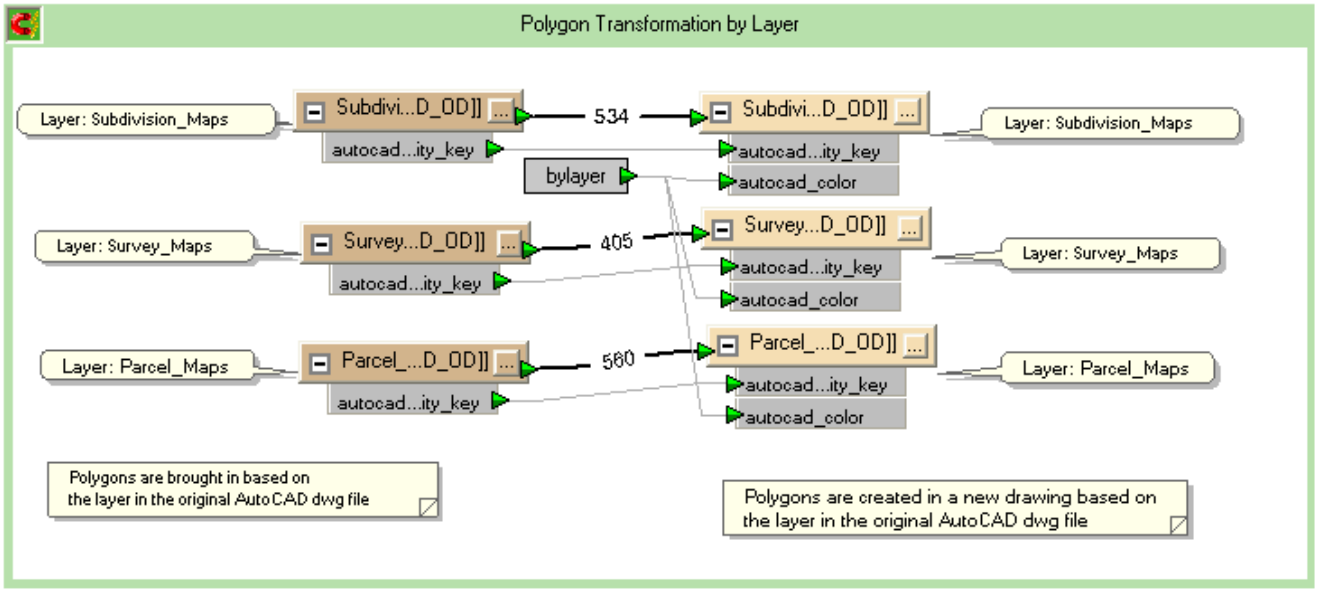
As highlighted in orange above, subdivision maps had an object data table named RM_ID with a data field called RM_ID.

The customer needed a way to combine all of the information from the three object data tables into a single table named Record_Map. To accomplish this, he needed to combine the information from multiple tables, rename fields, and then reattach the information to the closed polygons as a single table with consistent field naming. Retaining the curve information included in the polygons during this integration and manipulation process was a key requirement. Since the type of object data restructuring necessary for this process is not supported in the AutoCAD Map 3D application through its basic export/import options, the customer looked to FME's spatial ETL tool for a solution.

