

# ACCESS <<<<<<<

By Patricia Cox

## Creating Relationships Between Tables

Last month we discussed the need to connect tables using primary keys, foreign keys, and bridge tables. We also created a schema design for a simple business example and discussed thinking about one-to-many relationships when conceptualizing your schema. This month we will cover the next two steps: creating the table designs and creating the relationships between the tables.

### Creating the Table Designs

To create each of the tables from your schema, go to the Create Ribbon, and choose Table. Save the table using the name you assigned it in your schema. Right click the Table tab, and choose Design View. Enter the names of all the fields you listed in your design, and assign an appropriate data type (see December 2008 column). Save and close each table.

### Creating Relationships Between Tables

Before you enter any data in a table, it's important to create the relationships between tables. Doing this gives you the ability to "enforce referential integrity,"

which means that your data will be connected accurately and that improper data can't be added. The relationships we'll establish in Figure 1, for example, will limit users to creating orders only for customers who have Customer IDs in the Customer table, and the orders will only include products that are in the Product table.

#### Create relationships

On the Database Tools ribbon, select Relationships. This opens a "Show Table" window. Select a table name, and click Add to add that table to the Relationships view. Add all of the tables from your design schema, and click the close button. Resize the table windows so you can see all the fields, and then organize the fields in the same order as you did on your design schema.

Next, click on the primary key of one table, and drag it to the corresponding foreign key in the connected table in your design. This causes the Edit Relationships dialog box to display. In Figure 1, the CustomerID field in the Customer table was dragged to CustomerID in the Order table. One way to tell that you have set up effective keys is when the Edit Rela-

tionships dialog lists the relationship type as "One-To-Many." Once the Edit Relationships dialog opens, click the two checkboxes: "Enforce Referential Integrity" and "Cascade Update Related Fields." Then click Create. This will add a relationship line between the tables and show symbols that indicate it is a one-to-many relationship.

#### Problem Indicators

If the relationship is "Indeterminate" instead of "One-To-Many," this means that you aren't connecting a primary key (one) to a foreign key (many). Recheck your table designs to make sure you indicate your primary and foreign keys correctly.

When you click Create in the Edit Relationships dialog, you may get one of two error messages. "Relationship must be on the same number of fields with the same data types" means that the primary and foreign keys don't have compatible data types. For example, in a new design the primary key typically is an autonumber, and the foreign key is a number. If you imported existing data to create your table, the keys may be text. If that's the case, make sure the data

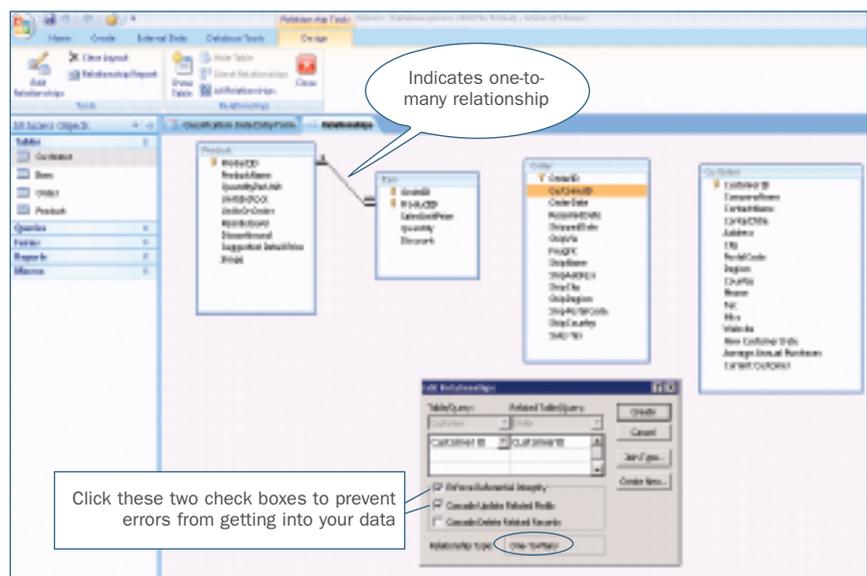
type for both fields is set to text and the field size is the same.

The other possible error message, “Microsoft Office Access can’t create this relationship and enforce referential integrity,” occurs if your tables already contain data and there’s an inconsistency between the linked fields. Specifically, the table with the foreign key has an entry that isn’t in the table with the primary key. If you follow the steps in last month’s article in order, this won’t happen because the relationships are established before tables have data. When you create the relationships first, Access won’t allow you to use a foreign key before it appears in the primary key table. If your data is imported from another source and data is already in the tables, however, you may need to spend some time identifying the data missing from the table with the primary key and adding it to the table. Only after that is done will you be able to establish the relationship.

## Technical Assistance

If you find these messages and tips a little overwhelming, you may want to seek professional advice in setting up your

Figure 1.



tables and relationships. Once this is completed, you will be able to use what you have learned about queries and reports to turn your data into information that can help you run the business more effectively. You might find that you need technical assistance with the first and second databases you create and then become more comfortable with creating designs and relationships on your own as you create more. Like many things that we learn, it will depend on how frequently you do it.

Next month we will address entering data into tables. Many examples for this and previous columns have been added to the website at <http://faculty.alverno.edu/hartmap/IMA>. Look under the Related Links area to see how the one-to-

many principle repeats itself time and again in various designs. Let me know if you would like to see anything else on this supporting website. **SF**

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**Access is a topic at IMA's Annual Conference, June 6-10, 2009, in Denver, Colo. For information, visit [www.imaconference.org](http://www.imaconference.org).**