

# Microsoft Excel 2010 Step-by-Step Exercises

## PivotTables and PivotCharts: Exercise 2

In this exercise you will:

- Add a field to the PivotTable
- Create custom labels for rows and columns
- Apply manual grouping to a PivotTable field
- Create custom labels for groups

### Introduction

This exercise assumes that you have completed the steps in Exercise 1 and continues from the point where you saved the workbook after *Step 16*. If you didn't save your work, or wish to omit Exercise 1, you can download a copy of the completed Exercise 1 workbook *CommodityShipments (PivotTables PivotCharts).xlsx* from my web site at <http://www.fontstuff.com/training/excel/stepbystep.htm>

### The Project So Far

In Exercise 1 you created a new PivotTable, renamed and formatted one of its fields, and found out how to add, rearrange and remove PivotTable fields. The PivotTable was created on a new worksheet, *Sheet1* in this example, and currently includes just two fields: *CountryFrom* and *Tonnes*. In the *PivotTable Field List* the *CountryFrom* field is located in the *Row Labels* box and the *Tonnes* field is located in the *Values* box where is shown a *Total Tonnes* (because in Exercise 1 it was given that name). The PivotTable worksheet currently looks like this (*Fig. 1*):

The screenshot shows the Microsoft Excel 2010 interface. The PivotTable is located in the range A3:B9. The PivotTable Field List task pane is open on the right side of the window, showing the following configuration:

- Choose fields to add to report:** CountryFrom, Tonnes
- Report Filter:** (Empty)
- Column Labels:** (Empty)
- Row Labels:** CountryFrom
- Values:** Total Tonnes

| Row Labels         | Total Tonnes     |
|--------------------|------------------|
| Argentina          | 1,215,399        |
| Brazil             | 1,083,155        |
| Canada             | 1,097,502        |
| Mexico             | 1,134,478        |
| USA                | 1,177,685        |
| <b>Grand Total</b> | <b>5,708,219</b> |

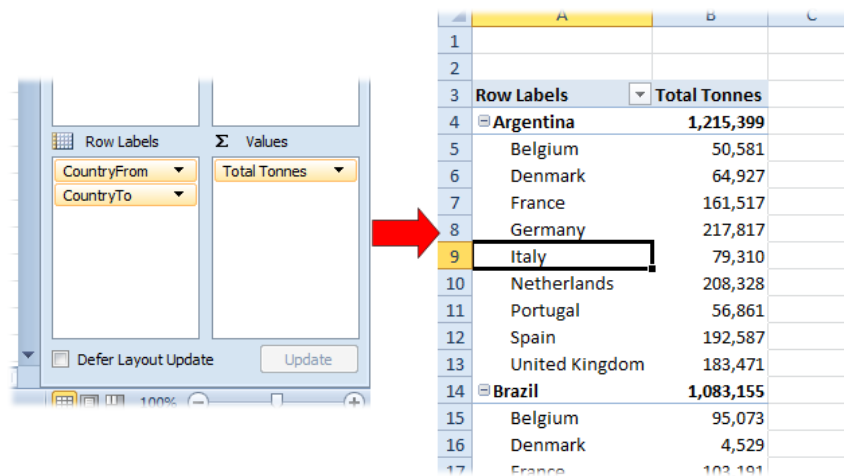
Fig. 1 The worksheet created in Exercise 1.

### Add a Field to the PivotTable

Continuing where Exercise 1 left off, you are now going to add more data to the PivotTable.

**Step 17:** In the **PivotTable Field List** click the checkbox next to **CountryTo**.

Excel places the *CountryTo* field into the *Row Labels* box, immediately below the *CountryFrom* field, and the PivotTable now displays the various country names it finds in the *CountryTo* column of the data beneath each of the countries from the *CountryFrom* column (Fig. 2).



| Row Labels     | Total Tonnes |
|----------------|--------------|
| Argentina      | 1,215,399    |
| Belgium        | 50,581       |
| Denmark        | 64,927       |
| France         | 161,517      |
| Germany        | 217,817      |
| Italy          | 79,310       |
| Netherlands    | 208,328      |
| Portugal       | 56,861       |
| Spain          | 192,587      |
| United Kingdom | 183,471      |
| Brazil         | 1,083,155    |
| Belgium        | 95,073       |
| Denmark        | 4,529        |
| France         | 103,101      |

Fig. 2 Add the *CountryTo* field to the PivotTable.

