

Microsoft®

Step by Step

Microsoft®

Excel 2010

Build *exactly* the skills you need.
Learn at the pace *you* want.

Curtis D. Frye



Includes
practice files and
online edition
of this book

Sample Chapters

Copyright © 2010 by Curtis Frye

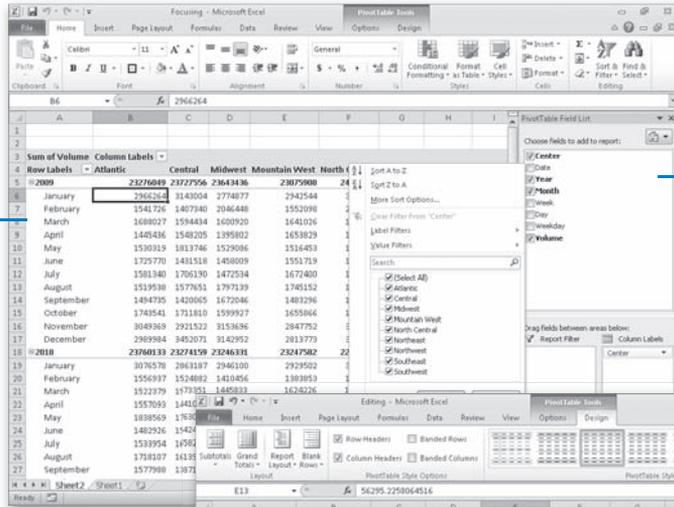
All rights reserved.

To learn more about this book, visit the detail page at:

[*go.microsoft.com/fwlink/?LinkId=191751*](http://go.microsoft.com/fwlink/?LinkId=191751)

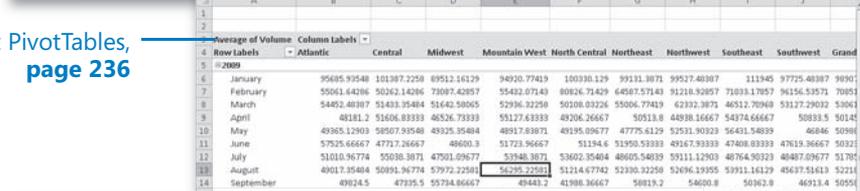
Chapter at a Glance

Analyze data dynamically by using PivotTables, page 212

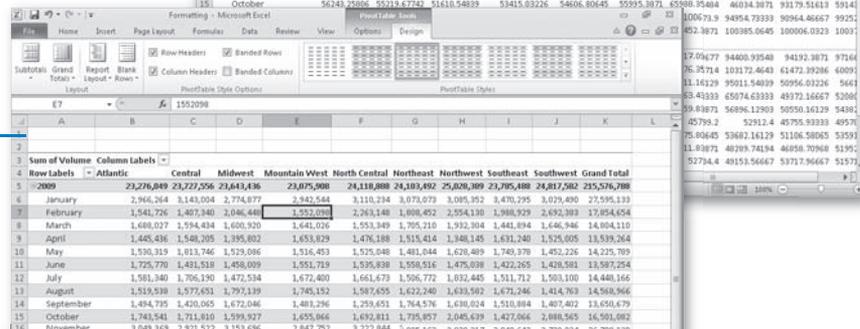


Filter, show, and hide PivotTable data, page 222

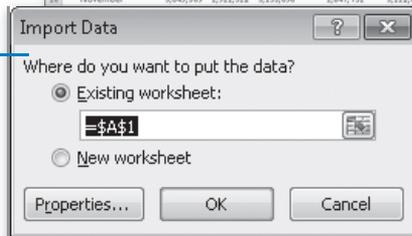
Edit PivotTables, page 236



Format PivotTables, page 242



Create PivotTables from external data, page 250



9 Creating Dynamic Worksheets by Using PivotTables

In this chapter, you will learn how to

- ✓ Analyze data dynamically by using PivotTables.
 - ✓ Filter, show, and hide PivotTable data.
 - ✓ Edit PivotTables.
 - ✓ Format PivotTables.
 - ✓ Create PivotTables from external data.
-

When you create Microsoft Excel 2010 worksheets, you must consider how you want the data to appear when you show it to your colleagues. You can change the formatting of your data to emphasize the contents of specific cells, sort and filter your worksheets based on the contents of specific columns, or hide rows containing data that isn't relevant to the point you're trying to make.

One limitation of the standard Excel worksheet is that you can't easily change how the data is organized on the page. For example, in a worksheet in which each column represents an hour in the day, each row represents a day in a month, and the body of the worksheet contains the total sales for every hourly period of the month, you can't change the worksheet quickly so that it displays only sales on Tuesdays during the afternoon.

There is an Excel tool with which you can create worksheets that can be sorted, filtered, and rearranged dynamically to emphasize different aspects of your data. That tool is the PivotTable.

In this chapter, you'll learn how to create and edit PivotTables from an existing worksheet, focus your PivotTable data using filters and Slicers, format PivotTables, and create a PivotTable with data imported from a text file.

Practice Files Before you can complete the exercises in this chapter, you need to copy the book's practice files to your computer. The practice files you'll use to complete the exercises in this chapter are in the Chapter09 practice file folder. A complete list of practice files is provided in "Using the Practice Files" at the beginning of this book.

Analyzing Data Dynamically by Using PivotTables

With Excel worksheets you can gather and present important data, but the standard worksheet can't be changed from its original configuration easily. As an example, consider a worksheet that records monthly package volumes for each of nine distribution centers in the United States.

	January	February	March	April	May	June	July	August	September
Atlantic	6,042,842	3,098,663	3,210,406	3,002,529	3,368,888	3,208,696	3,115,294	3,237,645	3,000,000
Central	6,006,191	2,932,222	3,167,785	2,989,245	3,576,763	2,973,980	3,364,482	3,194,591	2,800,000
Midwest	5,720,977	3,456,904	3,046,753	3,125,231	3,280,768	3,035,619	2,945,492	3,441,757	3,100,000
Mountain West	5,872,046	2,935,951	3,265,252	3,071,049	3,159,233	3,063,572	3,456,576	3,371,850	2,900,000
North Central	6,236,863	3,785,068	2,929,397	2,677,953	3,079,267	3,040,653	3,521,947	3,166,710	2,900,000
Northeast	6,370,982	3,281,469	3,725,669	3,148,289	3,165,070	2,990,986	3,329,821	3,217,496	3,500,000
Northwest	6,108,382	4,216,668	3,640,750	2,997,048	3,236,144	2,849,014	3,403,395	3,400,949	3,200,000
Southeast	6,396,724	4,877,758	4,387,252	3,583,479	3,513,158	3,009,637	3,175,859	3,168,228	2,900,000
Southwest	5,949,454	4,413,610	3,226,583	3,006,170	3,019,281	2,801,259	3,087,404	2,867,383	3,000,000
Grand Total	54,704,461	32,998,313	30,599,847	27,600,893	29,398,572	26,973,416	29,400,270	29,063,609	27,500,000

Troubleshooting The appearance of buttons and groups on the ribbon changes depending on the width of the program window. For information about changing the appearance of the ribbon to match our screen images, see "Modifying the Display of the Ribbon" at the beginning of this book.

The data in the worksheet is organized so that each row represents a distribution center and each column represents a month of the year. When presented in this arrangement, the monthly totals for all centers and the yearly total for each distribution center are given equal billing: neither set of totals stands out.

Such a neutral presentation of your data is versatile, but it has limitations. First, although you can use sorting and filtering to restrict the rows or columns shown, it's difficult to change the worksheet's organization. For example, in this worksheet, you can't easily reorganize the contents of your worksheet so that the months are assigned to the rows and the distribution centers are assigned to the columns.

The Excel tool to reorganize and redisplay your data dynamically is the PivotTable. You can create a PivotTable, or dynamic worksheet, that enables you to reorganize and filter your data on the fly. For instance, you can create a PivotTable with the same layout as the worksheet described previously, which emphasizes totals by month, and then change the PivotTable layout to have the rows represent the months of the year and the columns represent the distribution centers. The new layout emphasizes the totals by regional distribution center.

Row Labels	Atlantic	Central	Midwest	Mountain West	North Central	Northeast	Northwest	Southeast	Southwest	Grand Total
January	6,042,842	6,006,191	5,720,977	5,872,046	6,236,863	6,370,982	6,108,382	6,396,724	5,949,454	54,704,461
February	3,098,663	2,932,222	3,456,904	2,935,951	3,785,068	3,281,469	4,216,668	4,877,758	4,413,610	32,998,313
March	3,210,406	3,167,785	3,046,753	3,265,252	2,929,397	3,725,669	3,640,750	4,387,252	3,226,583	30,599,847
April	3,002,529	2,989,245	3,125,231	3,071,049	2,677,853	3,148,289	2,997,048	3,583,479	3,006,170	27,600,893
May	3,368,888	3,576,763	3,280,768	3,159,238	3,079,267	3,165,070	3,236,144	3,513,158	3,019,281	29,398,572
June	3,208,696	2,973,980	3,035,619	3,063,572	3,040,653	2,990,986	2,849,014	3,009,637	2,801,259	26,973,416
July	3,115,294	3,364,482	2,945,492	3,456,576	3,521,947	3,329,821	3,403,395	3,175,859	3,087,404	29,400,270
August	3,237,645	3,191,591	3,441,757	3,371,850	3,166,710	3,217,496	3,400,949	3,168,228	2,867,383	29,063,609
September	3,072,723	2,807,222	3,166,599	2,942,925	2,996,901	3,364,148	3,220,056	2,985,491	3,018,941	27,575,006
October	3,261,585	3,362,250	3,333,751	3,182,437	3,125,591	3,346,381	3,789,687	3,196,785	4,462,698	31,061,165
November	6,137,174	6,083,306	6,236,356	6,121,929	6,026,826	6,287,815	6,002,883	6,245,619	5,725,902	54,867,810
December	6,279,737	6,546,678	6,039,560	5,880,670	6,093,514	6,462,079	5,768,374	5,981,613	6,539,476	55,651,701
Grand Total	47,036,182	47,001,715	46,889,767	46,323,490	46,680,590	48,690,205	48,633,350	50,521,603	48,118,161	429,895,063

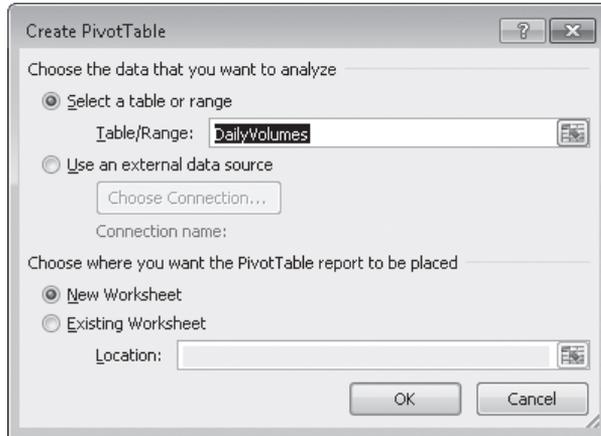
To create a PivotTable, you must have your data collected in a list. Excel tables mesh perfectly with PivotTable dynamic views; not only do Excel tables have a well-defined column and row structure, but the ability to refer to an Excel table by its name also greatly simplifies PivotTable creation and management.

In the Excel table used to create the distribution PivotTable, each row of the table contains a value representing the distribution center, date, month, week, weekday, day, and volume for every day of the years 2009 and 2010.

	Center	Date	Year	Month	Week	Day	Weekday	Volume
3	Atlantic	1/1/2010	2010	January	1	1	Monday	120933
4	Atlantic	1/2/2010	2010	January	1	2	Tuesday	52979
5	Atlantic	1/3/2010	2010	January	1	3	Wednesday	45683
6	Atlantic	1/4/2010	2010	January	1	4	Thursday	53152
7	Atlantic	1/5/2010	2010	January	1	5	Friday	149776
8	Atlantic	1/6/2010	2010	January	1	6	Saturday	108772
9	Atlantic	1/7/2010	2010	January	1	7	Sunday	99913
10	Atlantic	1/8/2010	2010	January	2	8	Monday	138271
11	Atlantic	1/9/2010	2010	January	2	9	Tuesday	77451
12	Atlantic	1/10/2010	2010	January	2	10	Wednesday	130536
13	Atlantic	1/11/2010	2010	January	2	11	Thursday	119809
14	Atlantic	1/12/2010	2010	January	2	12	Friday	64125
15	Atlantic	1/13/2010	2010	January	2	13	Saturday	146927
16	Atlantic	1/14/2010	2010	January	2	14	Sunday	62505
17	Atlantic	1/15/2010	2010	January	3	15	Monday	56662
18	Atlantic	1/16/2010	2010	January	3	16	Tuesday	119081
19	Atlantic	1/17/2010	2010	January	3	17	Wednesday	116136
20	Atlantic	1/18/2010	2010	January	3	18	Thursday	158629
21	Atlantic	1/19/2010	2010	January	3	19	Friday	46917
22	Atlantic	1/20/2010	2010	January	3	20	Saturday	86771
23	Atlantic	1/21/2010	2010	January	3	21	Sunday	129079
24	Atlantic	1/22/2010	2010	January	4	22	Monday	82806
25	Atlantic	1/23/2010	2010	January	4	23	Tuesday	49040
26	Atlantic	1/24/2010	2010	January	4	24	Wednesday	133663
27	Atlantic	1/25/2010	2010	January	4	25	Thursday	66235

