Manipulating and Analyzing PivotTables

Half the fun of working with PivotTables lies in the way you can quickly manipulate them to show different data. You can not only rearrange data, but you can create new fields, change how fields are grouped, and so on. By creating new fields and rearranging data, you gain a larger understanding of the data and can make better strategic decisions based on what you learn from the different views of the data. In the following sections you learn several methods for changing your PivotTables.

Using the PivotTable Toolbar

To control PivotTables easily, use the PivotTable toolbar shown in Figure 20.12. After you build a PivotTable, the PivotTable toolbar should automatically be visible. If it doesn't appear on-screen, right-click inside the toolbar area and select PivotTable. Table 20.2 shows you what each PivotTable toolbar button does.

Figure 20.12. Use the PivotTable toolbar to quickly and easily control PivotTables.

Table 20.2. PivotTable Toolbar Buttons

<table>
<thead>
<tr>
<th>Button Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PivotTable</td>
<td>Use the PivotTable button to access a menu of PivotTable commands.</td>
</tr>
<tr>
<td>PivotTable Wizard</td>
<td>You can use the PivotTable Wizard not only to create new PivotTables, but also to edit existing PivotTables.</td>
</tr>
<tr>
<td>PivotTable Field</td>
<td>The PivotTable Field button activates the PivotTable Field dialog box, in which you can control how a particular PivotTable field displays and summarizes associated data.</td>
</tr>
<tr>
<td>Show Pages</td>
<td>Click the Show Pages button to create another PivotTable on a new worksheet, one of which is created for every possible page field setting.</td>
</tr>
<tr>
<td>Ungroup</td>
<td>Ungroups summarized PivotTable fields.</td>
</tr>
<tr>
<td>Group</td>
<td>Lets you group a particular PivotTable field in different ways. For example, select a date field to group it by days, months, quarters, years, and so on.</td>
</tr>
<tr>
<td>Hide Detail</td>
<td>Hides a selected PivotTable field's data.</td>
</tr>
</tbody>
</table>
Dragging and Dropping Headings

The most rudimentary way to change PivotTables is to simply drag and drop field headings into new areas on the PivotTable. There are three places to which you can drag the field headings: row, column, and page fields. You can have multiple headings in each field.

Figure 20.13 shows a PivotTable prior to being changed. The PivotTable presently shows the sales of each product summarized by each salesperson.

Figure 20.13. You've finished examining product sales by salesperson. Now you want to see how well each salesperson did each quarter.

To change the PivotTable so that you can see the salespeople's sales for each quarter, you would perform the following steps:

1. Drag the ProductName field to the Page field area.
2. Drag the OrderDate field to the Column field area.

Tip
Instead of deleting PivotTable fields that you don't want to use, drag them to the Page field area and set them so that they display all records. That way they don't affect the PivotTable results, but are still handy if you want to drag them back into the PivotTable.

As you can see in Figure 20.14, you now have a radically different PivotTable that shows different information. The PivotTable now shows you how much each salesperson sold during each quarter.

Figure 20.14. With two quick drags, the PivotTable now shows very different information.

Rearranging PivotTables with the PivotTable Wizard

You can also use the PivotTable Wizard to change the arrangement of the PivotTable fields. To access the PivotTable Wizard for this purpose, first click one of the PivotTable fields, and then click the PivotTable Wizard button on the PivotTable toolbar. (Alternatively, you can open the Data menu and choose the PivotTable Report command.) Step 3 of 4 of the PivotTable Wizard, shown in Figure 20.15, instantly appears.
Figure 20.15. You can reaccess the PivotTable Wizard to rearrange PivotTable fields.

After the PivotTable Wizard is open, you can remove fields, drag new fields from the right side of the dialog box into PivotTable fields, and so on. Click Finish to save your changes and redisplay the PivotTable.

Use the PivotTable Wizard to add fields to your PivotTable that exist within your data source. Access the wizard and drag the appropriate fields into the PivotTable area in the dialog box.

To remove PivotTable fields, drag any fields you don’t want into a blank area of the PivotTable Wizard dialog box and drop them there to remove them from the PivotTable area.

Tip

A quick way to remove PivotTable fields is to right-click the field heading in the PivotTable and choose Delete from the shortcut menu.

Adding Calculated Fields

You can create new PivotTable fields from calculations and include them in your PivotTables. The calculated fields are based on existing fields and a formula that you specify. To do this, follow these steps:

1. Right-click within the PivotTable. Choose Formulas, Calculated Field from the shortcut menu. You see the Insert Calculated Field dialog box shown in Figure 20.16.