**Note:** You might have noticed the one of the cells in the PivotTable is selected (in this example the cell containing the text *Italy*). This isn't significant, it just happens to be the cell that was selected when the new field was added.

**Step 18:** In the **PivotTable Field List** go to the **Row Labels** box, click the down-arrow on the button labelled **CountryTo** and choose **Move to Column Labels** from the menu (Fig. 3).

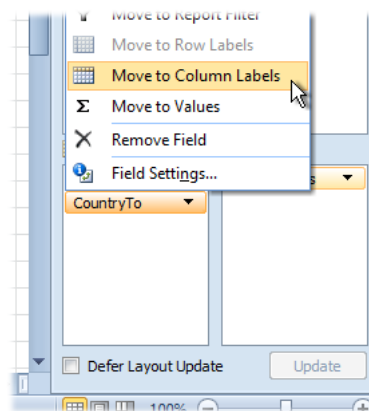


Fig. 3 Move the *CountryTo* field to *ColumnLabels*.

The PivotTable responds accordingly, moving the names from the *CountryTo* column so that they are arranged in a row at the top of the PivotTable, each at the head of a column (hence the name *Column Labels*) (Fig. 4).

**Try this:** You don't have to use the menu when moving fields around the PivotTable Field List. If you prefer, you can simply drag the field button from box to box. Try swapping the positions of the two label fields by dragging the *CountryTo* button back to the *Row Labels* box then dragging the *CountryFrom* button into the *Column Labels* box. Return them to their previous positions before moving to the next step.

|    |              |               |         |         |         |         |             |          |         |                |             |  |
|----|--------------|---------------|---------|---------|---------|---------|-------------|----------|---------|----------------|-------------|--|
| 2  |              |               |         |         |         |         |             |          |         |                |             |  |
| 3  | Total Tonnes | Column Labels |         |         |         |         |             |          |         |                |             |  |
| 4  | Row Labels   | Belgium       | Denmark | France  | Germany | Italy   | Netherlands | Portugal | Spain   | United Kingdom | Grand Total |  |
| 5  | Argentina    | 50,581        | 64,927  | 161,517 | 217,817 | 79,310  | 208,328     | 56,861   | 192,587 | 183,471        | 1,215,399   |  |
| 6  | Brazil       | 95,073        | 4,529   | 103,191 | 117,341 | 106,720 | 289,679     | 101,406  | 130,703 | 134,513        | 1,083,155   |  |
| 7  | Canada       | 42,665        | 11,461  | 113,593 | 243,399 | 103,270 | 262,345     | 54,801   | 110,135 | 155,833        | 1,097,502   |  |
| 8  | Mexico       | 91,958        | 27,251  | 119,233 | 259,348 | 113,792 | 172,994     | 94,717   | 92,164  | 163,021        | 1,134,478   |  |
| 9  | USA          | 111,159       | 75,526  | 83,302  | 123,459 | 144,563 | 272,296     | 48,993   | 102,787 | 215,600        | 1,177,685   |  |
| 10 | Grand Total  | 391,436       | 183,694 | 580,836 | 961,364 | 547,655 | 1,205,642   | 356,778  | 628,376 | 852,438        | 5,708,219   |  |
| 11 |              |               |         |         |         |         |             |          |         |                |             |  |

Fig. 4 The CountryTo field has been added to the PivotTable.

## Tidy-up the Table

At this point the table looks a little untidy. The columns are of different widths because Excel has sized the columns automatically to fit their contents. So, the country with the shortest name (Italy) has a narrow column and the one with the longest name (United Kingdom) has a wide column. The table would look neater if the *CountryTo* columns were all the same width.

Making all the columns the same width as the widest one would waste space, but we don't want to cut off any text so instead we will abbreviate the label for the *United Kingdom* column to *UK*.