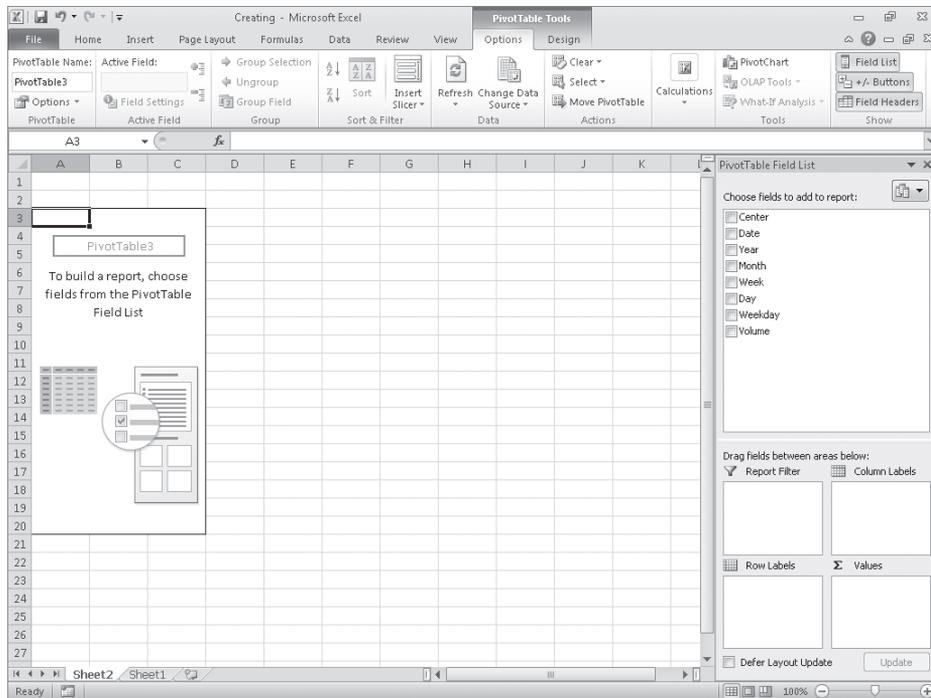
Excel needs that data when it creates the PivotTable so that it can maintain relationships among the data. If you want to filter your PivotTable so that it shows all package volumes on Thursdays in January, for example, Excel must be able to identify January 11 as a Thursday.

After you create an Excel table, you can click any cell in the table, display the Insert tab and then, in the Tables group, click PivotTable to open the Create PivotTable dialog box.



In this dialog box, you verify the data source for your PivotTable and whether you want to create a PivotTable on a new worksheet or an existing worksheet. After you click OK, Excel displays a new or existing worksheet and displays the PivotTable Field List task pane.

Tip You should always place your PivotTable on its own worksheet to avoid cluttering the display.



It's important to note that the order in which you enter the fields in the Row Labels and Column Labels areas affects how Excel organizes the data in your PivotTable. As an example, consider a PivotTable that groups the PivotTable rows by distribution center and then by month.

The screenshot displays the Microsoft Excel interface with a PivotTable and the PivotTable Field List task pane. The PivotTable is structured as follows:

Row Labels	Sum of Volume
Atlantic	47036182
January	6042842
February	3098663
March	3210406
April	3002529
May	3368888
June	3208696
July	3115294
August	3237645
September	3072723
October	3261585
November	6137174
December	6279737
Central	47001715
January	6006191
February	2932222
March	3167785
April	2989245
May	3576763
June	2973980
July	3364482
August	3191591
September	2807222
October	3362250

The PivotTable Field List task pane shows the following configuration:

- Choose fields to add to report:**
 - Center
 - Date
 - Year
 - Month
 - Week
 - Day
 - Weekday
 - Volume
- Drag fields between areas below:**
 - Report Filter:** (Empty)
 - Column Labels:** (Empty)
 - Row Labels:** Center, Month
 - Values:** Sum of Volume

The same PivotTable data could also be organized by month and then by distribution center.

The screenshot shows a Microsoft Excel PivotTable with the following data:

Row Labels	Sum of Volume
January	54704461
Atlantic	6042842
Central	6006191
Midwest	5720977
Mountain West	5872046
North Central	6236863
Northeast	6370982
Northwest	6108382
Southeast	6396724
Southwest	5949454
February	32998313
Atlantic	3098663
Central	2932222
Midwest	3456304
Mountain West	2935951
North Central	3785068
Northeast	3281469
Northwest	4216668
Southeast	4877758
Southwest	4413610
March	30599847
Atlantic	3210406
Central	3167785
Midwest	3046753

In the preceding examples, all the field headers are in the Row Labels area. If you drag the Center header from the Row Labels area to the Column Labels area, the PivotTable reorganizes (pivots) its data to form a different configuration.

The screenshot shows Microsoft Excel with a PivotTable and the PivotTable Field List task pane. The PivotTable is titled 'Sum of Volume' and is located in the range A3:I17. The data is summarized by month (row labels) and region (column labels). The regions included are Atlantic, Central, Midwest, Mountain West, North Central, Northeast, Northwest, and Southeast. The 'Grand Total' row shows the sum of volumes for each region.

Row Labels	Atlantic	Central	Midwest	Mountain West	North Central	Northeast	Northwest	Southeast
January	6042842	6006191	5720977	5872046	6236863	6370982	6108382	639677
February	3098663	2932222	3456904	2935951	3785068	3281469	4216668	487777
March	3210406	3167785	3046753	3265252	2929397	3725669	3640750	438727
April	3002529	2989245	3125231	3071049	2677853	3148289	2997048	35834
May	3368888	3576763	3280768	3159233	3079267	3165070	3236144	351311
June	3208696	2973980	3035619	3063572	3040653	2990986	2849014	300967
July	3115294	3364482	2945492	3456576	3521947	3329821	3403395	317587
August	3237645	3191591	3441757	3371850	3166710	3217496	3400949	316827
September	3072723	2807222	3166599	2942925	2996901	3364148	3220056	298547
October	3261585	3362250	3333751	3182437	3125591	3346381	3789687	319677
November	6137174	6083306	6236356	6121929	6026826	6287815	6002883	624567
December	6279737	6546678	6099560	5880670	6093514	6462079	5768374	598167
Grand Total	47036182	47001715	46889767	46323490	46680590	48690205	48633350	5052164

The PivotTable Field List task pane on the right shows the following configuration:

- Choose fields to add to report:
 - Center
 - Date
 - Year
 - Month
 - Week
 - Day
 - Weekday
 - Volume
- Drag fields between areas below:
 - Report Filter: (empty)
 - Column Labels: Center
 - Row Labels: Month
 - Values: Sum of Volume
- Defer Layout Update: Update

To pivot a PivotTable, you drag a field header to a new position in the PivotTable Field List task pane. As you drag a field within the task pane, Excel displays a blue line in the interior of the target area so you know where the field will appear when you release the left mouse button. If your data set is large or if you based your PivotTable on a data collection on another computer, it might take some time for Excel to reorganize the PivotTable after a pivot. You can have Excel delay redrawing the PivotTable by selecting the Defer Layout Update check box in the lower-left corner of the PivotTable Field List task pane. When you're ready for Excel to display the reorganized PivotTable, click Update.

If you expect your PivotTable source data to change, such as when you link to an external database that records shipments or labor hours, you should ensure that your PivotTable summarizes all the available data. To do that, you can refresh the PivotTable connection to its data source. If Excel detects new data in the source table, it updates the PivotTable contents accordingly. To refresh your PivotTable, click any cell in the PivotTable and then, on the Options contextual tab, in the Data group, click Refresh.

In this exercise, you'll create a PivotTable by using data from a table, add fields to the PivotTable, and then pivot the PivotTable.



SET UP You need the *Creating_start* workbook located in your Chapter09 practice file folder to complete this exercise. Start Excel, open the *Creating_start* workbook, and save it as *Creating*. Then follow the steps.



1. Click any cell in the Excel table.
2. On the **Insert** tab, in the **Tables** group, click the **PivotTable** button (not the arrow).
The Create PivotTable dialog box opens.
3. Verify that the **DailyVolumes** table name appears in the **Table/Range** field and that the **New Worksheet** option is selected.
4. Click **OK**.

Excel creates a PivotTable on a new worksheet.

5. In the **PivotTable Field List** task pane, drag the **Center** field header to the **Row Labels** area.

Excel adds the Center field values to the PivotTable row area.

The screenshot shows the Microsoft Excel interface with the PivotTable Tools ribbon active. The PivotTable is located on a new worksheet named 'Sheet2'. The PivotTable has 'Center' as the Row Labels and 'Volume' as the Values. The PivotTable Field List task pane is open on the right, showing the 'Center' field in the Row Labels area and the 'Volume' field in the Values area. The PivotTable data is as follows:

Center	Volume
Atlantic	
Central	
Midwest	
Mountain West	
North Central	
Northeast	
Northwest	
Southeast	
Southwest	
Grand Total	

6. In the **PivotTable Field List** task pane, drag the **Year** field header to the **Column Labels** area.

Excel adds the Year field values to the PivotTable column area.

7. In the **PivotTable Field List** task pane, drag the **Volume** field header to the **Values** area.

Excel fills in the body of the PivotTable with the Volume field values.

8. In the **PivotTable Field List** task pane, in the **Column Labels** area, drag the **Year** field header to the **Row Labels** area, and drop it beneath the **Center** field header.

Excel changes the PivotTable to reflect the new organization.

The screenshot shows Microsoft Excel with a PivotTable and the PivotTable Field List task pane. The PivotTable is structured as follows:

Row Labels	Sum of Volume
Atlantic	47036182
2009	23276049
2010	23760133
Central	47001715
2009	23727556
2010	23274159
Midwest	46889767
2009	23643436
2010	23246331
Mountain West	46323490
2009	23075908
2010	23247582
North Central	46680590
2009	24118888
2010	22561702
Northeast	48690205
2009	24103492
2010	24586713
Northwest	48633350
2009	25028389
2010	23604961
Southeast	50521603
2009	23785488
2010	26736115

The PivotTable Field List task pane shows the following fields:

- Center (checked)
- Date (unchecked)
- Year (checked)
- Month (unchecked)
- Week (unchecked)
- Day (unchecked)
- Weekday (unchecked)
- Volume (checked)

The task pane also shows the following layout:

- Report Filter: Center, Year
- Column Labels: (empty)
- Row Labels: Center, Year
- Values: Sum of Volume

CLEAN UP Save the Creating workbook, and then close it.

Filtering, Showing, and Hiding PivotTable Data

PivotTables often summarize huge data sets in a relatively small worksheet. The more details you can capture and write to a table, the more flexibility you have in analyzing the data. As an example, consider all the details captured in a table in which each row contains a value representing the distribution center, date, month, week, weekday, day, and volume for every day of the year.

	Center	Date	Year	Month	Week	Day	Weekda	Volume
3	Atlantic	1/1/2010	2010	January	1	1	Monday	120933
4	Atlantic	1/2/2010	2010	January	1	2	Tuesday	52979
5	Atlantic	1/3/2010	2010	January	1	3	Wednesday	45683
6	Atlantic	1/4/2010	2010	January	1	4	Thursday	53152
7	Atlantic	1/5/2010	2010	January	1	5	Friday	149776
8	Atlantic	1/6/2010	2010	January	1	6	Saturday	108772
9	Atlantic	1/7/2010	2010	January	1	7	Sunday	99919
10	Atlantic	1/8/2010	2010	January	2	8	Monday	138271
11	Atlantic	1/9/2010	2010	January	2	9	Tuesday	77451
12	Atlantic	1/10/2010	2010	January	2	10	Wednesday	130536
13	Atlantic	1/11/2010	2010	January	2	11	Thursday	119809
14	Atlantic	1/12/2010	2010	January	2	12	Friday	64125
15	Atlantic	1/13/2010	2010	January	2	13	Saturday	146927
16	Atlantic	1/14/2010	2010	January	2	14	Sunday	62505
17	Atlantic	1/15/2010	2010	January	3	15	Monday	56662
18	Atlantic	1/16/2010	2010	January	3	16	Tuesday	119081
19	Atlantic	1/17/2010	2010	January	3	17	Wednesday	116136
20	Atlantic	1/18/2010	2010	January	3	18	Thursday	158629
21	Atlantic	1/19/2010	2010	January	3	19	Friday	46917
22	Atlantic	1/20/2010	2010	January	3	20	Saturday	86771
23	Atlantic	1/21/2010	2010	January	3	21	Sunday	129079
24	Atlantic	1/22/2010	2010	January	4	22	Monday	82806
25	Atlantic	1/23/2010	2010	January	4	23	Tuesday	49040
26	Atlantic	1/24/2010	2010	January	4	24	Wednesday	133663
27	Atlantic	1/25/2010	2010	January	4	25	Thursday	66235

Each column, in turn, contains numerous values: there are nine distribution centers, data from two years, 12 months in a year, seven weekdays, and as many as five weeks and 31 days in a month. Just as you can filter the data that appears in an Excel table or other data collection, you can filter the data displayed in a PivotTable by selecting which values you want the PivotTable to include.

See Also For more information on filtering an Excel table, see “Limiting Data That Appears on Your Screen” in Chapter 5, “Focusing on Specific Data by Using Filters.”

To filter a PivotTable based on a field's contents, click the field's header in the Choose Fields To Add To Report area of the PivotTable Field List task pane. When you do, Excel displays a menu of sorting and filtering options.