2. Assign a name for the new field in the Name field.

3. Use the Formula field to create the formula that will calculate your new field. You can use any of Excel’s functions in the field. To insert a field name from the PivotTable in the formula, select the field in the list and click the Insert Field button.

4. Click Add to create the new field.
Figure 20.16. Use the Insert Calculated Field dialog box to create new fields based on existing fields.

For example, you could create a new calculated field with the formula =AVERAGE(Quantity) to calculate the average quantity sold for each order, and then use the new field within your PivotTables.

**Hiding and Revealing Data**

You can hide detail within PivotTables. You can hide entire PivotTable fields, as well as detailed items within the PivotTable. However, you cannot hide subtotals or totals shown in rows or columns.

To hide detail within a PivotTable, select the data you want to hide, right-click it, and choose Group and Outline, Hide Detail from the shortcut menu.

To reveal hidden data, right-click the field that contains the hidden detail and choose Group and Outline, Show Detail from the shortcut menu.

**Grouping Items**

Your data isn't always grouped into nice, neat packages that are the way that you want to view them in your PivotTable. For example, Figure 20.17 shows a PivotTable that is virtually unusable because its data spans so many columns. In cases like this, you can group the data in different ways, depending on the type of data contained in the field.
Figure 20.17. This PivotTable would be much more usable if the order dates were grouped in some meaningful way.

To group data, follow these steps:

1. Click the Group button on the PivotTable toolbar, or right-click the field you want to group and choose Group and Outline, Group. You see the Grouping dialog box shown in Figure 20.18.

2. Select a range of data to display. By default, all data is selected in the range fields (Starting At and Ending At).

3. If there are other types of groupings available, such as the ones shown in the By list in Figure 20.18, select them. Notice that you can select multiple groupings if you want.

4. Click OK to create the new grouping.

Figure 20.18. Use the Grouping dialog box (which changes based on the data type being grouped) to restrict and group the data.
Figure 20.19 shows the effect of grouping the OrderDate field into quarters, which makes the PivotTable much easier to understand in this example.

**Figure 20.19.** After grouping OrderDate into quarters, you see a more usable PivotTable.

Fields that display numerical data show a different Grouping dialog box. Figure 20.20 shows the Grouping dialog box for the OrderID field, which contains numerical data. In this Grouping dialog box, you can still set a range for the grouped data, but you can also set an increment. For each increment that you select, all the records that fit within that increment will be combined.

**Figure 20.20.** When grouping numerical data, you see this Grouping dialog box.

There's still another way to group detail in a PivotTable: arbitrary groupings. You can group selected detail records together to make a single record within the PivotTable. For example, you could choose several salespeople in a PivotTable and group them together arbitrarily. You might do this when there's a way of grouping them together that isn't apparent in the data, but is known to you. For example, you might know which salespeople cover which regions, and using arbitrary groupings, you can reflect the regions in the PivotTable.
After you've created an arbitrary group, you can select the group labels (which are assigned names like Group1, Group2, and so on) and type new names. Figure 20.21 shows quarterly sales by salesperson, but with the salespeople grouped into their regions.

**Note**

Arbitrary groupings become new PivotTable fields that you can move to other dimensions in the PivotTable.

**Figure 20.21. Arbitrary groupings can let you group data in ways that cannot be done based on the data.**

To reverse the effect of a grouping and restore all of the detail, right-click the grouped field heading and choose Group and Outline, Ungroup from the shortcut menu.

**Tip**

You can also right-click the grouped field heading and then click the Ungroup button on the PivotTable toolbar to quickly remove groupings.

**Editing PivotTable Fields**

You can edit various properties for each PivotTable field. To do this, double-click the field heading, which displays the PivotTable Field dialog box shown in Figure 20.22.
Figure 20.22. The PivotTable Field dialog box lets you edit PivotTable field properties.

In the PivotTable Field dialog box, you can:

- Change the name of the PivotTable field.
- Delete the PivotTable field with the Delete button.
- Select where the PivotTable field is located (choose Row, Column, or Page).
- Select subtotals (including different types of subtotals) for an inner PivotTable field’s data using the Subtotals area of the dialog box.
- Selectively hide items using the Hide Items list.
- Choose to Show Items With No Data, which displays all detailed records whether or not they contain any data.

You can also access AutoSort and AutoShow features using the Advanced button. These features are discussed in the following two sections.