**Step 19:** Select the cell containing the heading **United Kingdom**, type **UK** and press **[Enter]**.

**Step 20:** Select columns **C** to **K** by dragging the mouse pointer along the buttons at the head of the columns. Release the mouse then point at the line dividing the column buttons **K** and **L** so that the mouse pointer changes to a cross with a horizontal two-headed arrow. Now drag to the right until the column width shows about **90 pixels** (Fig. 5).

|         | Denmark | France  | Germany | Italy   | Netherlands | Portugal | Spain   | UK      | Grand Total |
|---------|---------|---------|---------|---------|-------------|----------|---------|---------|-------------|
| 50,581  | 64,927  | 161,517 | 217,817 | 79,310  | 208,328     | 56,861   | 192,587 | 183,471 | 1,215,399   |
| 95,073  | 4,529   | 103,191 | 117,341 | 106,720 | 289,679     | 101,406  | 130,703 | 134,513 | 1,083,155   |
| 42,665  | 11,461  | 113,593 | 243,399 | 103,270 | 262,345     | 54,801   | 110,135 | 155,833 | 1,097,502   |
| 91,958  | 27,251  | 119,233 | 259,348 | 113,792 | 172,994     | 94,717   | 92,164  | 163,021 | 1,134,478   |
| 111,159 | 75,526  | 83,302  | 123,459 | 144,563 | 272,296     | 48,993   | 102,787 | 215,600 | 1,177,685   |
| 391,436 | 183,694 | 580,836 | 961,364 | 547,655 | 1,205,642   | 356,778  | 628,376 | 852,438 | 5,708,219   |

Fig. 5 Make the columns the same width.

When you release the mouse, all the selected columns will snap to the same width (this might require a little trial-and-error!).

The PivotTable might look better with the column labels right-aligned in their cells, so...

**Step 21:** Select the cells **B4:K4** and click the **Align Text Right** button on the **Home** tab of the ribbon.

You have seen how you can change a label that Excel automatically added to the PivotTable by simply overtyping it. Now use the same technique to add more sensible captions to the cells marked *Column Labels* and *Row Labels*.

**Step 22:** Select cell **B3** which currently holds the text *Column Labels* and type **Destination**.

**Step 23:** Select cell **A4** which currently holds the text *Row Labels* and type **Exporter**.

Now the PivotTable looks neater, with equal column widths and more meaningful captions (Fig. 6).

| Total Tonnes       | Destination    |                |                |                |                |                  |                |                |                |                  |
|--------------------|----------------|----------------|----------------|----------------|----------------|------------------|----------------|----------------|----------------|------------------|
| Exporter           | Belgium        | Denmark        | France         | Germany        | Italy          | Netherlands      | Portugal       | Spain          | UK             | Grand Total      |
| Argentina          | 50,581         | 64,927         | 161,517        | 217,817        | 79,310         | 208,328          | 56,861         | 192,587        | 183,471        | 1,215,399        |
| Brazil             | 95,073         | 4,529          | 103,191        | 117,341        | 106,720        | 289,679          | 101,406        | 130,703        | 134,513        | 1,083,155        |
| Canada             | 42,665         | 11,461         | 113,593        | 243,399        | 103,270        | 262,345          | 54,801         | 110,135        | 155,833        | 1,097,502        |
| Mexico             | 91,958         | 27,251         | 119,233        | 259,348        | 113,792        | 172,994          | 94,717         | 92,164         | 163,021        | 1,134,478        |
| USA                | 111,159        | 75,526         | 83,302         | 123,459        | 144,563        | 272,296          | 48,993         | 102,787        | 215,600        | 1,177,685        |
| <b>Grand Total</b> | <b>391,436</b> | <b>183,694</b> | <b>580,836</b> | <b>961,364</b> | <b>547,655</b> | <b>1,205,642</b> | <b>356,778</b> | <b>628,376</b> | <b>852,438</b> | <b>5,708,219</b> |

Fig. 6 The PivotTable has been reformatted.

You might be wondering what happens if you rearrange the fields after making these changes. Let's find out...

**Step 24:** Go to the **PivotTable Field List** and rearrange the fields, putting **CountryTo** in the **Row Labels** box and **CountryFrom** in the **Column Labels** box.

