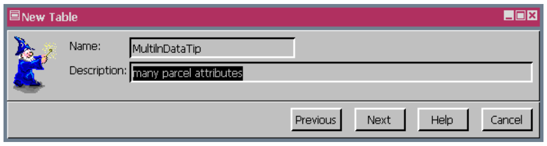
Database Wizard and Virtual Tables

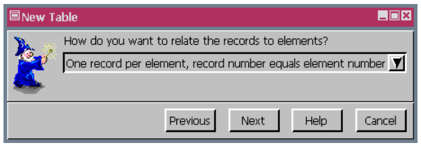
In addition to helping you create new tables for which you must do the data entry, the Database Table Creation Wizard can help you create tables that will consist only of one or more virtual fields, referred to as a virtual table. Virtual fields are computed or string expression fields, which are populated using the information currently in other fields when viewed or used in analysis processes. Three examples of virtual field use are:

- **computations**, such as creating a population density field using an existing population field and the polygon area standard attribute;
- **generating DataTips**, such as multiline DataTips or DataTips that combine information from a number of fields; and
- **URL by attribute HyperLinks** that combine the constant part of a URL with an attribute value to provide a unique link for a polygon or class of polygons, such as weather by ZIP code or property information by parcel ID.



Name: MultilnDataTip
Description: many parcel attributes

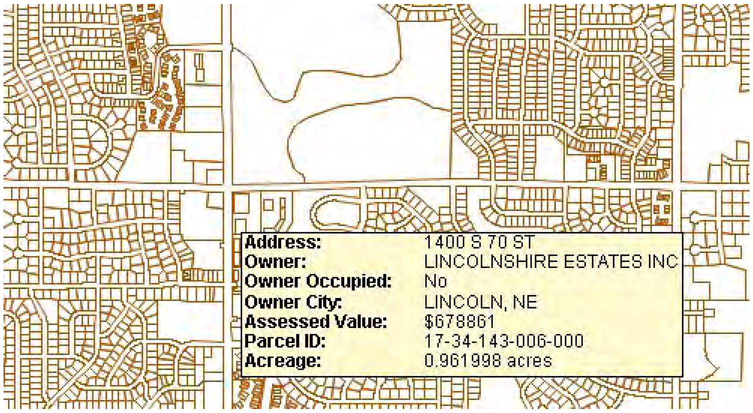
Whether you are making a new table that will have a primary key and require manual entry of all data or a table that will consist entirely of virtual fields, the basic process for creating the table is the same (see the color plate entitled *Database Table Creation Wizard*). There can be variations in the procedure introduced by the designated attachment type for the table.



How do you want to relate the records to elements?
One record per element, record number equals element number

DataTips typically consist of a single line for some or all layers in a layout. Showing DataTips for multiple layers is not considered a multiline DataTip. A multiline DataTip provides more than one line of information about a single layer by gathering all the information together in a single virtual field. Virtual fields can be added to existing tables or can exist in a table by themselves with an implied one-to-one relationship. Separate tables make it easier to transfer your added information to frequently updated objects. For example, a new version of the parcels vector used in the Lincoln Property Viewer atlas (see the color plate entitled *Property Viewer Atlas for Lincoln, NE*) is available every three months. Update of the table for this object takes about 20 minutes adding computed fields using copy and paste operations or about one minute adding the table from the previous version each time a new vector is obtained. The ease of bringing data forward does not change the necessity that you check and change these computed fields as necessary to ensure they accommodate table and field name changes in the new vector object regardless of how it was updated. For instance, the table name may match the vector object name, which includes the date. Each reference to the table name would need to be changed for the scripts to work with the new vector object.

While a multiline DataTip is itself a virtual field, it can include information from other virtual fields as is the case in the example provided here. In fact it uses a virtual field that gets its value from comparing another virtual field with a real, or permanent, field from the imported database. When virtual fields depend on the results of other virtual fields, the fields depended on must be added first because if a field that does not exist is referenced in a script, it generates a syntax error. Virtual fields not directly related to the DataTip, such as the field providing the URL by Attribute link, can also be included in this table. The scripts for the four virtual fields added are included on the back of this page.



