# The Repository

One of the most often heard questions asked by users of Crystal Reports 8.5 and earlier (especially users in larger organizations) was "Can I share parts of this report with other users or other reports?" While some use of creative copying and pasting to shared word processor or text files might have provided a piecemeal answer to this question, the general response was usually "No."

Perhaps the most anticipated new feature of Crystal Reports 9, the repository, took care of this need. The repository (which has been further updated in version 10) allows several types of report objects to be stored in a central database for sharing among other reports and other users. Not only does this greatly reduce the need for repetitive report design steps, it also affords a simple, centralized way of automatically updating common portions of shared reports.

The major repository change in Crystal Reports 10 relates to Crystal Enterprise 10 (often abbreviated as *CE*). While Crystal Reports 9 supported a stand-alone repository database, version 10 requires Crystal Enterprise 10 to be installed (the repository is now stored in the CE 10 Crystal Management Server database). While this change will no doubt cause grumbling among organizations that haven't adopted Crystal Enterprise in the past, or that have established existing shared repositories on stand-alone SQL databases, it does provide a certain extra level of central management that you may find helpful.

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**TIP**   *More detailed coverage on Crystal Enterprise 10, its various editions and capabilities, and implementation scenarios, can be found in Part II of this book.*

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## The Repository Defined

Simply put, the Crystal Reports *repository* is a common place where report objects can be stored. Once you store a report object in the repository, it's available to be added to other reports you create. If you connect to your CE-shared repository that other users in your organization also share, objects you add to the repository are available to other Crystal Reports users, and objects they add are available to you.

The version 10 repository now stores all of its items in the CE 10 Crystal Management Server database. Any Crystal Reports 10 user who has a valid user ID and connectivity to your CE 10 system will be able to connect to the repository. Even if you have just a few

report designers who share a common repository, the benefits of shared report design and automatically updated report objects will soon become evident.

You make use of the repository in Crystal Reports with the *Repository Explorer,* a separate frame (or "un-dockable" dialog box) inside the report designer, similar to the Field Explorer. When you initially attempt to display the Repository Explorer, you will be asked to first log on to CE 10 (if you haven't already logged on).
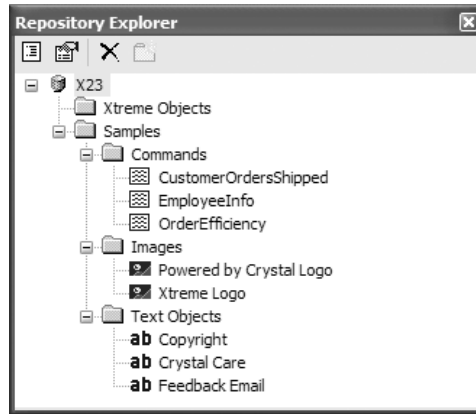


The Repository Explorer shows the repository categorized into folders. Although the sample repository that ships with Crystal Enterprise 10 shows folders for specific types of objects (text objects, bitmaps, SQL commands), you don't have to organize folders this way—you may put any type of object that the repository supports into any folder. You may add any of the objects in the repository to appropriate areas of your report.

The repository supports five types of Crystal Reports objects:

- **Text objects**   Standard text objects containing static text (no embedded fields)
- **Bitmaps (pictures)**   Bitmap pictures, such as logos, photos, and signatures
- **Custom functions**   Functions or "subroutines" that can be used inside report formulas. Note that repository custom functions appear only in the Formula Workshop, not in the Repository Explorer.
- **SQL commands/queries**   Server-based SQL commands that reports can be based upon
- **Business Views (new in Version 10)**   Crystal Enterprise–based meta-layer "views" of database connectivity that reports can be based upon (Business Views are covered in more detail in Chapter 17.)

Text objects and bitmaps can simply be dragged from the Repository Explorer onto the report, just as you would drag and drop fields from the Field Explorer. Repository custom functions must be added to report formulas from within the Formula Workshop (covered in Chapter 5), and repository SQL commands and Business Views must be added to the report

from within the Database Expert (SQL commands are covered in more detail in Chapter 16, and Business Views are covered in Chapter 17).

