

Working with PivotTables

Examining PivotTables

Explanation By analyzing data, you can make more informed decisions. Excel provides the PivotTable feature to help you examine data. A **PivotTable** is an interactive table that summarizes, organizes, and compares large amounts of data in a worksheet. You can rotate the rows and columns in a PivotTable to obtain different views of the same data. You can use a PivotTable to analyze data in an Excel workbook or data from an external database, such as Microsoft Access or SQL Server.

The data on which a PivotTable is based is called the **source data**. Each column represents a **field**, or category of information, which you can assign to different parts of the PivotTable to determine how the data is arranged. You can add four types of fields:

| Field | Description |
|-----------------|--|
| Filters | Filters the summarized data in a PivotTable. If you select an item in the report filter, the view of the PivotTable changes to display only the summarized data associated with that item. For example, if Region is a report filter, you can display the summarized data for the North region, the West region, or all regions. |
| Rows | Displays the items in a field as row labels. For example, the row labels are values in the Quarter field, which means that the table shows one row for each quarter. |
| Columns | Displays the items in a field as column labels. For example, the column labels are values in the Product field, which means that the table shows one column for each product. |
| Σ Values | Contains the summarized data. These fields usually contain numeric data, such as sales and inventory figures. The area where the data itself appears is called the data area . |

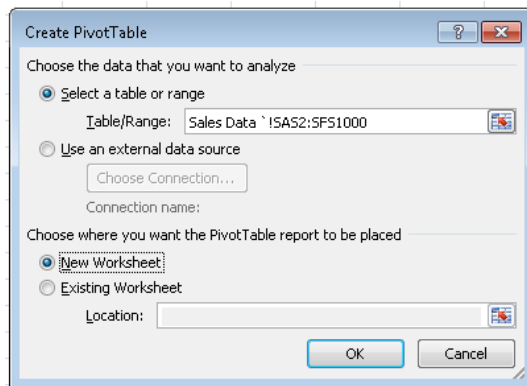
| | | | | | | | |
|------------------|----------------|---------------|------------|--------|--------|--------|-------------|
| | A | B | C | D | E | F | G |
| Report filter | 1 Region | (All) | | | | | |
| | 2 | | | | | | |
| | 3 Sum of Sales | Column Labels | | | | | |
| Rows filter list | 4 Row Labels | Anise Seeds | Basil Leaf | Cassia | Chives | Cloves | Grand Total |
| Σ values | 5 Qtr1 | 138662 | 80115 | 238684 | 150837 | 173047 | 781345 |
| | 6 Qtr2 | 149449 | 82151 | 240398 | 166792 | 178253 | 817043 |
| | 7 Qtr3 | 144931 | 84346 | 250219 | 169073 | 181556 | 830125 |
| | 8 Qtr4 | 147804 | 84320 | 247687 | 168926 | 177227 | 825864 |
| | 9 Grand Total | 580846 | 320932 | 976988 | 655628 | 710083 | 3254477 |

The PivotTable Command

You use the PivotTable command to create a PivotTable. Here's how:

1. Select any cell in a data range that includes a heading for each column in the top row.
2. Click the Insert tab.
3. In the Tables group, click the PivotTable button to open the Create PivotTable dialog box.
4. In the Table/Range box, select the range that contains the data you want to use in the PivotTable.
5. Select a location for the PivotTable. You can place the PivotTable in a new or existing worksheet.
6. Click OK.

When you insert or work with PivotTables, Excel displays the PivotTable Tools, adding Analyze and Design tabs to the ribbon.