**AutoSort and AutoShow Fields**

AutoSort is a feature that keeps a PivotTable field’s data in sorted order, even when it is moved to another PivotTable dimension. You access the AutoSort feature by clicking the Advanced button in the PivotTable Field dialog box, which displays the PivotTable Field Advanced Options dialog box shown in Figure 20.23.

Figure 20.23. The PivotTable Field Advanced Options dialog box lets you apply AutoSort rules to a particular field.
In the AutoSort options area of the dialog box, choose the type of sort you want. If you choose Ascending or Descending, in the Using Field drop-down list, choose the field by which the records will be sorted in the PivotTable.

The Manual AutoSort option (the default choice) lets you drag and drop PivotTable records. The records will maintain their place in the list, even when the PivotTable field is moved to other dimensions, or when the field is removed and re-added to the PivotTable. To move a PivotTable field, select the record (row or column) and then drag its border to position it elsewhere in the table, just as you drag and drop cells in standard worksheets.

AutoShow is another feature accessed through the PivotTable Field Advanced Options dialog box. AutoShow lets you choose the top or bottom records in a PivotTable field. For example, if you want to see the top 10 customers, you first arrange your PivotTable so that it displays all customers. Then use the AutoShow feature to display only the top 10 customers. Figure 20.24 shows this example set.

**Figure 20.24.** AutoShow lets you show only the top- or bottom-most records in a PivotTable field.

### Setting PivotTable Options

Each PivotTable has a set of options that you can set that control how the PivotTable works. Access a PivotTable’s options by right-clicking in the PivotTable and choosing Options from the shortcut menu. Figure 20.25 shows the PivotTable Options dialog box, while Table 20.3 details the options found in the dialog box.
Figure 20.25. The PivotTable Options dialog box lets you control how PivotTables work.

![PivotTable Options dialog box]

Table 20.3. PivotTable Options Dialog Box Settings

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Lets you set the name for the PivotTable.</td>
</tr>
<tr>
<td>Grand Totals for Columns</td>
<td>Includes grand totals at the bottom of each column.</td>
</tr>
<tr>
<td>Grand Totals for Rows</td>
<td>Includes grand totals to the right of each row.</td>
</tr>
<tr>
<td>AutoFormat Table</td>
<td>Maintains the PivotTable's formatting using the default AutoFormat.</td>
</tr>
<tr>
<td>Subtotal Hidden Page Items</td>
<td>Causes any hidden page field records to be reflected within PivotTable subtotals.</td>
</tr>
<tr>
<td>Merge Labels</td>
<td>Merges outer row and column fields in the PivotTable. This option can make a PivotTable more attractive, but has no functional purpose.</td>
</tr>
<tr>
<td>Preserve Formatting</td>
<td>Lets you format a PivotTable, and maintains any formatting settings you make even after you change the PivotTable.</td>
</tr>
<tr>
<td>Page Layout</td>
<td>Controls how page fields in the PivotTable appear. You can choose Down, then Over; or Over, then Down. All of the figures in this chapter show pages arranged vertically, which occurs when Down, then Over is selected.</td>
</tr>
<tr>
<td>Fields Per Column</td>
<td>Selects the number of page fields that are displayed before the next column or row is used to display additional page fields.</td>
</tr>
<tr>
<td>For Error Values, Show</td>
<td>Lets you supply a value that is displayed in place of any error messages in cells.</td>
</tr>
<tr>
<td>For Empty Cells, Show</td>
<td>Lets you supply a value that is displayed for empty cells.</td>
</tr>
<tr>
<td>Save Data With Table Layout</td>
<td>Saves a copy of the data on which the PivotTable is based along with the PivotTable. Keeping this option selected makes PivotTables consume less memory and operate more quickly, at the expense of you needing to manually refresh the source data if it changes.</td>
</tr>
<tr>
<td>Enable Drilldown</td>
<td>When selected, you can double-click a cell in the data area of the PivotTable to jump to the source data.</td>
</tr>
<tr>
<td>Setting</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Refresh on Open</td>
<td>Automatically refreshes the PivotTable data when the workbook is opened.</td>
</tr>
<tr>
<td>Save Password</td>
<td>Stores the password used for an external data query.</td>
</tr>
<tr>
<td>Background Query</td>
<td>For external data source queries, this setting allows the query to run in the background. Background queries take longer, but let you continue to work with the workbook while the query is carried out.</td>
</tr>
<tr>
<td>Optimize Memory</td>
<td>If you are running out of memory resources while using PivotTables that use external data sources, you can select this check box to conserve memory at the price of decreased performance.</td>
</tr>
</tbody>
</table>