The screenshot shows the Microsoft Excel interface with a PivotTable and the PivotTable Field List task pane. The PivotTable displays sales data by month and region. The PivotTable Field List task pane is open, showing the 'Volume' field selected. A context menu is open over the 'Volume' field, displaying sorting and filtering options. The 'Filter By' option is selected, and a list of regions is shown with checkboxes next to them. The 'Select All' checkbox is checked.

Row Labels	Atlantic	Central	Midwest	Mountain West	North
2009	23276049	23727556	23643436	23075908	24111111
January	2966264	3143004	2774877	2942544	2411111
February	1541726	1407340	2046448	1552098	2411111
March	1688027	1594434	1600920	1641026	2411111
April	1445436	1548205	1395802	1653829	2411111
May	1530319	1813746	1529086	1516453	2411111
June	1725770	1431518	1458009	1551719	2411111
July	1581340	1706190	1472534	1672400	2411111
August	1519538	1577651	1797139	1745152	2411111
September	1494735	1420065	1672046	1483296	2411111
October	1743541	1711810	1599927	1655866	2411111
November	3049369	2921522	3153696	2847752	2411111
December	2989984	3452071	3142952	2813773	2411111
2010	23760133	23274159	23246331	23247582	22111111
January	3076578	2863187	2946100	2929502	2211111
February	1565937	1524882	1410456	1383853	2211111
March	1522379	1573351	1445833	1624226	2211111
April	1557093	1441040	1729429	1417220	2211111
May	1838569	1763017	1751682	1642780	2211111
June	1482926	1542462	1577610	1511853	2211111
July	1533954	1658292	1472958	1784176	2211111
August	1718107	1613940	1644618	1626698	2211111
September	1577988	1387157	1494553	1459629	2211111

The PivotTable displays several sorting options, commands for different categories of filters, and a list of items that appear in the field you want to filter. Every list item has a check box next to it. Items with a check mark in the box are currently displayed in the PivotTable, and items without a check mark are hidden.

The first entry at the top of the item list is the Select All check box. The Select All check box can have one of three states: displaying a check mark, displaying a black square, or empty. If the Select All check box contains a check mark, then the PivotTable displays every item in the list. If the Select All check box is empty, then no filter items are selected. Finally, if the Select All check box contains a black square, it means that some, but not all, of the items in the list are displayed. Selecting only the Northwest check box, for example, leads to a PivotTable configuration in which only the data for the Northwest center is displayed.

The screenshot shows an Excel PivotTable with the following data:

Row Labels	Northwest	Grand Total
2009	25028389	25028389
January	3085352	3085352
February	2554130	2554130
March	1932304	1932304
April	1348145	1348145
May	1628489	1628489
June	1475038	1475038
July	1832445	1832445
August	1633582	1633582
September	1638024	1638024
October	2045639	2045639
November	3020217	3020217
December	2835024	2835024
2010	23604961	23604961
January	3023030	3023030
February	1662538	1662538
March	1708446	1708446
April	1648903	1648903
May	1607655	1607655
June	1373976	1373976
July	1570950	1570950
August	1767367	1767367
September	1582032	1582032

If you'd rather display as much PivotTable data as possible, you can hide the PivotTable Field List task pane and filter the PivotTable by using the filter arrows on the Row Labels and Column Labels headers within the body of the PivotTable. Clicking either of those headers enables you to select a field by which you can filter; you can then define the filter by using the same controls you see when you click a field header in the PivotTable Field List task pane.

Excel indicates that a PivotTable has filters applied by placing a filter indicator next to the Column Labels or Row Labels header, as appropriate, and the filtered field name in the PivotTable Field List task pane.

So far, all the fields by which we've filtered the PivotTable have changed the organization of the data in the PivotTable. Adding some fields to a PivotTable, however, might create unwanted complexity. For example, you might want to filter a PivotTable by weekday, but adding the Weekday field to the body of the PivotTable expands the table unnecessarily.

The screenshot shows Microsoft Excel with a PivotTable and the PivotTable Field List task pane. The PivotTable is titled 'Sum of Volume' and shows data for 2009, filtered by 'Center' and 'Date'. The PivotTable has 'Row Labels' (Center) and 'Column Labels' (Date). The PivotTable Field List task pane shows the following configuration:

- Choose fields to add to report:
 - Center
 - Date
 - Year
 - Month
 - Week
 - Day
 - Weekday
 - Volume
- Drag fields between areas below:
 - Report Filter: Year, Weekday
 - Column Labels: (empty)
 - Row Labels: Center
 - Values: Sum of Volume

The PivotTable data is as follows:

	2009							2009 Total	
Row Labels	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	
Atlantic	3349646	3366196	2917606	3567714	3386663	3234905	3453319	23276049	333220
Central	3366199	3527584	3365866	3263079	3684297	3199712	3320819	23727556	356458
Midwest	3475968	3091127	3463291	3245714	3149896	3550054	3667386	23643436	344790
Mountain West	3268404	3068409	3200078	3298019	3515603	3367632	3357763	23075908	340493
North Central	3741370	3215869	3428683	3686605	3401691	3187468	3457202	24118888	319569
Northeast	3601318	3470147	3593310	3511717	3083115	3347686	3496199	24103492	356489
Northwest	3767825	3374432	3812518	3519655	3360028	3402908	3791023	25028389	320676
Southeast	3473394	3348605	3575267	3257557	3293217	3569446	3268002	23785488	375650
Southwest	3570147	3396272	3632371	3872515	3427383	3739919	3178975	24817582	357815
Grand Total	31614271	29858641	30980990	31222575	30301893	30599730	30990688	215576788	3105163

Instead of adding the Weekday field to the Row Labels or Column Labels area, you can drag the field to the Report Filter area near the bottom of the PivotTable Field List task pane. Doing so leaves the body of the PivotTable unchanged, but adds a new area above the PivotTable in its worksheet.

The screenshot shows the Microsoft Excel interface with a PivotTable and the PivotTable Field List task pane. The PivotTable is located in the range B3:D14 and displays the following data:

Row Labels	2009	2010	Grand Total
Atlantic	23276049	23760133	47036182
Central	23727556	23274159	47001715
Midwest	23649436	23246331	46895767
Mountain West	23075908	23247582	46323490
North Central	24118898	22561702	46680590
Northeast	24103492	24586713	48690205
Northwest	25028989	23604961	48633950
Southeast	23785488	26736115	50521603
Southwest	24817582	23300579	48118161
Grand Total	215576788	214318275	429895063

The PivotTable Field List task pane on the right shows the following configuration:

- Choose fields to add to report:**
 - Center
 - Date
 - Year
 - Month
 - Week
 - Day
 - Weekday
 - Volume
- Drag fields between areas below:**
 - Report Filter:** Weekday
 - Column Labels:** Year
 - Row Labels:** Center
 - Values:** Sum of Volume
- Defer Layout Update
- Update

Tip In Excel 2003 and earlier versions, this area was called the Page Field area.

When you click the filter arrow of a field in the Report Filter area, Excel displays a list of the values in the field. When you click the filter arrow, you can choose to filter by one value at a time. If you'd like to filter your PivotTable by more than one value, you can do so by selecting the Select Multiple Items check box.

If your PivotTable has more than one field in the Row Labels area, you can filter values in a PivotTable by hiding and collapsing levels of detail within the report. To do that, you click the Hide Detail control (which looks like a box with a minus sign in it) or the Show Detail control (which looks like a box with a plus sign in it) next to a header.

For example, you might have your data divided by year; clicking the Show Detail control next to the 2009 year header would display that year's details. Conversely, clicking the 2010 year header's Hide Detail control would hide the individual months' values and display only the year's total.

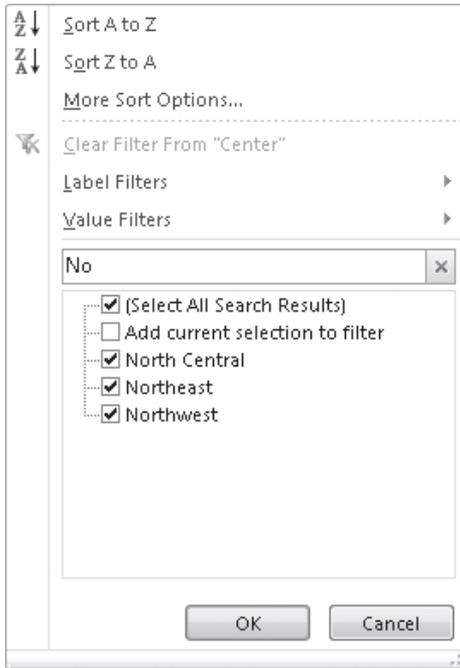
The screenshot displays the Microsoft Excel 2010 interface. The PivotTable is located in the worksheet, with the PivotTable Field List task pane open on the right. The PivotTable shows data for the years 2009 and 2010, categorized by region. The PivotTable Field List task pane shows the following configuration:

- Choose fields to add to report:**
 - Center
 - Date
 - Year
 - Month
 - Week
 - Day
 - Weekday
 - Volume
- Drag fields between areas below:**
 - Report Filter:** (Empty)
 - Column Labels:** (Empty)
 - Row Labels:** Year, Center
 - Values:** Sum of Volume
- Defer Layout Update:** (Checked)

The PivotTable data is as follows:

Row Labels	Sum of Volume
2009	215576788
Atlantic	23276049
Central	23727556
Midwest	23643436
Mountain West	23075908
North Central	24118888
Northeast	24103492
Northwest	25028389
Southeast	23785488
Southwest	24817582
2010	214318275
Grand Total	429895063

Excel 2010 provides two new ways for you to filter PivotTables: search filters and Slicers. With a search filter, you can type in a series of characters for Excel to filter that field's values. To create a search filter, click a field's filter arrow and type the character string for which you want to search in the filter menu's Search box.

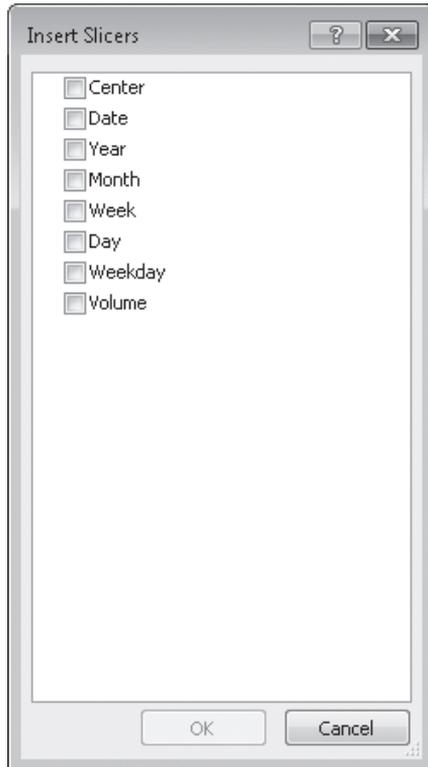


For example, if the PivotTable's Center field contains the values Atlantic, Central, Midwest, Mountain West, North Central, Northeast, Northwest, Southeast, and Southwest, typing the character string "No" limits the values to *North Central*, *Northeast*, and *Northwest*.

Tip Search filters look for the character string you specify anywhere within a field's value, not just at the start of the value. In the previous example, the search filter string "cen" would return both *Central* and *North Central*.

In versions of Excel prior to Excel 2010, the only visual indication that you had applied a filter to a field was the indicator added to a field's filter arrow. The indicator told users that there was an active filter applied to that field but provided no information on which values were displayed and which were hidden. In Excel 2010, Slicers provide a visual indication of which items are currently displayed or hidden in a PivotTable.

To create a Slicer, click any cell in a PivotTable and then, on the Options contextual tab of the ribbon, in the Sort & Filter group, click Insert Slicer to display the Insert Slicers dialog box.



Select the check box next to the fields for which you want to create a Slicer, and click OK. When you do, Excel 2010 displays a Slicer for each field you identified.

The screenshot shows an Excel 2010 workbook with a PivotTable and two slicers. The PivotTable is titled 'Sum of Volume' and has 'Column Labels' (Northwest, Grand Total) and 'Row Labels' (Year, Month). The data is filtered by the 'Center' slicer, which is currently set to 'Northwest'. The 'Weekday' slicer is set to 'Saturday'. The PivotTable data is as follows:

Year	Month	Northwest	Grand Total
2009		25028389	25028389
2009	January	3085352	3085352
2009	February	2554130	2554130
2009	March	1932304	1932304
2009	April	1348145	1348145
2009	May	1628489	1628489
2009	June	1475038	1475038
2009	July	1832445	1832445
2009	August	1633582	1633582
2009	September	1638024	1638024
2009	October	2045639	2045639
2009	November	3020217	3020217
2009	December	2835024	2835024
2010		23604961	23604961
2010	January	3023030	3023030
2010	February	1662538	1662538
2010	March	1708446	1708446
2010	April	1648903	1648903
2010	May	1607655	1607655
2010	June	1373976	1373976
2010	July	1570950	1570950
2010	August	1767367	1767367
2010	September	1582032	1582032

Tip If you have already applied a filter to the field for which you display a Slicer, the Slicer reflects the filter's result.

A Slicer displays the values within the PivotTable field you identified. Any value displayed in color (or gray if you select a gray-and-white color scheme) appears within the PivotTable. Values displayed in light gray or white do not appear in the PivotTable.

Clicking an item in a Slicer changes that item's state—if a value is currently displayed in a PivotTable, clicking it hides it. If it's hidden, clicking its value in the Slicer displays it in the PivotTable. As with other objects in an Excel 2010 workbook, you can use the Shift and Ctrl keys to help define your selections. For example, suppose you create a Slicer for the Month field while every month is displayed.