The Create PivotTable dialog box

Using an external data source

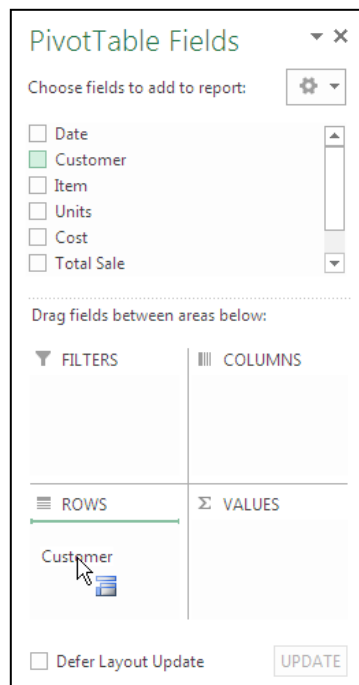
You can use an external data source as the data for the PivotTable. To do so:

1. In an empty worksheet, click the Insert tab and click the PivotTable button.
2. In the Create PivotTables dialog box, select "Use an external data source" and click Choose Connection.
3. From the list of connections, select the desired connection, such as Access database. If the connection you want is not showing, click Browse for More.
4. Click Open. The selected data source appears as the Connection name.
5. Click OK to continue creating the PivotTable.

Add fields

Explanation You add fields to a PivotTable to specify the data you want to display. The fields of the source data appear in the PivotTable Field List pane.

To add fields, drag a field from the top of the PivotTable Fields task pane to one of the four areas at the bottom of the pane.



Adding a field to the PivotTable

Using fields to filter data

After the fields are in place, you can filter the information that appears in the table by selecting options from the filter lists available for each field. For example, you can show all data values or restrict the PivotTable to summarizing only a couple of values.

When a filter has been applied, the arrow changes to a filter icon (it looks like a funnel). You can click this icon to display the filter list and see which filter has been applied.

To remove a filter, display the filter list and choose the Clear Filter option. You can also display the filter list by clicking the corresponding filter icon in the PivotTable Field list pane.

Inserting slicers

Explanation In Excel, you can insert a slicer to easily show the current filtered state of the data. You can create a slice for each field in the PivotTable.

Slicers are visual controls you can use to quickly filter your data by selecting values from a list. Slicers are both “live”—they reflect data changes in the underlying PivotTable—and interactive—you can select filter fields on the fly. Slicers appear as separate objects on the worksheet and can be moved around and resized.

To insert a slicer:

1. Select any cell in the PivotTable.

- Click the PivotTable Tools | Analyze tab. In the Filter group, click Insert Slicer. The Insert Slicer dialog box appears with a list of the PivotTable fields.
- Check the fields you want to display as slicers.
- Click OK. The slicers appear on top of the PivotTable, and the Slicer Tools | Options tab appears on the ribbon.

Using slicers to filter data

Even though the slicers are overlapping, it's possible to see which filters are selected. The selected items on the slicer indicate which filter is being applied. On the Region slicer, Central is the only highlighted item. The Product slicer indicates that no filter is applied because all items are selected (or highlighted).

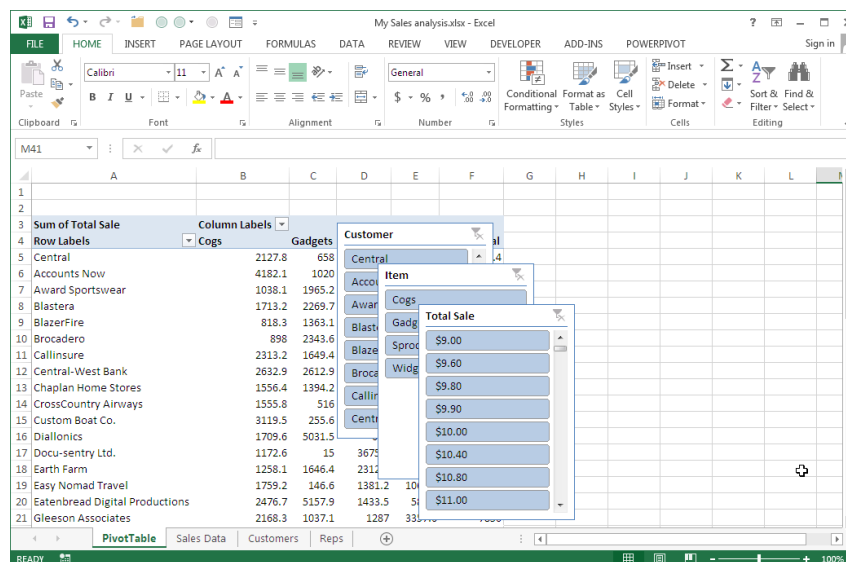
To change a slicer filter, click the item you want to use as the filter. Use the Ctrl+click method to select multiple items. Use the Shift+click method to select contiguous items. To clear the filter, click the Clear Filter button at the right end of the slicer header.

