



# In Depth: Base

**O**penOffice.org includes a number of tools to both interface with database servers and perform tasks such as enter and edit data. However, for most day-to-day users who have humble needs, creating such a setup is rather complicated. It requires some knowledge of how databases work on a technical level. For this reason, a new component was added to OpenOffice.org 2.0: Base.

Base is a relational database along the lines of Microsoft Access and is perfect for database applications of all sizes, including more modest efforts. For example, you could use it to create an inventory database to produce a report showing all products added for a certain geographical region on a certain date, or you could use it to catalog items in your personal stamp collection.

Relational databases such as those created by Base are ideal for quickly creating catalogs of information, such as inventory lists. In addition to making database creation simple and quick, relational databases let you easily query data to produce reports tailored to individual needs.

Base works on a number of levels depending on the knowledge of the user, but in its most basic form, it offers a design-based approach to the creation of tables and forms. Anyone who has previously created a database under Access will feel right at home.

In this chapter, we'll work through an example of using Base to create a simple database cataloging a collection of music. You can use the same techniques to create any kind of relational database.

## Getting Started with Base

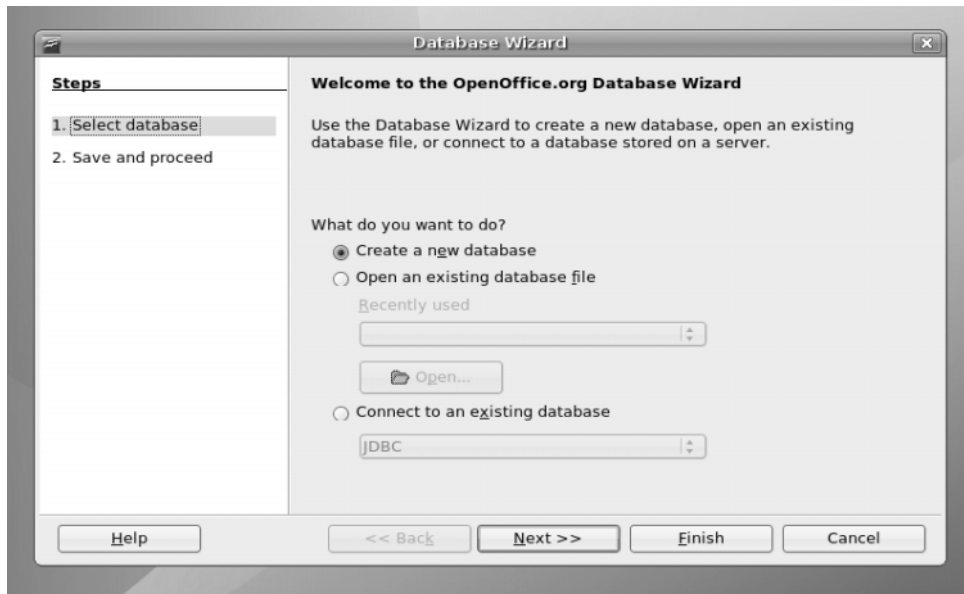
Unfortunately, Base isn't installed on your Ubuntu system by default. You can download and install it by clicking System ► Administration ► Synaptic Package Manager. Click the Search button on the toolbar and type `openoffice.org-base` into the text box. In the list of results, click the empty check box alongside `openoffice.org-base` (don't click the other results!) and click Mark for Installation. You'll see a dialog box informing you that some additional programs need to be installed—this is fine. Click the Mark button in the dialog box to dismiss it. Then click the Apply button on the main toolbar, and the Apply button

in the subsequent dialog box that appears. Once the program has been downloaded and installed, close the Synaptic Package Manager.

Once installed, you'll find Base under the Applications ► Office menu. When the program first starts, the Database Wizard guides you through either creating a new database or opening an existing one, as shown in Figure 26-1. Once you've made your choice, click Next to continue.

The first step in creating a new database is to register it within OpenOffice.org. This means that it will be made available in other OpenOffice.org programs, such as Calc or Writer. Although the knowledge needed to use a database in this way is quite advanced, there's no harm in agreeing to this option. It might prove useful in the future as you learn more about OpenOffice.org.