If you want to hide every month except January, February, and March, you click the January item to hide every month except January. Then hold down the Shift key and click March to have Excel 2010 display just the data for the months of January, February, and March. You can then add another month, such as July, to the filter by holding down the Ctrl key and clicking July in the Slicer.

Row Labels	January	February	March	July	Grand Total
Atlantic	6042842	3098663	3210406	3115294	15467205
Central	6006191	2932222	3167785	3364482	15470680
Midwest	5720977	3456904	3046753	2945492	15170126
Mountain West	5872046	2935951	3265252	3456576	15529825
North Central	6236863	3785068	2929397	3521947	16473275
Northeast	6370982	3281469	3725669	3329821	16707941
Northwest	6108382	4216668	3640750	3403395	17369195
Southeast	6396724	4877758	4387252	3175859	18837593
Southwest	5949454	4413610	3226583	3087404	16677051
Grand Total	54704461	32998313	30599847	29400270	147702891

To use a Slicer to remove a filter, click the Clear Filter button in the upper-right corner of the Slicer. If you want to resize a Slicer, you can do so by dragging the resize handle in the lower-right corner of the Slicer. To hide the Slicer, right-click it and then click the menu command that starts with the word "Remove." For example, the Month field's menu command would be Remove Month.

Tip You can change a Slicer's formatting by clicking the Slicer and then, on the Slicer Tools Options contextual tab on the ribbon, clicking a style in the Slicer Styles gallery.

In this exercise, you'll focus the data displayed in a PivotTable by creating a filter, by filtering a PivotTable based on the contents of a field in the Report Filters area, by showing and hiding levels of detail within the body of the PivotTable, by using the Search box, and by using Slicers.



SET UP You need the *Focusing_start* workbook located in your Chapter09 practice file folder to complete this exercise. Open the *Focusing_start* workbook, and save it as *Focusing*. Then follow the steps.

1. On the **Sheet2** worksheet, click any cell in the PivotTable.
2. In the **PivotTable Field List** task pane's **Choose fields to add to report** area, click the **Center** field header, click the **Center** field filter arrow, and then clear the **(Select All)** check box.

Excel clears all the check boxes in the filter menu.

3. Select the **Northwest** check box, and then click **OK**.

Excel filters the PivotTable.

The screenshot shows the Microsoft Excel interface with a PivotTable. The PivotTable is filtered by 'Northwest'. The PivotTable Field List task pane is open on the right, showing the 'Choose fields to add to report' area with 'Center', 'Date', 'Year', 'Month', 'Week', 'Day', 'Weekday', and 'Volume' fields. The 'Report Filter' area is empty, and the 'Column Labels' area contains 'Center'. The 'Row Labels' area contains 'Year' and 'Month'. The 'Values' area contains 'Sum of Volume'. The 'Defer Layout Update' button is checked, and the 'Update' button is visible.

Row Labels	Northwest	Grand Total
2009	25028389	25028389
January	3085352	3085352
February	2554130	2554130
March	1932304	1932304
April	1348145	1348145
May	1628489	1628489
June	1475038	1475038
July	1832445	1832445
August	1633582	1633582
September	1638024	1638024
October	2045639	2045639
November	3020217	3020217
December	2835024	2835024
2010	23604961	23604961
January	3023030	3023030
February	1662538	1662538
March	1708446	1708446
April	1648903	1648903
May	1607655	1607655
June	1373976	1373976
July	1570950	1570950
August	1767367	1767367
September	1582032	1582032



4. On the Quick Access Toolbar, click the **Undo** button.

Excel removes the filter.

5. In the **PivotTable Field List** task pane, drag the **Weekday** field header from the **Choose fields to add to report** area to the **Report Filter** area in the **Drag fields between areas below** area.



6. In the **PivotTable Field List** task pane, click the **Close** button.

The PivotTable Field List task pane closes.

7. In the body of the worksheet, click the **Weekday** filter arrow, and then, if necessary, select the **Select Multiple Items** check box.

Excel adds check boxes beside the items in the Weekday field filter list.

8. Clear the **All** check box.

Excel clears each check box in the list.

9. Select the **Tuesday** and **Thursday** check boxes, and then click **OK**.

Excel filters the PivotTable, summarizing only those values from Tuesdays and Thursdays.

10. In cell A5, click the **Hide Detail** button.

Excel collapses rows that contain data from the year 2009, leaving only the subtotal row that summarizes that year's data.

Row Labels	Central	Midwest	Mountain West	North Central	Northeast	Northwest	Southeast	Southwest	Grand Total	
2009	6304269	7050163	6613187	6715681	6830374	6676425	7172546	6868484	7059754	61290883
2010	6408599	6396590	6560131	6770917	6403907	7100828	6958578	7603129	6821849	61024528
January	804732	754373	897073	797919	1046123	1011522	828808	918691	903898	7963139
February	354605	393253	404779	468433	317816	491253	496082	769473	505165	4200859
March	415459	505582	483626	552340	378419	675428	613523	625414	534474	4784265
April	371817	344889	501087	398673	408752	464939	464709	542248	346562	3843676
May	656248	544346	521495	518365	453737	558449	554031	571733	501347	4879751
June	439783	379390	400158	469828	392332	399097	361672	522677	425300	3790237
July	466464	472849	496806	477128	577545	514837	573958	459299	445427	4484313
August	383976	476570	450256	471688	451592	490214	418089	416813	551905	4111103
September	436658	354749	324506	440185	477363	358781	535014	380537	398376	3722169
October	443686	439651	461195	409460	470179	422210	499294	481044	413044	4039763
November	916393	954607	914420	1094284	753727	790101	858666	1088362	977772	8348332
December	718778	776331	704730	664614	676322	923997	754732	818838	818579	6856921
Grand Total	12712868	13446753	13173318	13486598	13234281	13777253	14131124	14471613	13881603	122315411

11. In cell **A5**, click the **Show Detail** button.

Excel redisplay the collapsed rows.



12. On the ribbon, click the **Options** contextual tab, and then, in the **Show** group, click **Field List**.

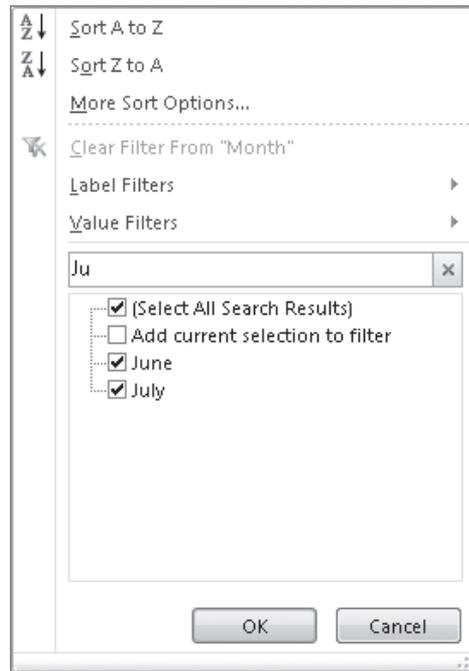
The PivotTable Field List task pane opens.

13. In the **PivotTable Field List** task pane, click the **Month** field header arrow.

The filter menu opens.

14. In the **Search** box, type **Ju**.

Excel displays the months June and July in the filter list.



15. Click **OK**.

Excel applies the filter.



16. On the **Options** contextual tab of the ribbon, in the **Actions** group, click the **Clear** button, and then click **Clear Filters**.

Excel clears all filters from the PivotTable.



17. On the **Options** contextual tab of the ribbon, in the **Sort & Filter** group, click **Insert Slicer**.

The Insert Slicers dialog box opens.

18. In the **Insert Slicers** dialog box, select the **Center** check box, and then click **OK**.

A Slicer for the Center field appears.

19. Click the **Atlantic** item.

Excel filters the PivotTable so only results for the Atlantic center appear.

20. In the Slicer, click **Midwest**, and then, while holding down the Ctrl key, click **Mountain West** and then **Northwest**.

Excel filters the PivotTable so it displays results for the Midwest, Mountain West, and Northwest centers.

The screenshot shows the Excel interface with a PivotTable and a Slicer. The PivotTable is structured as follows:

Row Labels	Midwest	Mountain West	Northwest	Grand Total
2009	6613187	6715681	7172546	20501414
January	792834	764561	959024	2516419
February	685389	494819	746762	1926970
March	437581	455881	588124	1481586
April	294802	518039	428172	1241013
May	389622	535536	456219	1381377
June	559270	411328	417390	1387988
July	419866	393082	520732	1336680
August	550578	574290	531564	1656432
September	469726	433862	398105	1301693
October	446065	441216	619675	1506956
November	931687	849746	825744	2607177
December	635767	843321	681035	2160123
2010	6560131	6770917	6958578	20289626
January	897073	797919	828808	2523800
February	404779	468433	496082	1369294
March	483626	552340	613523	1649489
April	501087	398673	464709	1364469
May	521495	518365	554031	1593891
June	400158	469828	361672	1231658
July	496806	477128	573958	1547892
August	450256	471688	418089	1340033
September	324506	448185	535014	1307705

The Slicer is titled 'Center' and has a list of options: Atlantic, Central, Midwest, Mountain West, North Central, Northeast, Northwest, and Southeast. The 'Midwest', 'Mountain West', and 'Northwest' options are selected and highlighted in grey.



21. In the upper-right corner of the Slicer, click the **Clear Filter** button.

Excel removes the filter from the Center field.

22. Right-click the Slicer, and then click **Remove "Center"**.

Excel closes the Slicer.



CLEAN UP Save the Focusing workbook, and then close it.

Editing PivotTables

After you create a PivotTable, you can rename it, edit it to control how it summarizes your data, and use the PivotTable cell data in a formula. As an example, consider a PivotTable named *PivotTable2* that summarizes package volumes for every Consolidated Messengers regional distribution hub.

The screenshot shows the Microsoft Excel interface with a PivotTable and the PivotTable Field List task pane. The PivotTable is named "PivotTable2" and is located in the range C3:I27. The PivotTable Field List shows the following configuration:

- Center: Center
- Date: Date
- Year: Year
- Month: Month
- Week: Week
- Day: Day
- Weekday: Weekday
- Volume: Volume

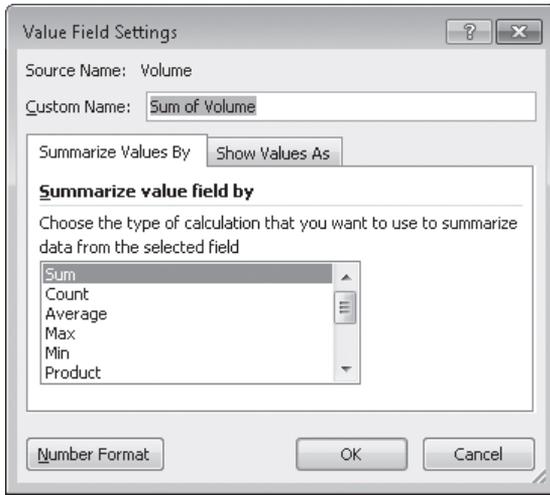
The PivotTable data is as follows:

Row Labels	Atlantic	Central	Midwest	Mountain West	North Central	Northeast	Northwest	Southeast
2009	23276049	23727556	23643436	23075908	24118888	24103492	25028389	23785444
January	2966264	3149004	2774877	2942544	3110234	3073073	3085352	347021
February	1541726	1407340	2046448	1552098	2263148	1808452	2554130	198891
March	1688027	1594434	1600920	1641026	1553349	1705210	1932304	144181
April	1445436	1548205	1395802	1653829	1476188	1515414	1348145	163121
May	1530319	1813746	1529086	1516453	1525048	1481044	1628489	174931
June	1725770	1431518	1458009	1551719	1535838	1558516	1475038	142221
July	1581340	1706190	1472534	1672400	1661673	1506772	1832445	151171
August	1519538	1577651	1797139	1745152	1587655	1622240	1633582	167121
September	1494735	1420065	1672046	1483296	1259651	1764576	1638024	151081
October	1743541	1711810	1559927	1655866	1692811	1738587	2045639	142701
November	3049369	2921522	3153636	2847752	3222844	3005162	3020217	284861
December	2989984	3452071	3142952	2813773	3230449	3327176	2835024	311191
2010	23760133	23274159	23246331	23247582	22561702	24506713	23604961	2673611
January	3076578	2863187	2946100	2929502	3126629	3297909	3023030	292641
February	1556937	1524882	1410456	1383853	1521920	1473017	1662538	288881
March	1522379	1573351	1445833	1624226	1376048	2020459	1708446	294591
April	1557093	1441040	1729429	1417220	1201665	1632875	1648903	195221
May	1838569	1763017	1751682	1642780	1554219	1684026	1607655	176371
June	1482926	1542462	1577610	1511853	1504815	1432470	1373976	158731
July	1533954	1658292	1472958	1784176	1860274	1823049	1570950	166411
August	1718107	1613940	1644618	1626698	1579055	1595256	1767367	149691
September	1759798	1387157	1494553	1459629	1737250	1599572	1582032	147461

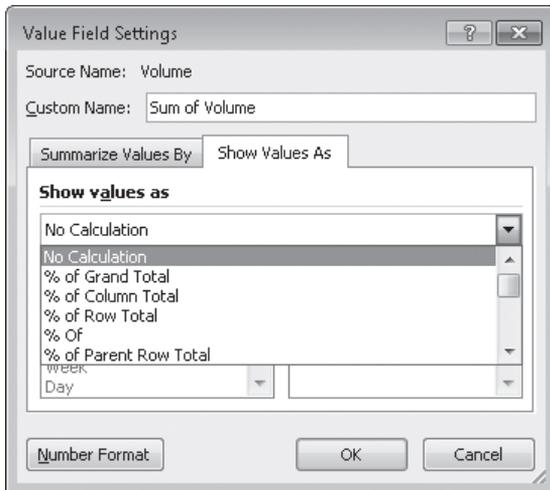
Excel displays the PivotTable name on the Options contextual tab, in the PivotTable Options group. The name *PivotTable2* doesn't help you or your colleagues understand the data the PivotTable contains, particularly if you use the PivotTable data in a formula on another worksheet. To give your PivotTable a more descriptive name, click any cell in the PivotTable and then, on the Options contextual tab, in the PivotTable Options group, type the new name in the PivotTable Name field.