Modifying slicers

Excel considers slicers to be shapes. Therefore, you can move, resize, align, and format slicers just as you would other shapes. To move a slicer, drag the slicer header to the desired location. Drag a slicer's border to change the size of the slicer. Use the Slicer Tools | Options tab to apply a slicer style and to align the slicers.

Deleting slicers

You can quickly delete a slicer by selecting it and pressing Delete. You can also right-click the slicer and choose Remove "*Slicer Name*" from the shortcut menu. The slicer is immediately removed.



The PivotTable with slicers

Modifying PivotTable data

Group data

Explanation You may have certain data in your PivotTable that needs to be further summarized. You can do this by grouping the data.

You can group text fields, number fields, and date fields. To group data:

1. Select a row or column cell containing the type of data you want to group.
2. On the Analyze tab, click Group, and select a grouping option. Alternatively, you can right-click the cell and choose Group from the shortcut menu.
3. In the Grouping dialog box, enter the Starting at: and Ending at: values, and enter or select a By: value.
4. Click Ok.

Move fields

Explanation After creating a PivotTable, you might want to display an entirely different view of the data. You can change the data view by dragging the fields to the other areas in the PivotTable. The PivotTable provides options to show or hide the details. To change data in the PivotTable, however, you need to refresh the table after changing the source data.

You can move a field in a PivotTable by dragging the field to a new area in the PivotTable Field List pane. To show a columnar view of the data drag a report or row field to the Column Labels box in the pane. When you want to arrange data in row fields, drag a report or column field to the Row Labels box in the pane.

| Sum of Total Sale | | Column Labels | | | | |
|--------------------|--|----------------|----------------|----------------|----------------|-----------------|
| Row Labels | | Qtr1 | Qtr2 | Qtr3 | Qtr4 | Grand Total |
| Cogs | | 21098.8 | 19641 | 17983.6 | 15262.2 | 73985.6 |
| Gadgets | | 18926.7 | 15469.8 | 16689.6 | 25765.5 | 76851.6 |
| Sprockets | | 13962 | 22503.2 | 17686.2 | 16694.7 | 70846.1 |
| Widgets | | 21151.7 | 22911.8 | 17487 | 15112.3 | 76662.8 |
| Grand Total | | 75139.2 | 80525.8 | 69846.4 | 72834.7 | 298346.1 |

A PivotTable with fields rearranged and records grouped by date

Refreshing PivotTable data

Explanation You cannot directly change the data in a PivotTable because it's based on source data. To change data in a PivotTable, you must first change the source data and then refresh the PivotTable to reflect the changes.

You can refresh the PivotTable by clicking the Refresh button in the Data group on the Analyze tab.

Formatting PivotTables

Formatting PivotTable data

Explanation You can change the format of a PivotTable by using styles and the Field Settings dialog box. You can use styles to format an entire PivotTable in one step. You can use the Field Settings dialog box to change number formats, specify how data is summarized, and show or hide data.

Using styles

To display formatting options that affect the entire PivotTable, click the PivotTable Tools | Design tab. Some of the styles are specifically designed for PivotTables.