Here's the result (Fig. 7). When the fields were rearranged, the PivotTable remembered that the heading *United Kingdom* had been changed to *UK* and that the *CountryTo* names had been right-aligned. But the cells previously labelled *Column Labels* and *Row Labels* still hold the values they were changed to (*Destination* and *Exporter*) which are now incorrect.

| Total Tonnes       | Destination      |                  |                  |                  |                  |  | Grand Total      |
|--------------------|------------------|------------------|------------------|------------------|------------------|--|------------------|
| Exporter           | Argentina        | Brazil           | Canada           | Mexico           | USA              |  | Grand Total      |
| Belgium            | 50,581           | 95,073           | 42,665           | 91,958           | 111,159          |  | 391,436          |
| Denmark            | 64,927           | 4,529            | 11,461           | 27,251           | 75,526           |  | 183,694          |
| France             | 161,517          | 103,191          | 113,593          | 119,233          | 83,302           |  | 580,836          |
| Germany            | 217,817          | 117,341          | 243,399          | 259,348          | 123,459          |  | 961,364          |
| Italy              | 79,310           | 106,720          | 103,270          | 113,792          | 144,563          |  | 547,655          |
| Netherlands        | 208,328          | 289,679          | 262,345          | 172,994          | 272,296          |  | 1,205,642        |
| Portugal           | 56,861           | 101,406          | 54,801           | 94,717           | 48,993           |  | 356,778          |
| Spain              | 192,587          | 130,703          | 110,135          | 92,164           | 102,787          |  | 628,376          |
| UK                 | 183,471          | 134,513          | 155,833          | 163,021          | 215,600          |  | 852,438          |
| <b>Grand Total</b> | <b>1,215,399</b> | <b>1,083,155</b> | <b>1,097,502</b> | <b>1,134,478</b> | <b>1,177,685</b> |  | <b>5,708,219</b> |

Fig. 7 The PivotTable keeps some changes but not others.

It is important to remember, therefore, that if you want to make cosmetic changes like this it might be better to wait until the PivotTable is finished.

**Step 25:** Restore the fields to their previous positions so that the **CountryTo** field is in the **Column Labels** box and the **CountryFrom** field is in the **Row Labels** box.

You will notice that Excel has again auto-fitted the column widths so, if you wish, you can repeat the process you used earlier to make them equal in width.

## Manually Grouping Fields

In Exercise 1 you saw how Excel automatically grouped fields so that you could expand or contract the groups to show or summarise data. If you have appropriate data you can add manual grouping to a PivotTable. Consider the list of exporting countries that make up the *CountryFrom* field. They can be grouped geographically.

You could, for example, group *Argentina*, *Brazil* and *Mexico* together, and separately group *USA* and *Canada*.

In order to manually group rows or columns in a PivotTable all the members of a group must be adjacent to one another so they can be selected as a block. You cannot group a multiple selection of rows or columns. In this PivotTable we only need to move one field (*Mexico*) up one row so that is adjacent to the other fields in its group (*Argentina* and *Brazil*). That also brings *Canada* adjacent to the other member of its group (*USA*).

**Step 26:** Move the mouse pointer over cell **A8** (*Mexico*), slightly left of centre, so that it changes to a black, right-facing arrow and click to select that row of the PivotTable (Fig. 8).

**Step 27:** Move the mouse pointer to the upper edge of the black box that borders the selection so that it displays a four-headed arrow then drag upwards. As you do so Excel

displays a grey bar where the selection will move to when the mouse is released. Release the mouse when the bar is between the rows for **Canada** and **Brazil** (Fig. 8).

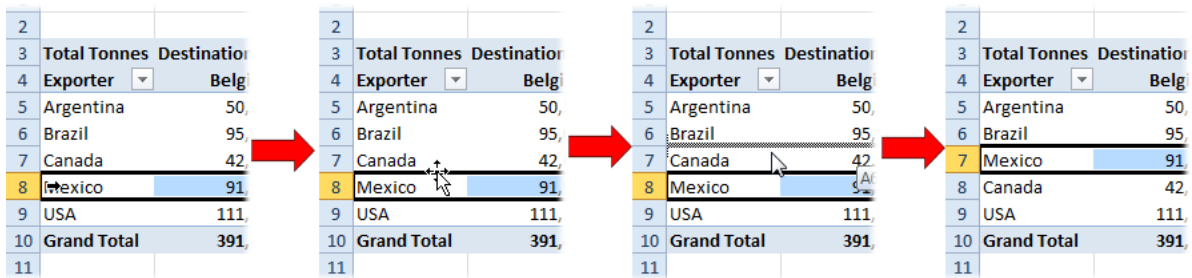


Fig. 8 Drag the Mexico row up the PivotTable.