When you create a PivotTable with at least one field in the Row Labels area and one field in the Column Labels area of the PivotTable Field List task pane, Excel adds a grand total row and column to summarize your data. You can control how and where these summary rows and columns appear by clicking any PivotTable cell and then, on the Design contextual tab, in the Layout group, clicking either the Subtotals or Grand Totals button and selecting the desired layout.

After you create a PivotTable, Excel determines the best way to summarize the data in the column you assign to the Values area. For numeric data, for example, Excel uses the *SUM* function. If you want to change a PivotTable summary function, right-click any data cell in the PivotTable values area, point to Summarize Values By, and then click the desired operation. If you want to use a function other than those listed, click More Options to display the Value Field Settings dialog box. On the Summarize Values By page of the dialog box, you can choose the summary operation you want to use.



You can also change how the PivotTable displays the data in the Values area. On the Show Values As page of the Value Field Settings dialog box, you can select whether to display each cell's percentage contribution to its column's total, its row's total, or its contribution to the total of all values displayed in the PivotTable.



If you want, you can create a formula that incorporates a value from a PivotTable cell. To do so, you click the cell where you want to create the formula, type an equal sign, and then click the cell in the PivotTable that contains the data you want to appear in the other cell. A `GETPIVOTDATA` formula appears in the formula box of the worksheet that contains the PivotTable. When you press Enter, Excel creates the `GETPIVOTDATA` formula and displays the contents of the PivotTable cell in the target cell.

In this exercise, you'll rename a PivotTable, specify whether subtotal and grand total rows will appear, change the PivotTable summary function, display each cell's contribution to its row's total, and create a formula that incorporates a value in a PivotTable cell.



SET UP You need the **Editing_start** workbook located in your **Chapter09** practice file folder to complete this exercise. Open the **Editing_start** workbook, and save it as **Editing**. Then follow the steps.

1. On the **Sheet2** worksheet, click any cell in the PivotTable.
2. On the **Options** contextual tab, in the **PivotTable** group, in the **PivotTable Name** field, type **VolumeSummary** and press **Enter**.

Excel renames the PivotTable.



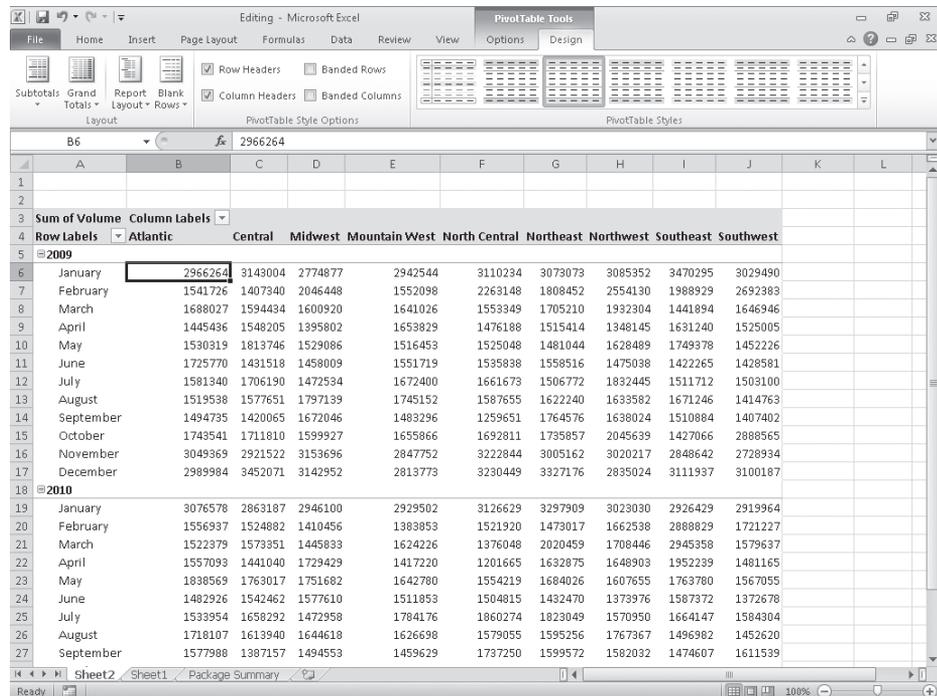
3. On the **Design** contextual tab, in the **Layout** group, click **Subtotals**, and then click **Do Not Show Subtotals**.

Excel removes the subtotal rows from the PivotTable.



4. On the **Design** contextual tab, in the **Layout** group, click **Grand Totals**, and then click **On for columns only**.

Excel removes the cells that calculate each row's grand total.





- On the Quick Access Toolbar, click the **Undo** button. Excel reverses the last change.
- Right-click any data cell in the PivotTable, point to **Summarize Values By**, and then click **Average**.

Excel changes the Value field summary operation.

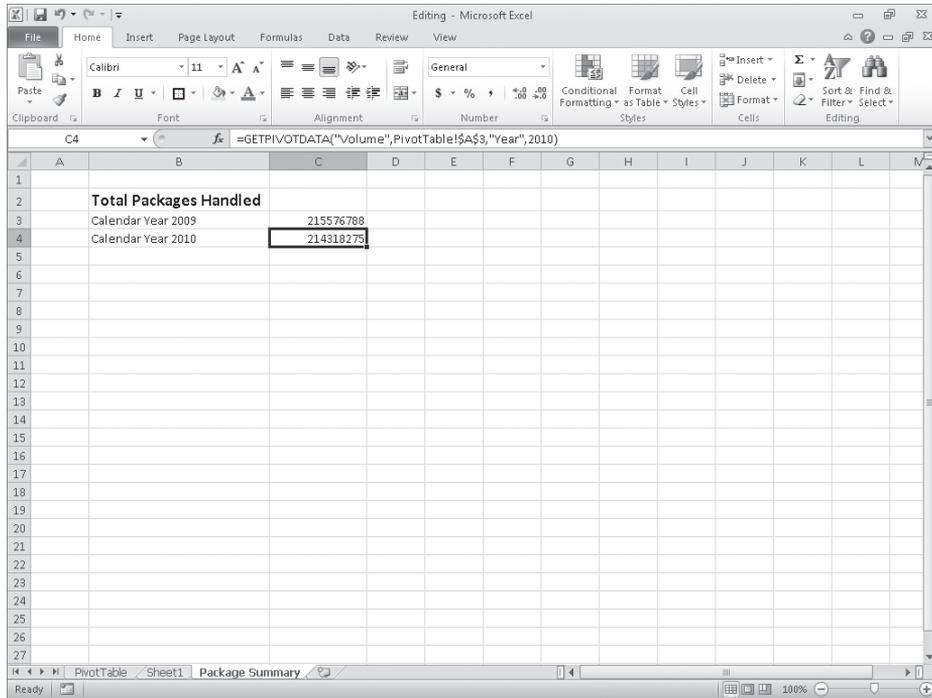
Row Labels	Atlantic	Central	Midwest	Mountain West	North Central	Northeast	Northwest	Southeast	Southwest	Grand
2009										
January	95685.93548	101387.2258	89512.16129	94920.77419	100330.129	99131.3871	99527.48387	111945	97725.48387	98901
February	55061.64286	50262.14286	73087.42857	55432.07143	80826.71429	64587.57143	91218.92857	71033.17857	96156.53571	70851
March	54452.48387	51433.35484	51642.58065	52936.32258	50108.03226	55006.77419	62332.3871	46512.70968	53127.29032	53061
April	48181.2	51606.83333	46526.79333	55127.63333	49206.26667	50513.8	44938.16667	54374.66667	50893.5	50145
May	49365.12903	58507.93548	49325.35484	48917.83871	49195.09677	47775.6129	52531.90323	56431.54839	46846	50986
June	57525.66667	47717.26667	48600.3	51723.96667		51194.6	51950.93333	49167.93333	47408.83333	47619.36667
July	51010.96774	55038.3871	47501.09677	53948.3871	53602.35484	48605.54839	59111.12903	48764.90323	48487.09677	51785
August	49017.35484	50891.96774	57972.22581	56295.22581	51214.67742	52330.32258	52696.19355	53911.16129	45637.51613	52216
September	49824.5	47335.5	55734.86667	49443.2	41988.36667	58819.2	54600.8	50362.8	46913.4	50556
October	56243.25806	55219.67742	51610.54839	53415.03226	54606.80645	55995.3871	65988.35484	46034.3871	93179.51613	59143
November	101645.63333	97384.06667	105123.2	94925.06667	107428.1333	100172.0667	100673.9	94954.73333	90964.46667	99252
December	96451.09677	111357.129	101385.5484	90766.87097	104208.0323	107328.2581	91452.3871	100385.0645	100006.0323	10031
2010										
January	99244.45161	92360.87097	95035.48387	94500.06452	100859	106384.1613	97517.09677	94400.93548	94192.3871	97166
February	55604.89286	54460.07143	50373.42857	49423.32143	54354.28571	52607.75	59376.35714	103172.4643	61472.39286	60093
March	49109	50753.25806	46639.77419	52394.3871	44388.64516	65176.09677	55111.16129	95011.54839	50956.03226	5661
April	51903.1	48034.66667	57647.63333	47240.66667	40055.5	54429.16667	54963.43333	65074.63333	49372.16667	52080
May	59308.67742	56871.51613	56505.87097	52992.90323	50136.09677	54323.41935	51859.83871	56896.12903	50550.16129	54382
June	49430.86667	51415.4	52587	50395.1	50160.5	47749	45799.2	52912.4	45755.93333	49576
July	49482.3871	53493.29032	47514.77419	57554.06452	60008.83871	58808.03226	50675.80645	53682.16129	51106.58065	53591
August	55422.80645	52062.58065	53052.19355	52474.12903	50937.25806	51459.87097	57011.83871	48289.74194	46858.70968	51952
September	52599.6	46238.56667	49818.43333	48654.3	57908.33333	53319.06667	52734.4	49153.56667	53717.96667	51571

- On the Quick Access Toolbar, click the **Undo** button. Excel reverses the last change.
- Right-click any data cell in the PivotTable, and then click **Value Field Settings**. The Value Field Settings dialog box opens.
- Click the **Show Values As** tab. The Show Values As page appears.
- In the **Show Values As** list, click **% of Row Total**.
- Click **OK**. Excel changes how it calculates the values in the PivotTable.

The screenshot shows the Microsoft Excel interface with a PivotTable. The PivotTable is set to show 'Sum of Volume' by 'Year' (2009 and 2010) and 'Region' (Atlantic, Central, Midwest, Mountain West, North Central, Northeast, Northwest, Southeast, Southwest). The data is displayed as percentages. The cell G9 is selected, and the formula bar shows the formula =GETPIVOTDATA('Volume',PivotTable!\$A\$3,'Year',2010).

Year	Month	Atlantic	Central	Midwest	Mountain West	North Central	Northeast	Northwest	Southeast	Southwest	Grand Total
2009	January	10.75%	11.39%	10.06%	10.66%	11.27%	11.14%	11.18%	12.58%	10.98%	100.00%
	February	8.63%	7.88%	11.46%	8.69%	12.68%	10.13%	14.31%	11.14%	15.08%	100.00%
	March	11.40%	10.77%	10.81%	11.08%	10.49%	11.52%	13.05%	9.74%	11.12%	100.00%
	April	10.68%	11.43%	10.31%	12.22%	10.90%	11.19%	9.96%	12.05%	11.26%	100.00%
	May	10.76%	12.75%	10.75%	10.66%	10.72%	10.41%	11.45%	12.30%	10.21%	100.00%
	June	12.70%	10.54%	10.73%	11.42%	11.30%	11.47%	10.86%	10.47%	10.51%	100.00%
	July	10.94%	11.81%	10.19%	11.58%	11.50%	10.43%	12.68%	10.46%	10.40%	100.00%
	August	10.43%	10.83%	12.34%	11.98%	10.90%	11.13%	11.21%	11.47%	9.71%	100.00%
	September	10.95%	10.40%	12.25%	10.87%	9.23%	12.93%	12.00%	11.07%	10.31%	100.00%
	October	10.57%	10.37%	9.70%	10.03%	10.26%	10.52%	12.40%	8.65%	17.51%	100.00%
	November	11.38%	10.90%	11.77%	10.63%	12.03%	11.21%	11.27%	10.63%	10.18%	100.00%
	December	10.68%	12.33%	11.22%	10.05%	11.54%	11.86%	10.12%	11.11%	11.07%	100.00%
2010	January	11.35%	10.56%	10.87%	10.81%	11.53%	12.17%	11.15%	10.79%	10.77%	100.00%
	February	10.28%	10.07%	9.31%	9.14%	10.05%	9.73%	10.38%	19.06%	11.37%	100.00%
	March	9.64%	9.96%	9.15%	10.28%	8.71%	12.79%	10.82%	18.65%	10.00%	100.00%
	April	11.07%	10.25%	12.30%	10.08%	8.55%	11.61%	11.73%	13.88%	10.53%	100.00%
	May	12.12%	11.62%	11.54%	10.83%	10.24%	11.10%	10.60%	11.62%	10.33%	100.00%
	June	11.08%	11.52%	11.79%	11.29%	11.24%	10.70%	10.26%	11.86%	10.25%	100.00%
	July	10.26%	11.09%	9.85%	11.93%	12.44%	12.19%	10.51%	11.13%	10.60%	100.00%
	August	11.85%	11.13%	11.35%	11.22%	10.89%	11.01%	12.19%	10.33%	10.02%	100.00%
	September	11.33%	9.96%	10.73%	10.48%	12.48%	11.49%	11.36%	10.59%	11.57%	100.00%

12. On the Quick Access Toolbar, click the **Undo** button.
Excel reverses the last change.
13. On the **Design** tab, in the **Layout** group, click **Subtotals**, and then click **Show All Subtotals at Bottom of Group**.
Excel displays subtotals in the workbook.
14. Click the **Package Summary** sheet tab.
The Package Summary worksheet appears.
15. In cell **C4**, type **=**, but do not press Enter.
16. Click the **PivotTable** sheet tab.
The PivotTable worksheet appears.
17. Click cell **K32**, and then press Enter.
Excel creates the formula `=GETPIVOTDATA("Volume",PivotTable!A3,"Year",2010)` in cell C4.