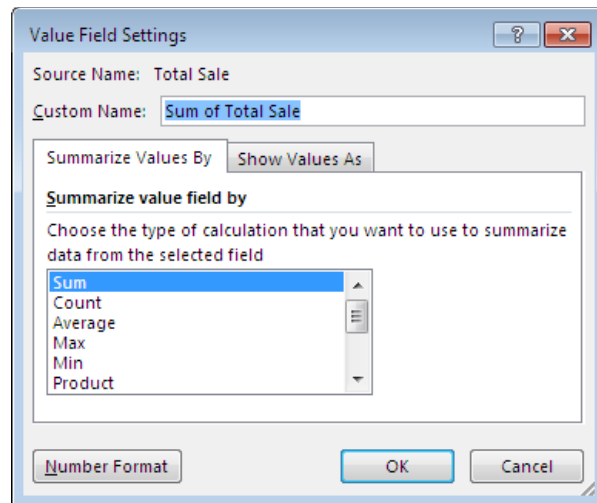
| Sum of Total Sale | | Column Labels ▼ | | | | |
|-------------------|--------|-----------------|-----------|---------|-------------|--|
| Row Labels | ▼ Cogs | Gadgets | Sprockets | Widgets | Grand Total | |
| Central | 2127.8 | 658 | 645.3 | 2388.3 | 5819.1 | |
| Accounts Now | 4182.1 | 1020 | 861.5 | 856 | 6919.1 | |
| Award Sportswear | 1038.1 | 1965.2 | 624.3 | 1566.9 | 5194.5 | |
| Blastera | 1713.2 | 2269.7 | 1941 | 1674.2 | 7598.1 | |
| BlazerFire | 818.3 | 1363.1 | 947.7 | 3184.5 | 6313.6 | |

A sample PivotTable style

Change field settings

Explanation You can change field settings to alter how data appears or is summarized in a PivotTable. To change field settings:

1. Select any cell in the data area.
2. Click the PivotTables Tools | Analyze tab.
3. In the Active Field group, click Field Settings to open the Value Field Settings dialog box.
4. Click the Number Format button to open the Format Cells dialog box. Select the desired options and click OK.
5. Click OK.



The Value Field Settings dialog box

Using PivotCharts

Creating PivotCharts

Explanation You can use a PivotChart to graphically display data from a PivotTable. A single PivotChart provides different views of the same data.

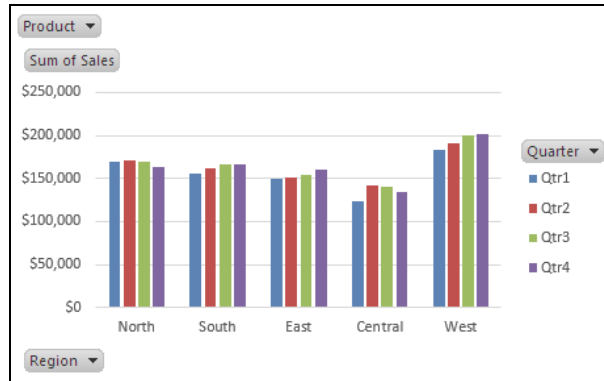
When you create a PivotChart, the row fields of the PivotTable become the categories, and the column fields become the series.

To create a PivotChart, select any cell in a PivotTable and click PivotChart in the Tools group on the PivotTable Tools | Analyze tab. In the Insert Chart dialog box, select options as you would for a standard chart, and click OK.

You can also create a new PivotChart and PivotTable at the same time. To do so, you select a cell in the source data, click the Insert tab, click the PivotTable button's arrow (in the Charts group), and choose PivotChart & PivotTable.

Changing the view of a PivotChart

PivotCharts contain field buttons that are used to change what is displayed for a specific field. For example, to change the regions shown in the sample PivotChart, click the Region field button and select the regions you want to show. The same method can be used to filter the Product and Quarter fields.



A PivotChart

PivotChart styles

As with PivotTables, you can apply built-in styles to your PivotChart. To do so:

1. Select the PivotChart.
2. On the Design tab, in the Chart Styles group, select the desired chart style.
3. Alternatively, click the Chart Styles button to the right of the selected chart, and choose a style from the gallery.