Following this, you can choose to open the database for editing and/or start the Table Wizard. Once you click the Finish button, you'll be invited to give the database a name and save it immediately.



**Figure 26-1.** Base starts with the Database Wizard to facilitate the quick and easy creation of new databases.

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**Note** Databases aren't like other office files in that they automatically save and update themselves. When using the finished database, you can simply enter data and then quit the program, without needing to deliberately opt to save the file.

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Assuming that you did not opt to go directly to the Table Wizard, you'll now see the main Base program window. The right of the Base program window contains the Tasks and Data panes. The Tasks pane allows you to create new database elements, depending on what's selected in the Database pane. The Data pane shows any elements you've already created, and its content changes depending on whether you have the Tables, Queries, Forms, or Reports mode selected in the Database pane, on the left. The components of the Database pane relate to the four typical elements of a database, and they are as follows:

**Tables:** A table is what holds the actual data you'll eventually input. Therefore, a table is the first thing that needs to be created within a new database. Creating a table involves defining the types of data that you want to store and giving the individual data fields easy-to-understand names.

**Forms:** Although it's possible to enter data directly into a table, it isn't particularly intuitive or easy. Because of this, forms are used to make the data fields presentable. As the name suggests, in terms of layout these are not unlike the paper forms that you fill in to facilitate the collection of data by businesses. As with tables, forms must be created from scratch in a new database. Forms have *controls*, which are used to facilitate data entry, or to allow users to navigate the database or otherwise manipulate it. The most common type of control is a text-entry field, which is then tied to a data field within the table, but you can also have controls that perform certain functions, such as deleting a record in the database.

**Queries:** A query is a way of filtering the database so that you see only a subset of it. For example, in a database detailing sales figures from across the country, you might create a query to show only the data from a particular state.

**Reports:** A report is a way of presenting data for human consumption, usually in a printed format. For example, you could create a report that details sales figures in the form of a letter, or you might make a report to produce address labels using addresses stored in the database.

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**Note** The usefulness of both queries and reports are that they can be saved and used over and over again, so you could use the same query each month to examine just a small section of the data. Base offers wizards to automate the creation of both queries and reports.

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Double-clicking an item in the Database pane displays or activates that item. Right-clicking a Database pane item displays a variety of options related to editing the file.

Now, let's work through an example of using Base. First, you'll create a table, and then you'll create a form.

## Creating a Database

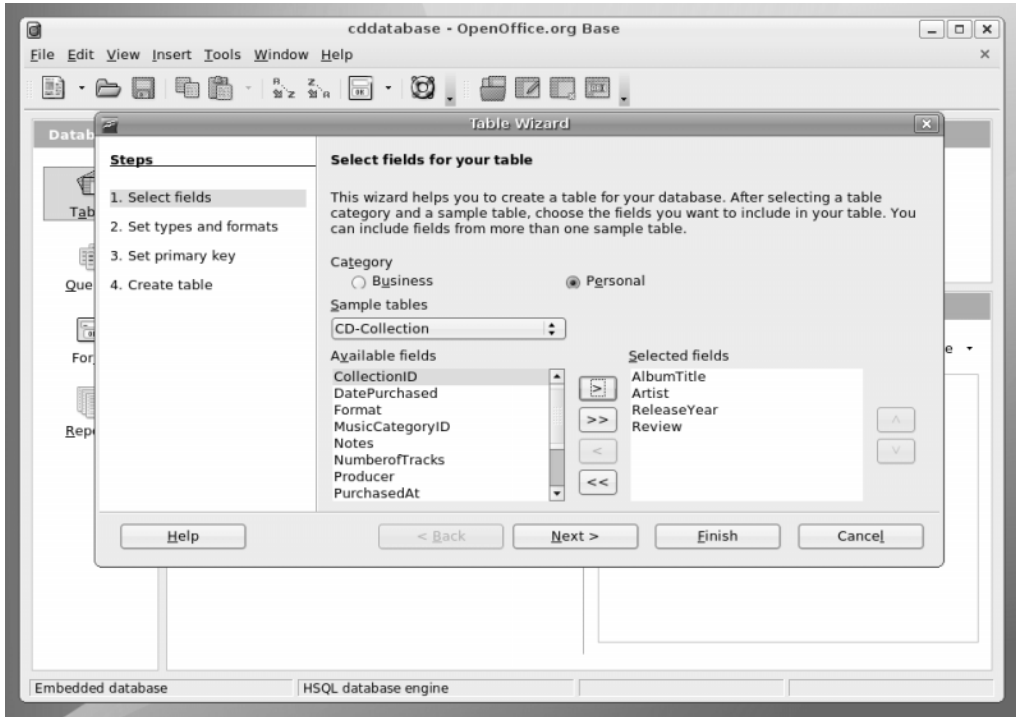
As an example of using Base, you'll build a database, ready for data entry. The first step in the creation of a database is to make a table. This will hold the data that you will eventually enter using a form.