✖ CLEAN UP Save the Focusing workbook, and then close it.

Formatting PivotTables

PivotTables are the ideal tools for summarizing and examining large data tables, even those containing more than 10,000 or even 100,000 rows. Even though PivotTables often end up as compact summaries, you should do everything you can to make your data more comprehensible. One way to improve your data's readability is to apply a number format to the PivotTable Values field. To apply a number format to a field, right-click any cell in the field, and then click Number Format to display the Format Cells dialog box. Select or define the format you want to apply, and then click OK to enact the change.

See Also For more information on selecting and defining cell formats by using the Format Cells dialog box, see "Formatting Cells" in Chapter 4, "Changing Workbook Appearance."

Analysts often use PivotTables to summarize and examine organizational data with an eye to making important decisions about the company. For example, chief operating officer Lori Penor might examine monthly package volumes handled by Consolidated Messenger and notice that there's a surge in package volume during the winter months in the United States.

Row Labels	Atlantic	Central	Midwest	Mountain West	North Central	Northeast	Northwest	Southeast	Southwest	Grand Total
2009	23276049	23727556	23643436	23075908	24118888	24103492	25028389	23785488	24817582	215576788
January	2966264	3149004	2774877	2942544	3110234	3073073	3085352	3470295	3029490	27595138
February	1541726	1407340	2046448	1552098	2263148	1808452	2554130	1988929	2692383	17854654
March	1688027	1594434	1600920	1641026	1553349	1705210	1932304	1441894	1646946	14804110
April	1445436	1548205	1395802	1653829	1476188	1515414	1348145	1631240	1525005	13839264
May	1530319	1813746	1529086	1516453	1525048	1481044	1628489	1749378	1452226	14125789
June	1725770	1431518	1485009	1551719	1535838	1558516	1475038	1422265	1428581	13587254
July	1581340	1706190	1472534	1672400	1661673	1506772	1832445	1511712	1503100	14848166
August	1519538	1577651	1797139	1745152	1587655	1622240	1633582	1671246	1414763	14868966
September	1494735	1420065	1672946	1483296	1259651	1764576	1638024	1510884	1407402	13550679
October	1743541	1711810	1599927	1655866	1692811	1735857	2045639	1427066	2888565	16501082
November	3049369	2921522	3153636	2847752	3222844	3005162	3020217	2848642	2728934	26798138
December	2989984	3452071	3142952	2813773	3230449	3327176	2835024	3111937	3100187	28003558
2010	23760133	23274159	23246331	23247582	22561702	24586713	23604961	26736115	23300579	214310275
January	3076578	2863187	2946100	2929502	3126629	3297909	3023030	2926429	2919964	27109328
February	1556937	1524882	1410456	1383853	1521920	1473017	1662538	2888829	1721227	15143659
March	1522379	1573351	1445833	1624226	1376048	2020459	1708446	2945358	1579637	15789737
April	1557093	1441040	1729429	1417220	1201665	1632875	1648903	1952239	1481165	14861629
May	1838569	1763017	1751682	1642780	1554219	1684026	1607655	1763780	1567055	15172783
June	1482926	1542462	1577610	1511853	1504815	1432470	1373976	1587372	1372678	13386162
July	1533954	1658292	1472958	1784176	1860274	1823049	1570950	1664147	1584304	14852104
August	1718107	1613940	1644618	1626698	1579055	1595256	1767367	1496982	1452620	14894643
September	1577988	1387157	1494553	1459629	1737250	1599572	1582032	1474607	1611539	13824327

Excel extends the capabilities of your PivotTables by enabling you to apply a conditional format to the PivotTable cells. What's more, you can select whether to apply the conditional format to every cell in the Values area, to every cell at the same level as the selected cell (that is, a regular data cell, a subtotal cell, or a grand total cell) or to every cell that contains or draws its values from the selected cell's field (such as the Volume field in the previous example).

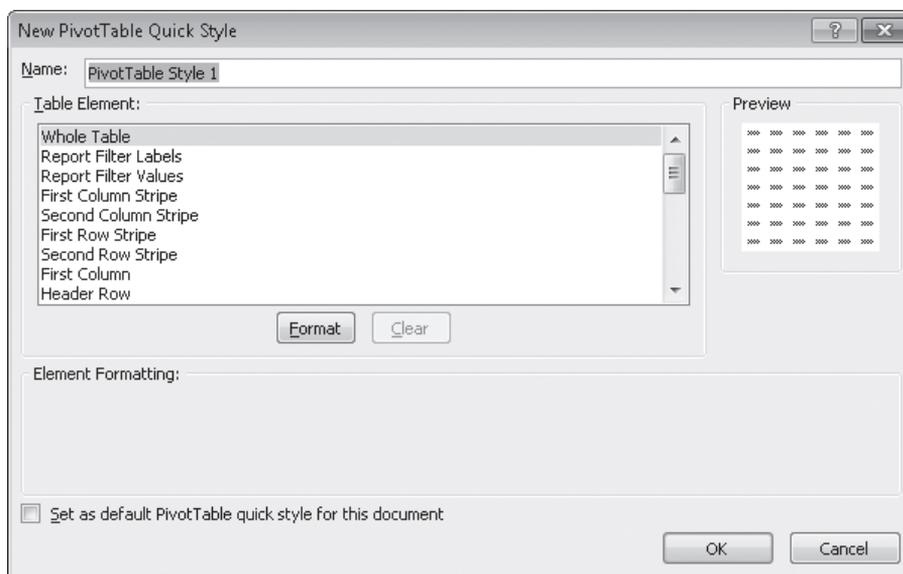
To apply a conditional format to a PivotTable field, click a cell in the Values area. On the Home tab, in the Styles group, click Conditional Formatting, and then create the desired conditional format. After you do, Excel displays a Formatting Options action button, which offers three options for applying the conditional format:

- **Selected Cells** Applies the conditional format to the selected cells only
- **All Cells Showing Sum of field_name Values** Applies the conditional format to every cell in the data area, regardless of whether the cell is in the data area, a subtotal row or column, or a grand total row or column
- **All Cells Showing Sum of field_name Values for Fields** Applies the conditional format to every cell at the same level (for example, data cell, subtotal, or grand total) as the selected cells

See Also For more information on creating conditional formats, see “Changing the Appearance of Data Based on Its Value” in Chapter 4, “Changing Workbook Appearance.”

In Excel, you can take full advantage of the Microsoft Office system enhanced formatting capabilities to apply existing formats to your PivotTables. Just as you can create Excel table formats, you can also create your own PivotTable formats to match your organization’s desired color scheme.

To apply a PivotTable style, click any cell in the PivotTable and then, on the Design contextual tab, in the PivotTable Styles group, click the gallery item representing the style you want to apply. If you want to create your own PivotTable style, click the More button in the PivotTable Styles gallery (in the lower-right corner of the gallery), and then click New PivotTable Style to display the New PivotTable Quick Style dialog box.



Type a name for the style in the Name field, click the first table element you want to customize, and then click Format. Use the controls in the Format Cells dialog box to change the element’s appearance. After you click OK to close the Format Cells dialog box, the New PivotTable Quick Style dialog box Preview pane displays the style’s appearance. If you want Excel to use the style by default, select the Set As Default PivotTable Quick Style For This Document check box. After you finish creating your formats, click OK to close the New PivotTable Quick Style dialog box and save your style.

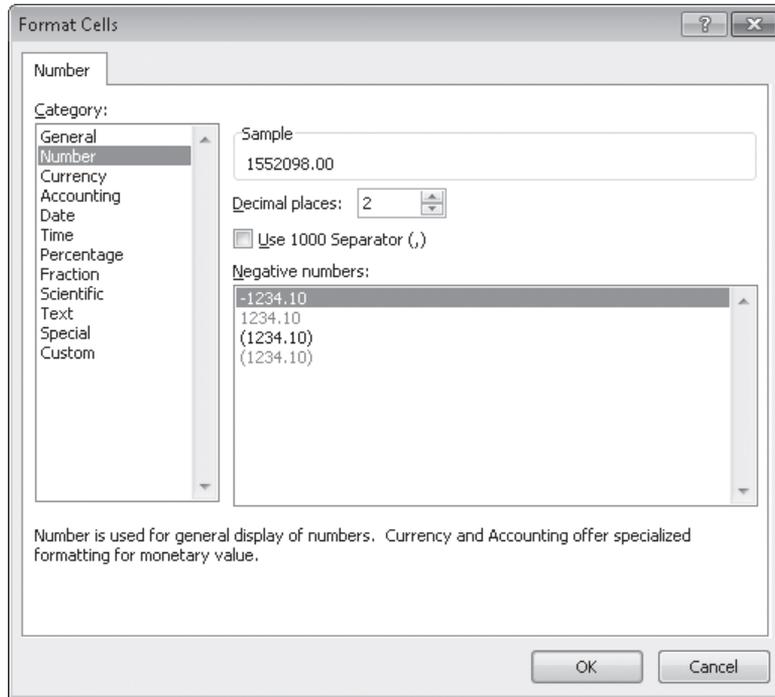
The Design contextual tab contains many other tools you can use to format your PivotTable, but one of the most useful is the Banded Columns check box, which you can find in the PivotTable Style Options group. If you select a PivotTable style that offers banded rows as an option, selecting the Banded Rows check box turns banding on. If you prefer not to have Excel band the rows in your PivotTable, clearing the check box turns banding off.

In this exercise, you'll apply a number format to a PivotTable values field, apply a PivotTable style, create your own PivotTable style, give your PivotTable banded rows, and apply a conditional format to a PivotTable.



SET UP You need the *Formatting_start* workbook located in your Chapter09 practice file folder to complete this exercise. Open the *Formatting_start* workbook, and save it as *Formatting*. Then follow the steps.

1. On the **Sheet2** worksheet, right-click any data cell, and then click **Number Format**.
The Format Cells dialog box opens.
2. In the **Category** list, click **Number**.
The Number page is displayed.



3. In the **Decimal places** field, type **0**.
4. Select the **Use 1000 Separator (,)** check box.
5. Click **OK**.

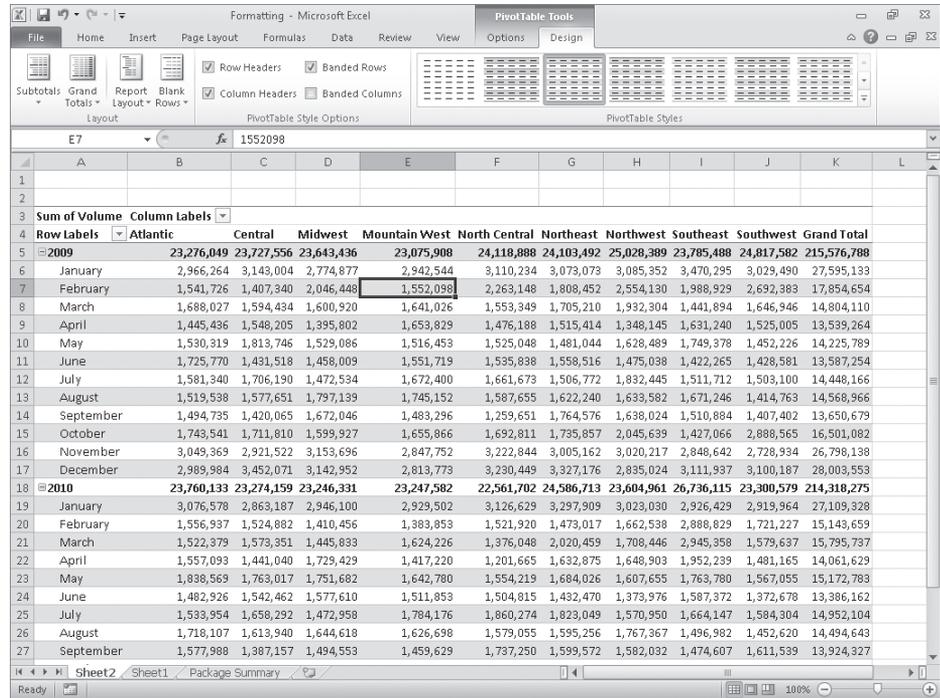
Excel reformats your PivotTable data.

