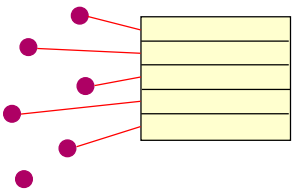
Record Attachment Types

Elements in geometric objects (vector, CAD, shape) and cell values in raster objects can have database tables with records that associate attributes with particular elements or cell values. The records in a database table can be associated to the elements in one of two ways. Records can be *directly attached* to the elements, or *related* to records in another table using matching values in primary key / foreign key fields. A sequence of tables can be related by sets of common values, and if one of these tables is directly attached to the elements, then records in the related tables are also indirectly associated with the elements.

When you create a new table, you are prompted to set whether the records should be directly attached to the elements or related to another table. In order to let you manage these attribute associations, a number of direct attachment types are provided with different restrictions or rules governing how records and elements can be attached. The attachment types illustrated and described below are enforced when you add records and attach them to elements and when you add elements and attach records to them.

You should choose an attachment type that is appropriate for the type of information that will be stored in the table. Before you create a table, be sure that you understand the nature of the data. Is it information that is unique to each element, or categorical information that applies to more than one element? Will there be multiple records corresponding to individual elements? Should the table be related to another table rather than having records directly attached? Careful attention to these choices will let you optimize the design of the database associated with your spatial object.

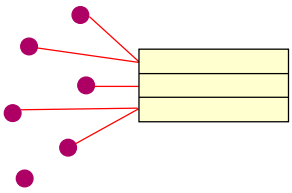
At most one record to one element



- a record can be attached to only one element
- an element can have only one record attached
- an element is not required to have an attached record

This attachment type allows only a one-to-one relationship between elements and records. Each record contains data that is unique to a particular element, such as an identification number for a property parcel or the length of a line.

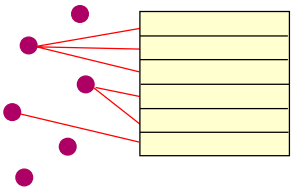
One record to multiple elements



- a record can be attached to one or more elements
- an element can have only one record attached
- an element is not required to have an attached record

The *One record to multiple elements* attachment type is appropriate for categorical data (*e.g.*, land use, crop type, vegetation type) that may apply to more than one element in the object, but a particular element cannot be in more than one category.

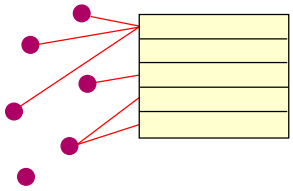
Multiple records to one element



- an element can have one or more records attached
- a record can only be attached to one element
- an element is not required to have attached records

One application of the *Multiple records to one element* attachment type would be historical data that is unique to each element, such as farm field polygons with records of crop type, average crop yield, and other information that is replicated for different years.

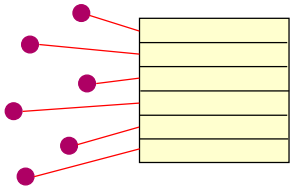
Any records to any elements (no restriction)



- a record can be attached to one or more elements
- an element can have one or more records attached
- an element is not required to have attached records

No restrictions are placed on the number of element and record attachments in this attachment type. Any number of records can be attached to any number of elements.

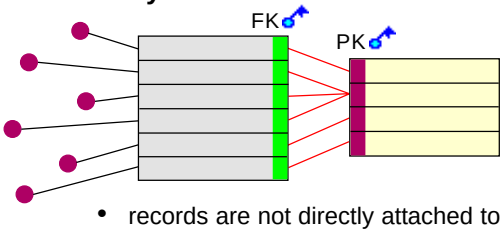
Exactly one record for every element



- a record can be attached to only one element
- an element can have only one record attached
- every element has one and only one attached record

This attachment type is unique in that every element is *required* to have one and only one attached record. It is available when you are creating a new table and is ideal for a table that will consist entirely of computed fields that gather and manipulate data from other tables in the database. When you create the table, a record is automatically created for each element.

Related only



- records are not directly attached to elements
- records are related to those in another table (which may be directly attached) by matching values in primary key and foreign key fields

A *related only* table can be related to more than one other table using primary key and foreign key fields.