**Step 28:** Select the cells **A5:A7** (containing the labels *Argentina*, *Brazil* and *Mexico*) then go to the **Options** tab on the **PivotTable Tools** section of the Ribbon and click **Group Selection** (Fig. 9).

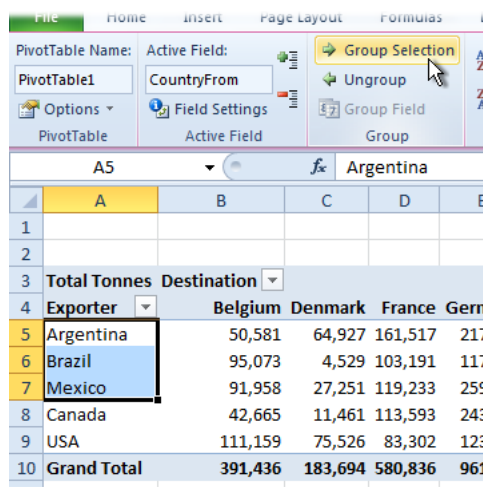


Fig. 9 Group the selected PivotTable rows.

You will see that the PivotTable looks a bit strange at this point. This is because only some of the countries were grouped. The selected countries (*Argentina*, *Brazil* and *Mexico*) have now been grouped together under the heading *Group1* but the remaining countries (*Canada* and *USA*) are each in a group of their own. We now have to group the remaining countries to get the effect we want.

**Step 29:** Select cells **A9:A12** (alternatively select cell **A10** then hold down the **[Ctrl]** key whilst you select cell **A12**) then click **Group Selection**.

The PivotTable now shows the exporting countries in two groups, labelled *Group1* and *Group2* (Fig. 10). The next task is to give the groups meaningful names.

| 2  |              |             |         |         |         |         |             |          |         |         |             |
|----|--------------|-------------|---------|---------|---------|---------|-------------|----------|---------|---------|-------------|
| 3  | Total Tonnes | Destination |         |         |         |         |             |          |         |         |             |
| 4  | Exporter     | Belgium     | Denmark | France  | Germany | Italy   | Netherlands | Portugal | Spain   | UK      | Grand Total |
| 5  | Group1       |             |         |         |         |         |             |          |         |         |             |
| 6  | Argentina    | 50,581      | 64,927  | 161,517 | 217,817 | 79,310  | 208,328     | 56,861   | 192,587 | 183,471 | 1,215,399   |
| 7  | Brazil       | 95,073      | 4,529   | 103,191 | 117,341 | 106,720 | 289,679     | 101,406  | 130,703 | 134,513 | 1,083,155   |
| 8  | Mexico       | 91,958      | 27,251  | 119,233 | 259,348 | 113,792 | 172,994     | 94,717   | 92,164  | 163,021 | 1,134,478   |
| 9  | Group2       |             |         |         |         |         |             |          |         |         |             |
| 10 | Canada       | 42,665      | 11,461  | 113,593 | 243,399 | 103,270 | 262,345     | 54,801   | 110,135 | 155,833 | 1,097,502   |
| 11 | USA          | 111,159     | 75,526  | 83,302  | 123,459 | 144,563 | 272,296     | 48,993   | 102,787 | 215,600 | 1,177,685   |
| 12 | Grand Total  | 391,436     | 183,694 | 580,836 | 961,364 | 547,655 | 1,205,642   | 356,778  | 628,376 | 852,438 | 5,708,219   |

Fig. 10 The exporting countries are shown in two groups.

**Step 30:** Select cell **A5** (currently displaying the text *Group1*) then type **South America** and press **[Enter]**.

**Step 31:** Select cell **A9** (currently displaying the text *Group2*) then type **North America** and press **[Enter]**.

**Step 32:** Double-click the line separating the buttons at the top of columns **A** and **B** to snap column **A** to the correct width to display the new text.