Row Labels	Atlantic	Central	Midwest	Mountain West	North Central	Northeast	Northwest	Southeast	Southwest	Grand Total
2009	23,276,049	3,143,004	2,774,877	2,942,544	24,118,888	24,103,492	25,028,389	23,785,488	24,817,582	215,576,788
January	2,966,264	3,143,004	2,774,877	2,942,544	3,110,234	3,073,073	3,085,352	3,470,295	3,029,490	27,595,193
February	1,541,726	1,407,340	2,046,448	1,552,038	2,263,148	1,808,452	2,554,130	1,988,929	2,692,383	17,854,654
March	1,688,027	1,594,434	1,600,920	1,641,026	1,553,349	1,705,210	1,932,304	1,441,894	1,646,946	14,804,110
April	1,445,436	1,548,205	1,395,802	1,653,829	1,476,188	1,515,414	1,348,145	1,631,240	1,525,005	13,539,264
May	1,530,319	1,813,746	1,529,086	1,516,453	1,525,048	1,481,044	1,628,489	1,749,378	1,452,226	14,225,789
June	1,725,770	1,481,518	1,458,009	1,551,719	1,535,838	1,558,516	1,475,038	1,422,265	1,428,581	13,587,254
July	1,581,340	1,706,190	1,472,534	1,672,400	1,661,673	1,506,772	1,832,445	1,511,712	1,503,100	14,448,166
August	1,519,538	1,577,651	1,797,139	1,745,152	1,587,655	1,622,240	1,633,582	1,671,246	1,414,763	14,568,966
September	1,484,795	1,420,065	1,672,046	1,483,296	1,259,651	1,764,576	1,638,024	1,510,884	1,407,402	13,650,679
October	1,748,541	1,711,810	1,599,927	1,655,866	1,692,811	1,735,857	2,045,639	1,427,066	2,888,565	16,501,082
November	3,049,369	2,921,522	3,153,696	2,847,752	3,222,844	3,005,162	3,020,217	2,848,642	2,728,934	26,798,138
December	2,989,984	3,452,071	3,142,952	2,813,773	3,230,449	3,327,176	2,835,024	3,111,937	3,100,187	28,003,553
2010	23,760,133	23,274,159	23,246,331	23,247,582	22,561,702	24,586,713	23,604,961	26,736,115	23,300,579	214,318,275
January	3,076,578	2,863,187	2,946,100	2,929,502	3,126,629	3,297,909	3,023,030	2,926,429	2,919,964	27,109,328
February	1,556,937	1,524,882	1,410,456	1,383,853	1,521,920	1,473,017	1,662,538	2,888,829	1,721,227	15,143,659
March	1,522,379	1,573,351	1,445,833	1,624,226	1,376,048	2,020,459	1,708,446	2,945,358	1,579,637	15,795,737
April	1,557,093	1,441,040	1,729,429	1,417,220	1,201,665	1,632,875	1,648,903	1,952,239	1,481,165	14,061,629
May	1,838,569	1,763,017	1,751,682	1,642,780	1,554,219	1,684,026	1,607,655	1,763,780	1,567,055	15,172,783
June	1,482,926	1,542,462	1,577,610	1,511,853	1,504,815	1,432,470	1,373,976	1,587,372	1,372,678	13,386,162
July	1,533,954	1,658,292	1,472,958	1,784,176	1,860,274	1,823,049	1,570,950	1,664,147	1,584,304	14,952,104
August	1,718,107	1,613,940	1,644,618	1,626,698	1,579,055	1,595,256	1,767,367	1,496,982	1,452,620	14,494,643
September	1,577,988	1,387,157	1,494,553	1,459,629	1,737,250	1,599,572	1,582,032	1,474,607	1,611,539	13,924,327

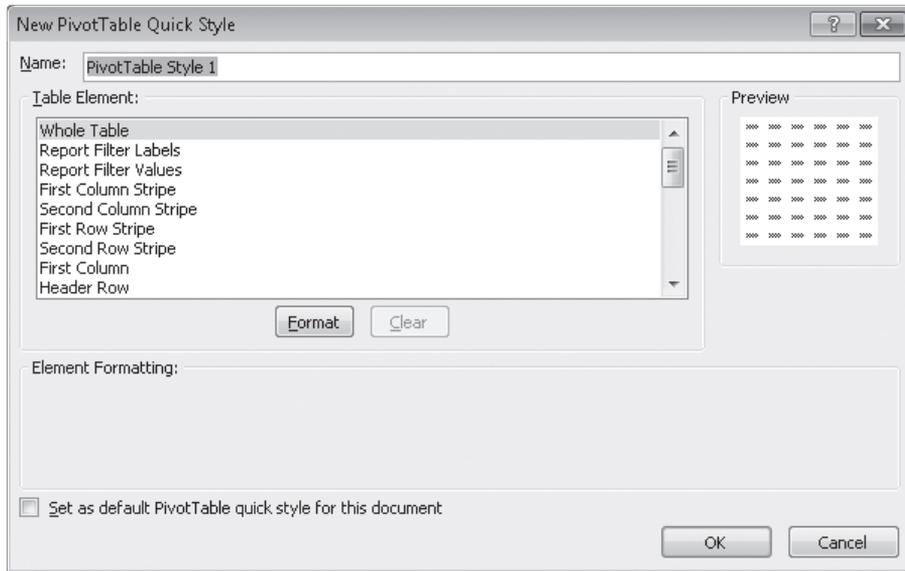
6. If necessary, on the **Design** contextual tab, in the **PivotTable Style Options** group, select the **Banded Rows** check box.
7. On the **Design** contextual tab, in the **PivotTable Styles** group, click the **More** button. Then, in the top row of the gallery, click the third style from the left. (When you point to it, Excel displays a ScreenTip that reads **Pivot Style Light 2**.)



Excel applies the PivotTable style.

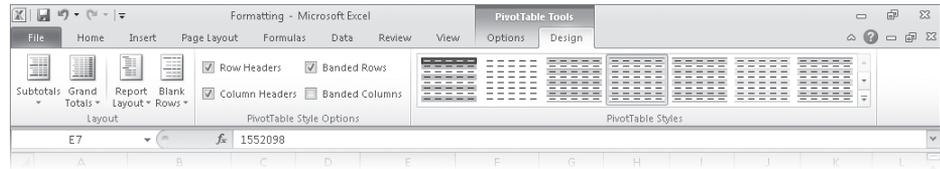


8. In the lower-right corner of the **PivotTable Styles** gallery, click the **More** button. The gallery expands.
9. Click **New PivotTable Style**. The New PivotTable Quick Style dialog box opens.



10. In the **Name** field, type **Custom Style 1**.
11. In the **Table Element** list, click **Header Row**, and then click **Format**.
The Format Cells dialog box opens.
12. On the **Font** page, in the **Color** list, click the white square.
13. On the **Border** page, in the **Presets** area, click **Outline**.
14. On the **Fill** page, in the **Background Color** area, click the purple square at the lower-right corner of the color palette.
15. Click **OK**.
The Format Cells dialog box closes, and the style change appears in the Preview pane of the New PivotTable Quick Style dialog box.
16. In the **Table Element** list, click **Second Row Stripe**, and then click **Format**.
The Format Cells dialog box opens.
17. On the **Fill** page, in the middle part of the **Background Color** area, click the eighth square in the second row (it's a light, dusty purple).
18. Click **OK** twice.

The Format Cells dialog box closes, and your format appears in the PivotTable Styles gallery.

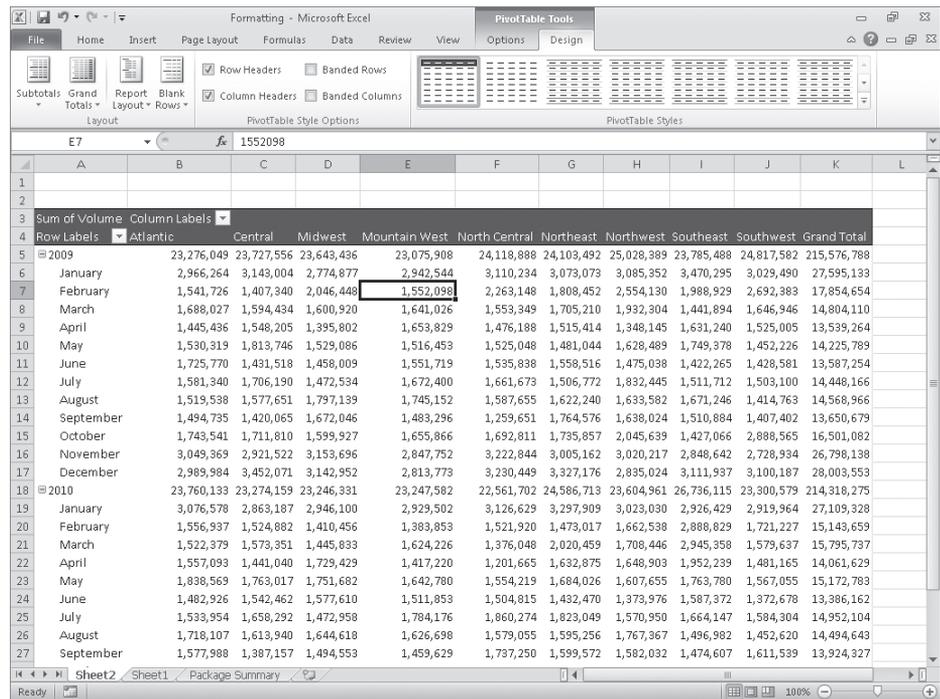


19. Click the new style.

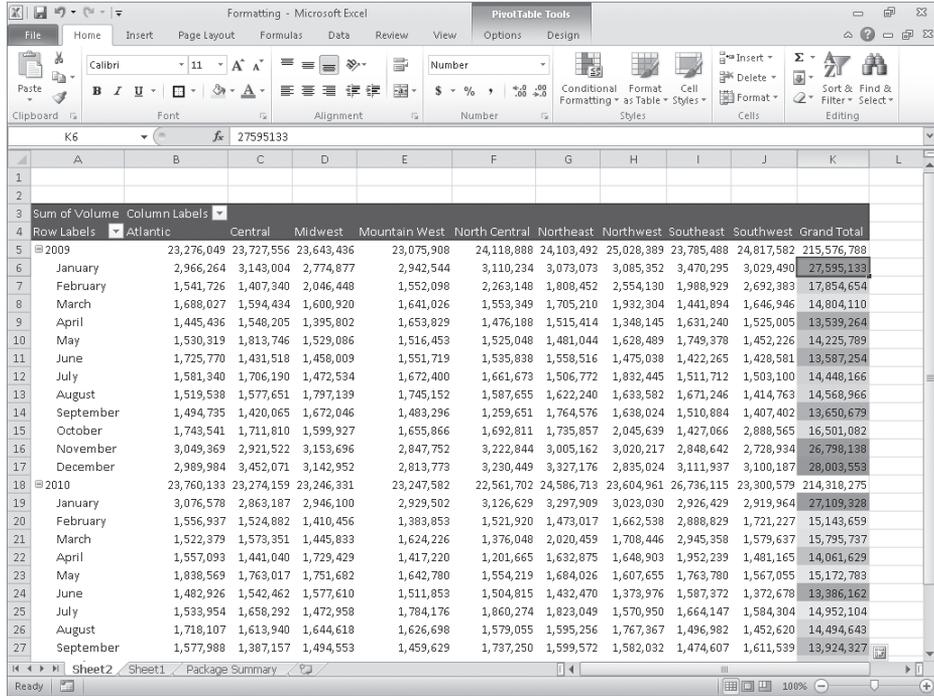
Excel formats your PivotTable using your custom PivotTable style.

20. On the **Design** contextual tab, in the **PivotTable Style Options** group, clear the **Banded Rows** check box.

Excel removes the banding from your PivotTable and from the preview of the custom style.



21. Select the cell ranges **K6:K17** and **K19:K30**.
 22. On the **Home** tab, in the **Styles** group, click **Conditional Formatting**, point to **Color Scales**, and in the top row, click the second three-color scale from the left.
- Excel applies the conditional format to the selected cells.



✖ CLEAN UP Save the Formatting workbook, and then close it.