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*TIP*    *You can install sample objects into your Crystal Enterprise repository by using the new Business View Manager's Tools | Install Repository Samples menu option. More information on using the Business View Manager is discussed later in this chapter, as well as in Chapter 17.*

## New Version 10 Repository Explorer Features

The Repository Explorer has been enhanced slightly in Crystal Reports 10 with the addition of a toolbar, the ability to control a sorted display of repository folders and objects, and a filtering capability to limit display of certain repository objects.

The Repository Explorer toolbar contains four buttons: Change View Settings, Advanced Filtering, Delete, and Add Folder. The Delete and Add Folder buttons, described later in the chapter, perform fairly self-explanatory functions. The Change View Settings and Advanced Filtering buttons expose new capabilities in the version 10 repository.

Clicking the Change View Settings button, or right-clicking anywhere inside the Repository Explorer and choosing Change View Settings from the pop-up menu, will display the View Settings dialog box. By unchecking any of the repository object types, you can eliminate them from appearing in the Repository Explorer. For example, you may prefer not to see SQL commands (since you can't add them to the report from the Repository Explorer anyway). Just uncheck Report Commands to eliminate them from the Repository Explorer. You can also sort repository objects by name or type by clicking the desired radio button.
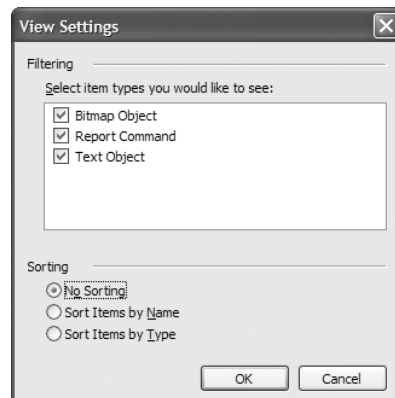


If you click the Advanced Filter button, or right-click anywhere inside the Repository Explorer and choose Advanced Filtering from the pop-up menu, the Repository Explorer will expand to show two filter text boxes and an Apply button. Type in a combination of full or partial object name in the "Show items with this text in the name" box and full author name in the "Show items by this author" box. Then, just click the Apply button or just press ENTER. The Repository Explorer will redisplay showing just repository objects matching the criteria you typed. To remove the criteria, just delete the text on the filter

boxes and click Apply or press ENTER. If you no longer wish to see the filter text boxes, just click the Advanced Filtering toolbar button again, or right-click and choose the Advanced Filtering pop-up menu option.



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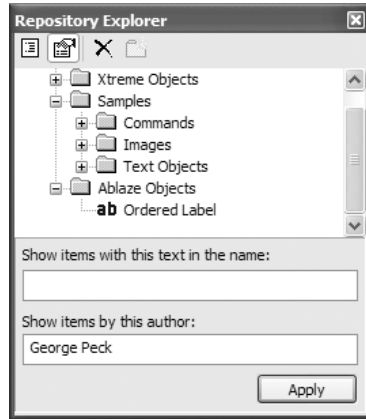
**NOTE** *Even though folders may show plus signs next to them after setting filters, nothing will appear inside the folder if it doesn't meet the filter requirements.*

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## Adding To/Updating the Repository

Once you've installed your initial Crystal Enterprise 10 system with its default database, you'll need to begin to populate it with your shared objects. And while it's not required, you'll probably gain more usability with the repository if you organize the repository into folders.

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**NOTE** *The ability to add, change, and delete repository objects and folders is based on Crystal Enterprise security. If your CE user ID hasn't been granted these rights, you'll receive errors when you attempt these operations. Steps to control these rights are discussed later in this chapter, under "Controlling Repository Rights."*

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### Creating Folders

You may create as many folders in the repository as you like. And you're not limited to creating a single level of folders—you may create subfolders within other folders to build a hierarchy for repository objects. Once you've created your folder structure, you can place text objects, bitmap graphics, or SQL commands in the folders (custom functions are placed in a separate part of the repository reserved just for themselves—they won't appear in the Repository Explorer).

From within Crystal Reports, you create, delete, or modify folders from the Repository Explorer. Launch the Repository Explorer by clicking the Repository Explorer button in the Standard toolbar, or choose View | Repository Explorer from the pull-down menus. If you have not already logged on to Crystal Enterprise, you'll be prompted to do so. If you have

not yet modified the repository, you'll see the name of your server at the top of the explorer, followed by the folders initially supplied by the out-of-the-box CE repository.