Address:	1400 S 70 ST
Owner:	LINCOLNSHIRE ESTATES INC
Owner Occupied:	No
Owner City:	LINCOLN, NE
Assessed Value:	$678861
Parcel ID:	17-34-143-006-000
Acreage:	0.961998 acres

The multiline DataTip produced from the single parcels layer combines information from a number of permanent and virtual fields in two of the tables associated with the parcels layer. The majority of the information comes from the table initially imported with the parcels layer, but the standard statistics table is also used to provide acreage. Some lines of the DataTip that draw information from more than one field combine that information in the DataTip script (for example, see the Parcel ID line in the DataTip script on the back of this page) while others draw from additional virtual fields (see the Owner Occupied line in the DataTip script).

Scripts for Virtual Fields in New Table

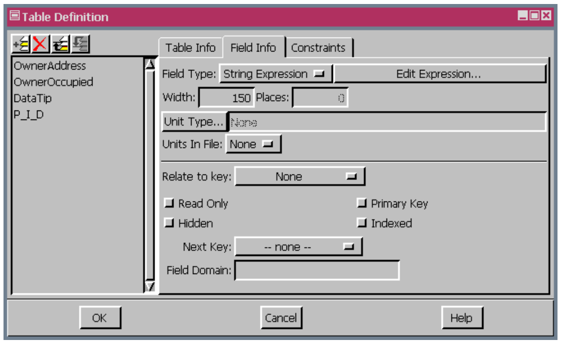


Table Definition

OwnerAddress
OwnerOccupied
DataTip
P_I_D

Table Info | Field Info | Constraints

Field Type: String Expression — Edit Expression...
Width: 150 Places: 0
Unit Type... None
Units In File: None
Relate to key: None
□ Read Only □ Primary Key
□ Hidden □ Indexed
Next Key: -- none --
Field Domain:

OK Cancel Help

A new table with four virtual fields was created for the parcels layer in the Property Viewer atlas to allow for ease of transfer of these virtual fields to updated versions of the vector object. Three of these virtual fields are needed for the DataTip and the fourth provides the HyperLink to the County Assessor’s website.

script for OwnerAddress field

```
STRING ownerAddress$ = "";

if (CA032904.OWN_ST_NUM != "") {
  ownerAddress$ = ownerAddress$ + CA032904.OWN_ST_NUM + " ";
  ownerAddress$ = ownerAddress$ + CA032904.OWN_ST_DIR + " ";}
if (CA032904.OWN_ST_NAM <> "")
  ownerAddress$ = ownerAddress$ + CA032904.OWN_ST_NAM + " ";
if (CA032904.OWN_ST_TYP <> "")
  ownerAddress$ = ownerAddress$ + CA032904.OWN_ST_TYP;
return ownerAddress$
```

script for OwnerOccupied field

```
STRING resid$;
if (((CA032904.OwnerAddress == CA032904.SITUS_ADDR) or (CA032904.OwnerAddress ==
                                   CA032904.SITUS_ADDR + " ")) and CA032904.OWNER != "")
                          resid$ = "Yes"
else if (CA032904.OWNER contains "CITY OF LINCOLN")
                          resid$ = "No"
else if (CA032904.SITUS_ADDR contains "NO SITUS")
resid$ = "Unknown"
else resid$ = "No"

return resid$
```

script for DataTip field
(formatting and tab codes removed)

```
return
"Address: " + CA032904.SITUS_ADDR + "\n" +
"Owner:   " + CA032904.OWNER + "\n" +
"Owner Occupied:  " + CA032904.OwnerOccupied + "\n" +
"Owner City       " + CA032904.OWN_CITY + ", " + CA032904.OWN_STATE + "\n" +
"Assessed Value:  " + sprintf("$%.f", CA032904.ASSESSED) + "\n" +
"Parcel ID:       " + CA032904.PRECINCT + "-" + CA032904.SECTION + "-" + CA032904.BLOCK + “-” + CA032904.PARCEL + “-” +
                  CA032904.SUBPARCEL + "\n" +
"Acreage:         " + NumToStr(POLYSTATS.Area/4046.873) + " acres"
```

script for URL by Attribute field (P_I_D)

```
STRING pid$, p_i_d$, http$;

pid$ = CA032904.PID;
http$ = "http://www.microimages.com/redirect/lancaster/countyassessors.html?sys=+&vParcel=";
p_i_d$ = pid$.substr(0, 2) + "-" + pid$.substr(2, 2) + "-" + pid$.substr(4, 3) + "-" + pid$.substr(7, 3) + "-" + pid$.substr(10, 3);
return = http$ + p_i_d$;
```