### Adding a Table

As with all components within Base, you can use a wizard to create the table. The Table Wizard offers a number of predefined data fields corresponding to typical databases. It is fine for general use, but if you have a specific and unusual database in mind, you will need to create the table manually.

Here, you'll create a database to catalog CDs. This is easily accomplished with the Table Wizard, as follows:

1. Click the Tables icon in the Database pane, and then click the Use Wizard to Create Table icon. The Table Wizard starts.
2. You're given a choice between creating a business or personal database. As you would expect, business databases are likely to contain fields relating to business matters, such as accounting, and the fields in the personal section relate more to domestic matters. Choose Personal for this example.
3. Choose an entry from the Sample Tables drop-down list. For this example, select CD Collection.
4. In the Available Fields box, you now see a number of data fields that would prove handy for a CD collection. You don't need to use all of these. Instead, select only those you want in your table, and then click the single right-facing arrow button to transfer them to the Selected Fields box. For this example, select AlbumTitle, Artist, ReleaseYear, and Review, as shown in Figure 26-2. Then click the Next button. (Don't worry if you find the fields lacking or if you want to add your own—you'll see how to do just that in step 6).
5. Check to make sure the fields you selected are of the correct type. Click each to see the information in the right area of the dialog box. Fields can take various forms depending on what kind of data they're supposed to hold. For example, one field might be designed to contain text, while another might need to contain numbers. Yet another might need to contain dates, and some can even contain pictures. As you might expect, the wizard has automatically selected the correct data types for the predefined fields.



**Figure 26-2.** The Table Wizard contains ready-made data fields for a wide variety of uses.

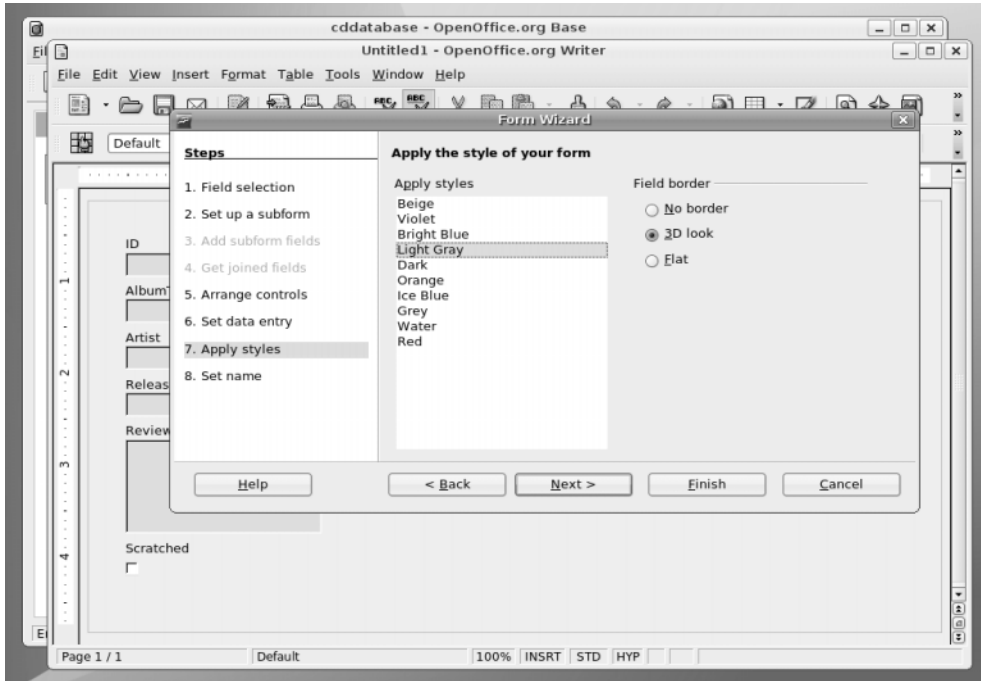
6. For this example, you want to add a check box that shows whether the CD is scratched. If the CD in question is scratched, the user can click in a check box. If the CD isn't scratched, the box can be left blank. To create a check box, you need a special kind of data field called a Boolean. This means that the data field can be either true or false or, to put it a simpler way, it can hold either yes or no. To create a yes/no data field, click the plus button at the bottom of the Selected Fields box. This allows you to add another field. In the Field Name box, type **Scratched**. For the Field Type, click the drop-down list and locate the entry marked Yes/No [BOOLEAN]. The other options can remain as they are. Click Next to continue.
7. You're asked if you want to create a primary key. This is the unique numeric field that the database uses to keep track of each entry in the database. It's a must in a database like this one. The default choices are correct, so you can click Next again.
8. You've completed the Table Wizard. The next step is to create a form, so select Create a Form Based on This Table, and then click the Finish button.