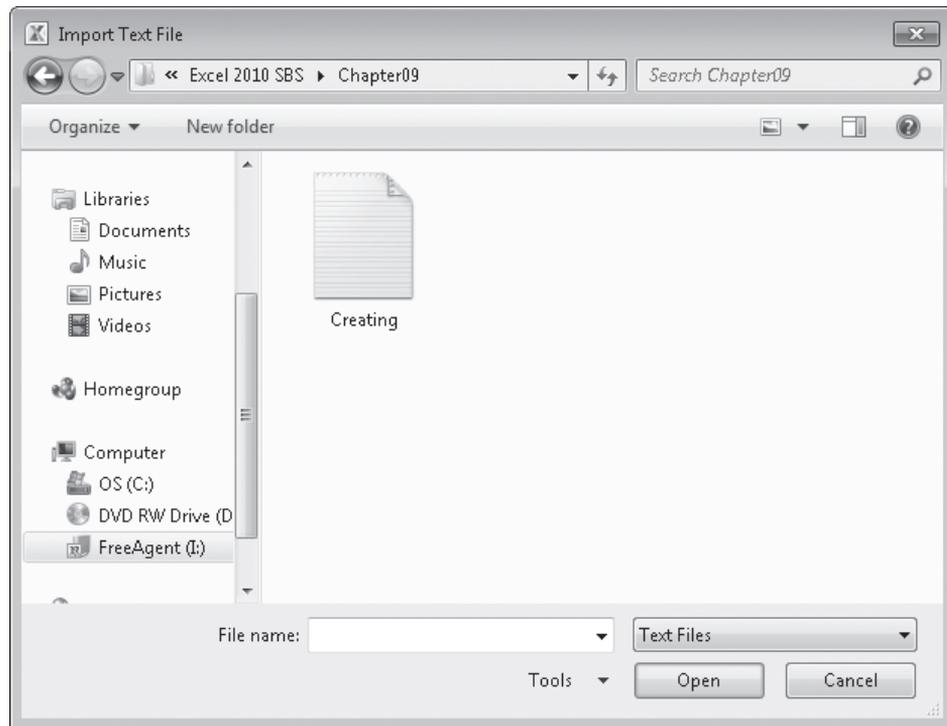
Creating PivotTables from External Data

Although most of the time you will create PivotTables from data stored in Excel worksheets, you can also bring data from outside sources into Excel. For example, you might need to work with data created in another spreadsheet program with a file format that Excel can't read directly. Fortunately, you can export the data from the original program into a text file, which Excel then translates into a worksheet.

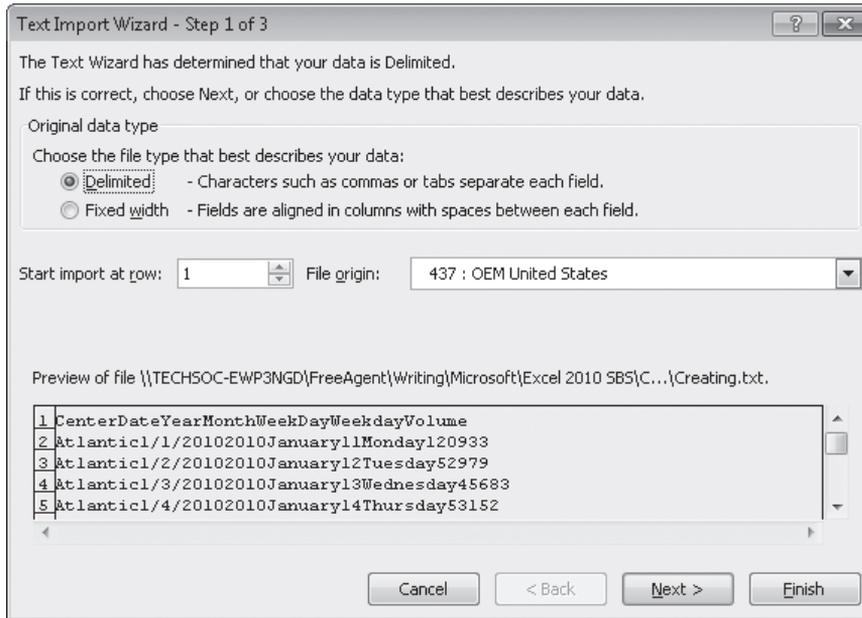
Tip The data import technique shown here isn't exclusive to PivotTables. You can use this procedure to bring data into your worksheets for any purpose.

Spreadsheet programs store data in cells, so the goal of representing spreadsheet data in a text file is to indicate where the contents of one cell end and those of the next cell begin. The character that marks the end of a cell is a *delimiter*, in that it marks the end (or “limit”) of a cell. The most common cell delimiter is the comma, so the delimited sequence *15, 18, 24, 28* represents data in four cells. The problem with using commas to delimit financial data is that larger values—such as *52,802*—can be written by using commas as thousands markers. To avoid confusion when importing a text file, the most commonly used delimiter for financial data is the Tab character.

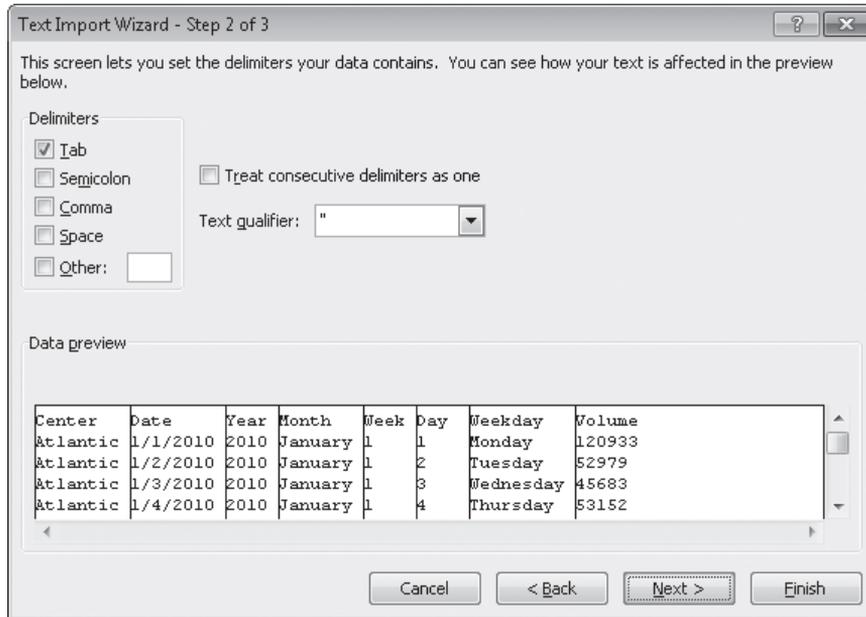
To import data from a text file, on the Data tab, in the Get External Data group, click From Text to display the Import Text File dialog box.



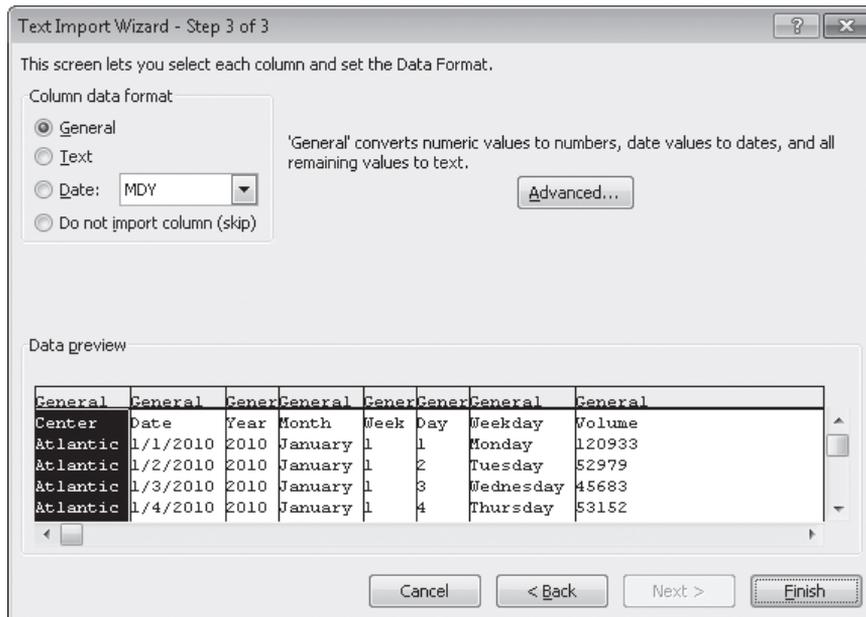
From within the Import Text File dialog box, browse to the directory that contains the text file you want to import. Double-clicking the file launches the Text Import wizard.



On the first page of the Text Import wizard, you can indicate whether the data file you are importing is Delimited or Fixed Width; Fixed Width means that each cell value will fall within a specific position in the file. Clicking Next to accept the default choice, Delimited (which Excel assigns after examining the data source you selected), advances you to the next wizard page.



On this page, you can choose the delimiter for the file (in this case, Excel detected tabs in the file and selected the Tab check box for you) and gives you a preview of what the text file will look like when imported. Clicking Next advances you to the final wizard page.

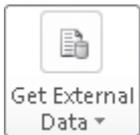


On this page, you can change the data type and formatting of the columns in your data. Because you'll assign number styles and PivotTable Quick Styles after you create the PivotTable, you can click Finish to import the data into your worksheet. After the data is in Excel, you can work with it normally.

In this exercise, you'll import data into Excel from a text file and then create a PivotTable based on that data.



SET UP You need the **Creating_start** text file located in your **Chapter09** practice file folder to complete this exercise.



1. Create a new Excel workbook. On the **Data** tab, click the **Get External Data** button, and then click **From Text**.

The Import Text File dialog box opens.

2. Navigate to the **Chapter09** practice file folder, and then double-click **Creating_start.txt**.

The Text Import wizard starts.

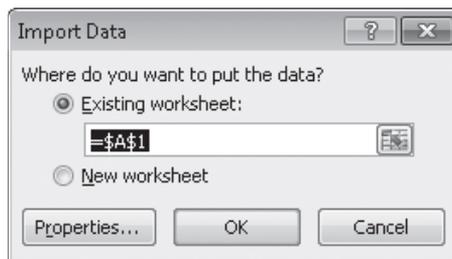
3. Verify that the **Delimited** option is selected, and then click **Next**.

The next Text Import Wizard page opens.

4. In the **Delimiters** area, verify that the **Tab** check box is selected and also verify that the data displayed in the **Data preview** area reflects the structure you expect.

5. Click **Finish**.

Clicking Finish skips page 3 of the wizard, which has commands you can use to assign specific data types to each column. Excel assigns data types for you, so you don't need to do so. After you click Finish, the Import Data dialog box opens.



6. Verify that the **Existing worksheet** option is selected, and then click **OK**.

Excel imports the data into your workbook.



7. On the **Home** tab, in the **Styles** group, click **Format as Table**, and then click the first table style.

The Format As Table dialog box opens.

8. Verify that the **My table has headers** check box is selected and that the range **=SA\$1:SH\$6571** appears in the **Where is the data for your table?** box, and then click **OK**.

A confirmation dialog box opens.

9. Click **Yes** to confirm you want to create the Excel table and break its link to the external data source.

Excel creates an Excel table from your imported data.



10. On the **Insert** tab, in the **Tables** group, click **PivotTable**.

The Create PivotTable dialog box opens.

11. Verify that the **Select a table or range** option is selected, that **Table1** appears in the **Table/Range** field, and that the **New Worksheet** option is selected.

12. Click **OK**.

Excel creates the PivotTable on a new worksheet.

13. In the **PivotTable Field List** task pane, drag the **Volume** field header to the **Values** area.

14. Drag the **Weekday** field header to the **Column Labels** area.

15. Drag the **Center** field header to the **Row Labels** data area.

The screenshot shows Microsoft Excel with a PivotTable named 'Sum of Volume'. The PivotTable is structured as follows:

Sum of Volume	Column Labels							
Row Labels	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Grand Total
Atlantic	6681849	6718491	6065016	6999145	6647852	6592351	7331478	47036182
Central	6930783	6787961	6530917	6543992	6915836	6523218	6769008	47001715
Midwest	6923875	6958123	6705800	6629517	6467518	7011908	6793026	46889767
Mountain West	6673339	6661710	6698354	6563217	6788244	6457215	6481411	46323490
North Central	6937060	6295847	6767203	7093316	6467078	6448849	6676237	46680590
Northeast	7166215	6941642	7068465	6808329	6708788	7049366	6947400	48690205
Northwest	6974586	6750727	7213121	7087334	6918003	6639912	7049667	48633350
Southeast	7229898	7272423	7600639	7193113	6870974	7236536	7118020	50521603
Southwest	7148300	6736137	7145226	7010575	6736377	6863256	6478290	48118161
Grand Total	62665905	60523061	61794741	61928538	60520670	60817611	61644537	429895063

The PivotTable Field List task pane on the right shows the following configuration:

- Choose fields to add to report:
 - Center
 - Date
 - Year
 - Month
 - Week
 - Day
 - Weekday
 - Volume
- Drag fields between areas below:
 - Report Filter: (empty)
 - Column Labels: Weekday
 - Row Labels: Center
 - Values: Sum of Volume
- Buttons: Defer Layout Update, Update



16. On the Quick Access Toolbar, click the **Save** button.

The Save As dialog box opens.

17. Browse to the **Chapter09** folder.
18. In the **File name** field, type **ImportedData**.
19. Click **Save**.

Excel saves your file.



CLEAN UP Close the Imported Data workbook. If you're not continuing directly to the next chapter, exit Excel.

Key Points

- A PivotTable is a versatile tool you can use to rearrange your data dynamically, enabling you to emphasize different aspects of your data without creating new worksheets.
- PivotTable data must be formatted as a list. By using a data table as the PivotTable data source, you can streamline the creation process by referring to the table name instead of being required to select the entire range that contains the data you want to summarize.
- Excel comes with many attractive styles for PivotTables; you'll probably find one you like.
- With the PivotTable Field List task pane, you can create your PivotTable by using a straightforward, compact tool.
- Just as you can limit the data shown in a static worksheet, you can use filters to limit the data shown in a PivotTable.
- Excel 2010 includes two new types of filters, search filters and Slicers, that you can use to limit the data in your PivotTables.
- If you have data in a compatible format, such as a text file, you can import that data into Excel and create a PivotTable from it.