The PivotTable now shows the exporting countries grouped under their new group names (*Fig. 11*).

|                      | Total Tonnes   | Destination    |                |                |                |                  |                |                |                |                  | Grand Total |
|----------------------|----------------|----------------|----------------|----------------|----------------|------------------|----------------|----------------|----------------|------------------|-------------|
| Exporter             | Belgium        | Denmark        | France         | Germany        | Italy          | Netherlands      | Portugal       | Spain          | UK             |                  |             |
| <b>South America</b> |                |                |                |                |                |                  |                |                |                |                  |             |
| Argentina            | 50,581         | 64,927         | 161,517        | 217,817        | 79,310         | 208,328          | 56,861         | 192,587        | 183,471        | 1,215,399        |             |
| Brazil               | 95,073         | 4,529          | 103,191        | 117,341        | 106,720        | 289,679          | 101,406        | 130,703        | 134,513        | 1,083,155        |             |
| Mexico               | 91,958         | 27,251         | 119,233        | 259,348        | 113,792        | 172,994          | 94,717         | 92,164         | 163,021        | 1,134,478        |             |
| <b>North America</b> |                |                |                |                |                |                  |                |                |                |                  |             |
| Canada               | 42,665         | 11,461         | 113,593        | 243,399        | 103,270        | 262,345          | 54,801         | 110,135        | 155,833        | 1,097,502        |             |
| USA                  | 111,159        | 75,526         | 83,302         | 123,459        | 144,563        | 272,296          | 48,993         | 102,787        | 215,600        | 1,177,685        |             |
| <b>Grand Total</b>   | <b>391,436</b> | <b>183,694</b> | <b>580,836</b> | <b>961,364</b> | <b>547,655</b> | <b>1,205,642</b> | <b>356,778</b> | <b>628,376</b> | <b>852,438</b> | <b>5,708,219</b> |             |

*Fig. 11 The groups now show their new group names.*

Now that we have defined groups for the data the PivotTable can easily summarise the data by those groups. Adjacent to each group name is a small box containing a minus sign.

**Step 33:** Click the minus signs next to each of the group headings (*South America* and *North America*).

This collapses each group, at the same time summarising its data and displaying the totals in the same rows as the group names (*Fig. 12*).

|                      | Total Tonnes   | Destination    |                |                |                |                  |                |                |                |                  | Grand Total |
|----------------------|----------------|----------------|----------------|----------------|----------------|------------------|----------------|----------------|----------------|------------------|-------------|
| Exporter             | Belgium        | Denmark        | France         | Germany        | Italy          | Netherlands      | Portugal       | Spain          | UK             |                  |             |
| <b>South America</b> |                |                |                |                |                |                  |                |                |                |                  |             |
| Argentina            | 50,581         | 64,927         | 161,517        | 217,817        | 79,310         | 208,328          | 56,861         | 192,587        | 183,471        | 1,215,399        |             |
| Brazil               | 95,073         | 4,529          | 103,191        | 117,341        | 106,720        | 289,679          | 101,406        | 130,703        | 134,513        | 1,083,155        |             |
| Mexico               | 91,958         | 27,251         | 119,233        | 259,348        | 113,792        | 172,994          | 94,717         | 92,164         | 163,021        | 1,134,478        |             |
| <b>North America</b> |                |                |                |                |                |                  |                |                |                |                  |             |
| Canada               | 42,665         | 11,461         | 113,593        | 243,399        | 103,270        | 262,345          | 54,801         | 110,135        | 155,833        | 1,097,502        |             |
| USA                  | 111,159        | 75,526         | 83,302         | 123,459        | 144,563        | 272,296          | 48,993         | 102,787        | 215,600        | 1,177,685        |             |
| <b>Grand Total</b>   | <b>391,436</b> | <b>183,694</b> | <b>580,836</b> | <b>961,364</b> | <b>547,655</b> | <b>1,205,642</b> | <b>356,778</b> | <b>628,376</b> | <b>852,438</b> | <b>5,708,219</b> |             |

*Fig. 12 Collapse the groups to display their totals.*

The minus signs adjacent to each group name have changed to plus signs indicating that there is data hidden.

**Step 34:** Click the plus signs next to each of the group headings (*South America* and *North America*) to expand the groups and display their component country data.

**NOTE:** Take a look at the PivotTable Field List. You will see a new item, *CountryFrom2*, has appeared in both the list of data fields and in the Row Labels box. This represents the groupings you applied to the *CountryFrom* field. If you were to remove this item from the Row Labels box, or uncheck it in the Field List, the grouping of the *CountryFrom* field would be removed from the PivotTable.

## Conclusion

This concludes Exercise 2. The next exercise will continue from this point so if you wish to proceed to the next exercise you should save the file in its current state.