## Creating a Form

Forms are present in databases for the benefit of users to facilitate the quick-and-easy entry of data. They present data fields that you've just created within the table in an easy-to-understand form.

Base is able to walk you through the creation of forms via the Form Wizard. If you didn't select to run the Form Wizard previously, you can start it by clicking Forms in the Database pane, and then clicking Use Wizard to Create Form. Then follow these steps:

1. In the Form Wizard's first step, select which fields you want to appear on the form. As with the Table Wizard, this is simply a matter of selecting the fields and then clicking the right-arrow button so that they appear under the Fields on the Form heading. Alternatively, by clicking the double-arrow button, you can select all of them in one fell swoop, which is what you want for this example. Click Next.
2. You're asked if you want to create a subform. As its name suggests, this is effectively a form within your main form. A subform is useful with more complicated databases, where it might be necessary to view other data while filling in the form. For this simple example, leave the Add Subform box unchecked and click Next.
3. Choose a general layout for the data fields. The default is the table view, which many find ugly, so you might choose one of the first two options (in our database we chose the second option, as can be see in Figure 26-3). These arrange the data fields in a spacious manner and make the form much more usable. If you look behind the wizard dialog box, you'll see a preview of how the form will look. Once finished, click Next.
4. You're asked whether or not you want existing data to be displayed on the form. You can choose to treat the form as one created only for entering new data, so that you can't use it to navigate through the database and see existing data you've already entered. This might be useful in applications where you don't want users to see the other data in the database. However, for a database for your own personal use, being able to see the existing data is very handy, which is why The Form Is to Display All Data option is selected by default. For this example, simply click the Next button to accept the default.
5. Choose a look and feel for your form from the variety of color schemes available, as shown in Figure 26-3. Again, you can see them previewed behind the wizard dialog box. Feel free to experiment with the options under the Field Border heading. We prefer the 3D Look option, which gives the form elements a slight interior shadow, a common feature on most modern user interfaces. The Flat option simply adds a black border to the boxes, and the No Border option removes the border completely. Once you've made your choices, click Next.



**Figure 26-3.** You can choose from a variety of look and feel options for your form, and each will be previewed behind the wizard dialog box.

6. You're invited to give the form a name. Enter a suitable name, such as **CD-Collection**. You are also given the option of entering data directly into the form or modifying it manually. Once you've made your choice, click the Finish button. The database is almost ready for use. You just need to take one more step to modify the table. However, first we'll take a brief look at adding custom controls to forms.

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**Note** There are no rules governing form names, and you can use virtually any symbols and also insert spaces into the name. However, it's a good idea to keep the form name simple and concise.

