

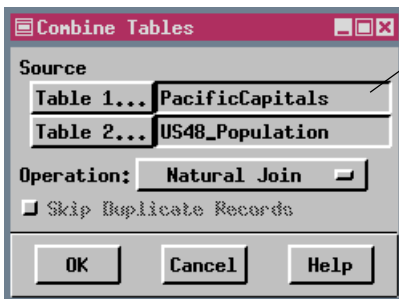
# Joining Database Tables

The TNT products provide two general methods of combining database tables: unions and joins. Database union operations are intended to add the records from one table to the records in another table. Join operations are intended to add fields from one table to existing, related records in another table. Two types of unions and four types of joins are available: union, outer union, natural join, left outer join, right outer join, and outer join. The "outer" options take care of the less than ideal cases for both unions and joins. Union operations were added to the TNT products in V6.20. Join operations are new for V6.30.

Database combinations are found on the File menu in the Database Editor (Edit/Attribute Databases or Edit Relations from the Make Table/Form icon menu in the table/selection icon row of a Layer, Group, or Layout Controls window). The tables you want to join must both be in the database selected for editing. The records in the two tables selected for joining must be related either by being attached to the same elements or by a primary key/foreign key relationship. If not related, you will get no records in the new table.

Of the two tables used here, one has 5 records (US states that border the Pacific Ocean) and the other has 48 records (the conterminous US states). Both tables have fields containing the state name and its 1990 population. Each table also has two unique fields. The table with 5 records is selected as Table 1. A statistics line to report the

number of records and two distinct color schemes have been added to these tables to make the results more clear. The join operations start with the records in Table 1 and add the unique fields from Table 2 to each record with attribute values determined by the relationship between the tables.



The fields and records from Table 1 are copied first.

Tables 1 and 2 have two fields in common

Note: Alaska and Hawaii are not in Table 2.

## Natural Join

Note that all fields have nonzero values, which is not true for the "outer" operations shown on the following page.

Fields from Table 1

Unique fields from Table 2

The natural join results, which form the basis of all the join operations, contain only those records with key attribute values common to both tables. There are only three states in common between these two tables: California, Oregon, and Washington.

