

# Using Federated Databases With ArcSDE and IBM DB2

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A federated database enables communication between multiple database management systems or databases in a single SQL statement. This communication is transparent to the user so that the information spread between multiple databases appears to be part of one system.

Using federated databases in IBM DB2, you can join tables existing in two DB2 Universal Databases (UDB) or to DB2 UDB databases on OS/390 or AS/400 operating systems or an Oracle table. These SQL statements are called distributed requests.

When creating an ArcSDE spatial view using the `sdataset-o create_view` command, you can join a feature class to a table in a federated database. This produces no visible difference when accessing the view. Users querying the view will not know that some data is being pulled from the local database and other data is being accessed from a federated database.

## Creating a Federated Database

To create a federated database, you must use the DB2 Control Center. First, you must define the wrapper for the federated database object. The wrapper defines the communication mechanism that will be used to access data from a remote data source. The local server is able to connect

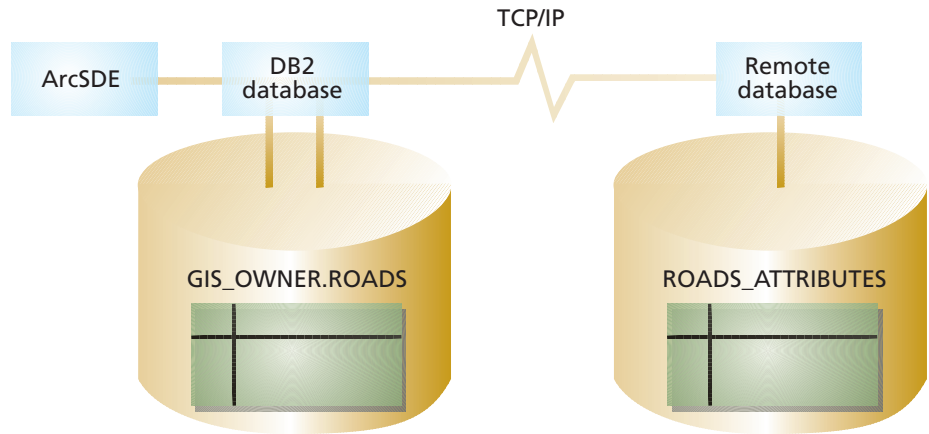


Figure 1: A federated database enables communication between multiple database management systems or databases in a single SQL statement and makes the location of information transparent to the user.

to a data source and retrieve data from the source using routines that are stored in libraries or DLLs. DB2 refers to these as wrapper modules.

1. Once the wrapper has been created, you need to identify the server mapping. In a federated database, server objects define data sources including the wrapper name, server name, type, version, and options.

A server object can only be created after a wrapper has been created.

2. To connect to the data in the federated database, you must also specify the user mappings. User mappings store authorization information that maps local users to the user of the remote database.
3. Lastly, you will create a nickname to reference the wrapper, server mapping, and user mapping that you have defined. Nicknames are created as the DB2ADMIN user while logged into the Control Center. Also, you must grant implicit schema on the database and grant control on the attribute table to the connecting user (shown as GIS\_OWNER in Figure 1).

After creating the nickname for the federated database and granting the correct privileges, you must use the nickname in the ArcSDE spatial view syntax to join the feature class in the local database to a remote table containing attributes. Create a spatial view using the `sdataset-o create_view` command. This command will add the required information to the ArcSDE repository tables and build the initial view of the feature class.

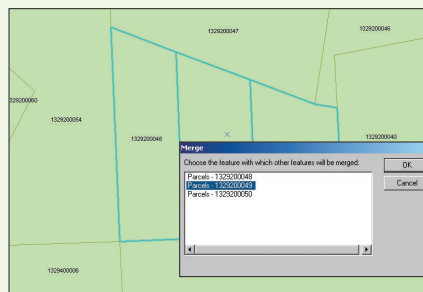
DB2 views offer more functionality than can be easily employed via the `sdataset-o create_view` command. You can redefine the text of the view once it has been created. Using the DB2 CLP window, you can re-create the spatial view, leaving the ArcSDE repository information intact. Re-creating the spatial view will replace the existing spatial view and allow you to add functionality, such as an outer join.

## Moving to ArcGIS

### More Control Over Merging

At ArcGIS 8.3, the Merge command has been reinvented to give users more control over how the attributes of the merged features are retained. Instead of retaining the attribute values for the first feature selected or the feature with the lowest ID, ArcGIS opens a dialog box that lists each feature that will be merged along with its layer name and primary display field. Clicking on a feature causes it to flash on the map. The user can choose the feature that will maintain its attributes when the new merged feature is created.

1. Start an editing session and set the target to the layer containing the features to be merged.
2. From the Editor toolbar, choose Editor > Options and click the General tab to set snapping and sticky move tolerances, if desired.
3. Choose Selection > Set Selectable Layers and make the target layer the only selectable one.



The new version of the Merge command lets users choose which feature will maintain its attributes.

4. Use the Select tool to select the features to be merged and choose Editor > Merge.
5. In the Merge dialog box, select the feature that will maintain its attributes and click OK. The features will be merged. Choose Editor > Stop Editing and save the map document.