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## Adding Controls to the Form Manually

Although the form created by the wizard is good enough for our needs, there might be some instances where you want to edit the form manually to add your own controls. The following instructions describe how:

1. Double-click the form to edit it and then ensure the Form Controls toolbar is visible—click View ► Toolbars ► Form Controls. Then, on the Form Control toolbar, click the icon that represents the control you want to add to the form. Don't forget, you can hover your mouse over each icon to see a tooltip explaining what the icon is for. Next click and drag on the form to add the item. You need to make the item big enough so that the label can be seen. This is especially relevant in the case of smaller items, such as check boxes. If you release the mouse button too early, simply click and drag the handles at the edges to resize the control.
2. Once the item has been drawn, double-click it. This will open Properties dialog box. Click in the Label box, delete what's there already, and type the word(s) that will help the database users identify the item.
3. Click the Data tab and, in the Data Field box, select from the drop-down list the table data field that you wish to associate with the item.
4. Close and save the form.

You can add many custom controls following the same basic approach you used here. Simply draw them on to the form, and then match them up with an entry in the table using the Data tab.

## Editing the Database Table

Before you can use the CD database we created earlier, you need to make a small change to the table you created. Although the Table Wizard created a primary key, it didn't make it into an automatically updating number. Without this option activated, the user will need to manually number each entry in the database as it's created.

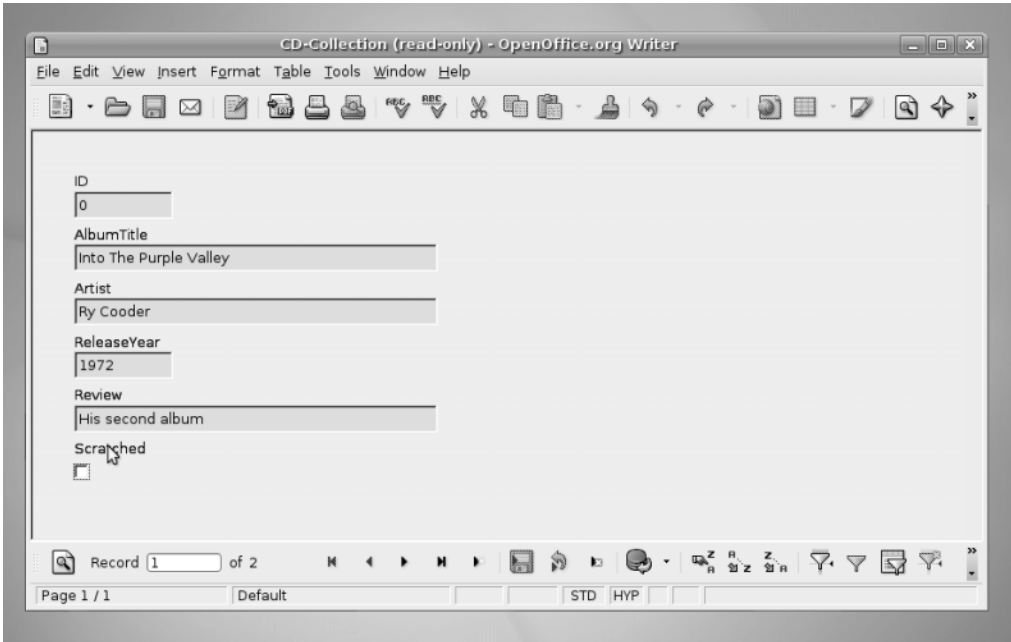
Follow these steps to edit the table and activate automatic numbering for the ID field:

1. Click the Tables icon in the Database pane of the main program window, right-click the table you created earlier, and select Edit.
2. Look for the entry in the table list labeled ID. It should be first in the list. Make sure that the cursor is on the ID line, and click the Autovalue drop-down list at the bottom of the window. Make sure that it reads Yes, as shown in Figure 26-4.
3. Close the window and opt to save the table.

That's it! Your database is now ready to use.







**Figure 26-5.** The finished database form lets you enter data into the input fields and navigate using the toolbar at the bottom.

## Summary

In this chapter, we looked at the Base database component of OpenOffice.org and how to use it to easily create and edit simple databases. We stepped through an example of setting up a database table and creating a database form that users can employ to enter and edit data.

In the next chapter, we will look at Evolution, the powerful e-mail and personal information manager offered under Ubuntu.