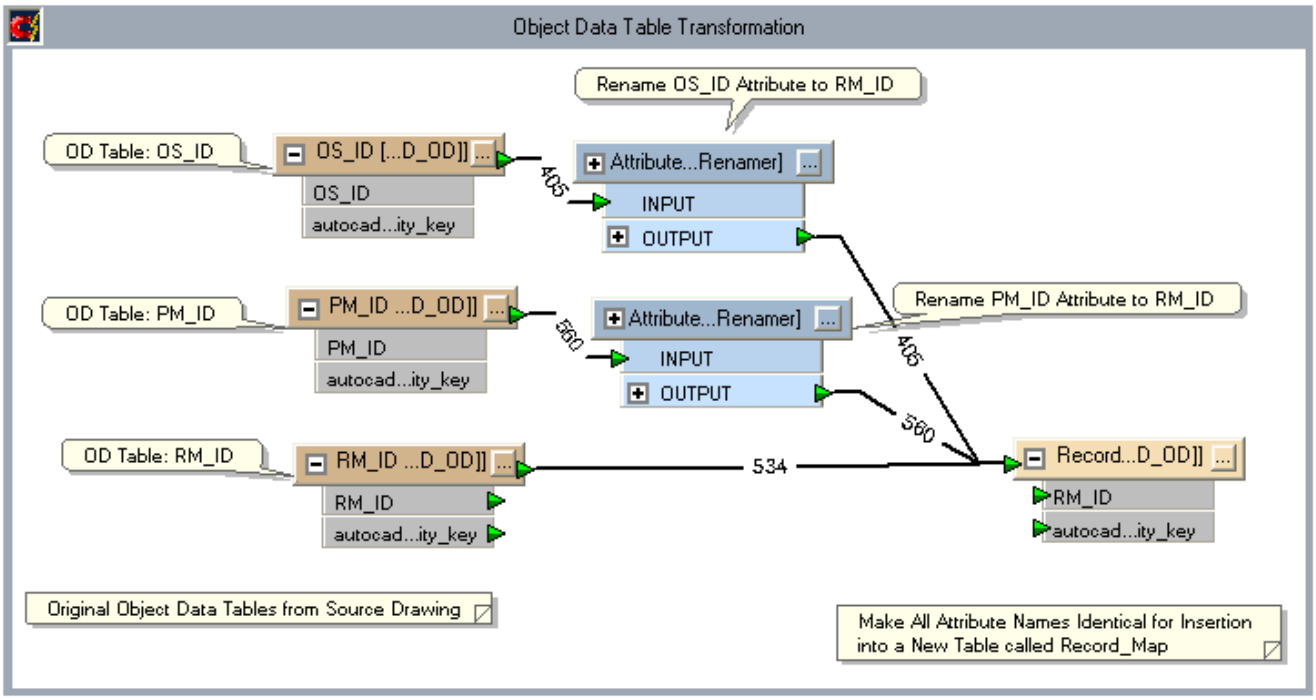
The Solution

Introduced in 2008, FME's object data reader/writer was the ideal choice in addressing the customer's data restructuring requirements. Through a very simple routine, FME reads in the polygons from the different layers along with the associated object data. Through the use of transformers in FME, the customer was then able to manipulate the information and recreate the polygons so that the each polygon contained an object data table called Record_Map and a data field of RM_ID (which contains the data from the three individual tables).

As depicted in the "Polygon Transformation by Layer" box below, the polygons from the three different layers are brought into the FME spatial ETL routine along with an "autocad_od_entity_key" attribute. This is what allows linking between the polygons and the OD records. The polygons are then sent to the new drawing without any alteration to the geometry and maintain the original layer settings.
(Note: It would be very easy to change the layer of these entities at this point if desired.)



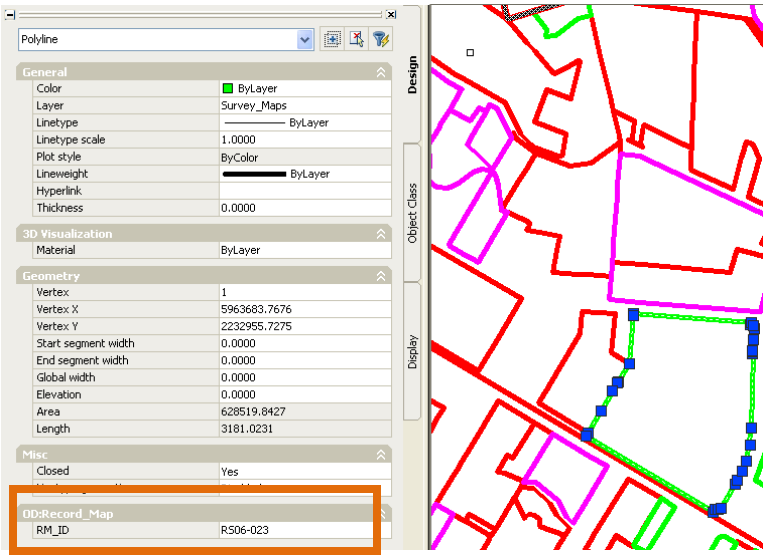
While the polygons in the "Polygon Transformation by Layer" box are not altered, the object data tables in the "Object Data Table Transformation" box are modified. As illustrated in the diagram on the next page, the OS_ID and PM_ID fields from the OS_ID and PM_ID tables are renamed to RM_ID, which is the name desired in the new resultant object data table. All records are then placed into a new object data table named "Record_Map" and linked to the appropriate polygon via the "autocad_od_entity_key" attribute. The end result of this routine is a new AutoCAD drawing with all of the original polygons maintaining all geometric features (such as curve data) where each entity has a single object data table of "Record_Map" with a RM_ID field.

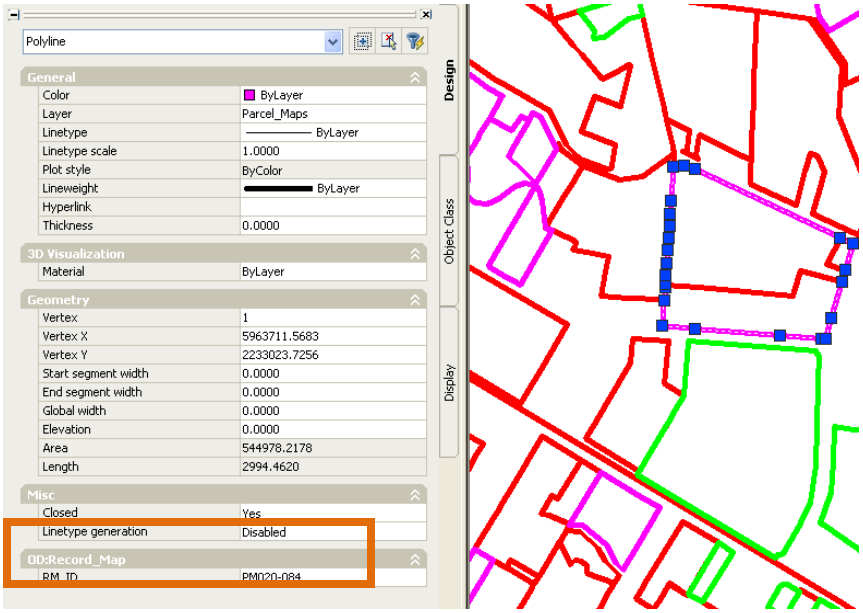


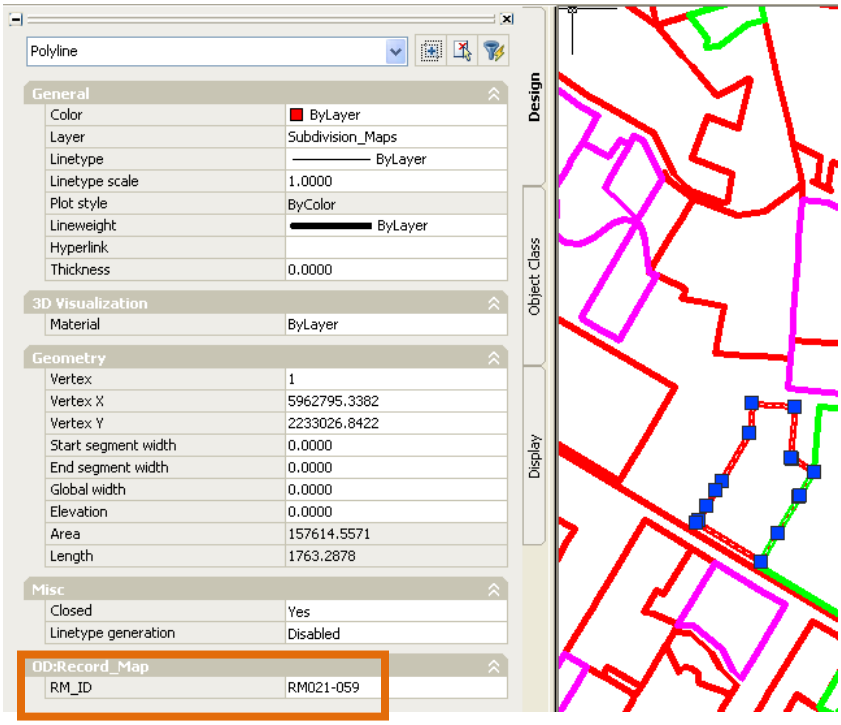
The Results

By creating a simple spatial ETL routine in FME, the customer was able to quickly and easily address his data manipulation requirements. This entire process - reading in the original drawing, processing and transforming the object data, and recreating a new drawing with polygons that contained a single unified object data table - ran in less than 7 seconds!

As highlighted in orange in the next three diagrams, each type of data now has records in the same table (Record_Map) and uses the proper RM_ID (instead of OS_ID, PM_ID and RM_ID).







Find Out More

For more examples on how you can use FME's object data reading and writing capabilities, please visit: http://www.safe.com/fme2008/unlock-object-data.php. For information on this customer example, please contact Safe Software Authorized Reseller, California CAD Solutions, at raymond.kinser@calcad.com.