You may create a top-level folder that appears directly underneath your CE server name, or a subfolder that exists within another folder. If you wish to create a top-level folder, ensure that you've selected the CE server name first. Click the folder button in the Repository Explorer toolbar, or right-click the CE server and choose New Folder from the pop-up menu. A folder will be added to the repository with the default name of "New Folder," and you'll be placed immediately into edit mode, where you can type your own name for the folder. Type the new folder name and press ENTER or click elsewhere with your mouse.
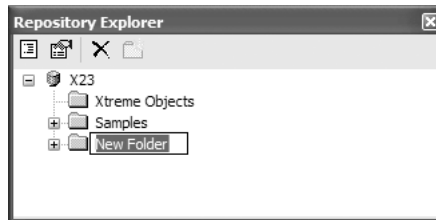


If you wish to create additional folders, you may create top-level folders by repeating the previous steps (just make sure you've selected the CE server prior to clicking the folder toolbar button). If you wish to create a subfolder below an existing folder, select the higher-level folder first. Then, click the folder button in the Repository Explorer toolbar or right-click and choose New Folder from the pop-up menu. You'll see a lower-level folder within the higher-level folder you right-clicked, again with the default name of New Folder, which you can rename immediately.

If you wish to rename a folder you've already added, select the folder you wish to rename and then hold the mouse button down on the folder for a few seconds. You may also select the folder and press F2, or right-click the desired folder and choose Rename from the pop-up menu. In all cases, the folder name will go into edit mode and you can type a new name for the folder.

Deleting folders is similarly straightforward. Select the folder you wish to delete and simply press the DEL key. Or, you may click the X button in the Repository Explorer toolbar or right-click the desired folder and choose Delete from the pop-up menu. You'll be prompted to confirm the deletion. If there are any objects in the folder, they will be deleted along with the folder.

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*CAUTION*    *Deleting folders, like deleting individual objects in the repository, cannot be undone. Make sure the object or folder you want to delete is no longer needed before you delete it.*

## Adding and Deleting Objects

You may add report objects to the repository at any time, even if you haven't yet created any folder structure (moving objects into or among folders will be discussed later in the chapter). The method for adding an object to the repository is dependent on the type of object you wish to add.

### Text Objects or Bitmap Graphics

A text object or bitmap graphic can be added to the repository by simply dragging and dropping it from the Design or Preview tab of the report into the Repository Explorer. If you wish to place the object into a particular folder, drag and drop the text object or bitmap on top of the folder you wish to add it to. You may also add a text object or bitmap by right-clicking the desired object and choosing Add to Repository from the pop-up menu.
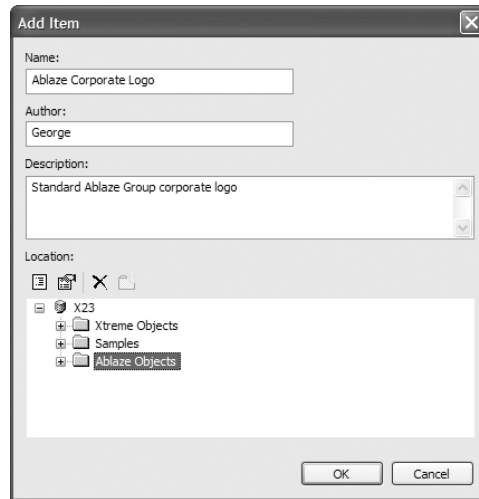


Specify a name for the object to appear in the repository. Make sure you don't use a name already used for another repository object of the same type in the same folder (you'll be warned if you do this and will overwrite the repository object with the same name if you proceed). You can, however, add a repository object with the same name into a different folder.

Although not required, you can also add an author name and description for your entry. If you choose the pop-up menu method to add the object, the Repository Explorer will appear within the Add Item dialog box. If you wish to place the object in a folder, choose the folder where you want to place the new object. If you select the name of CE server instead of a folder, the object will be placed directly under the server name in the Repository Explorer. Click OK when you've specified all information to add the object to the repository.

If you wish to rename an object you added to the repository previously, you may simply select the object inside the Repository Explorer and then hold the mouse button down for a few seconds. The object will go into edit mode, where you can type in a new name (you'll receive an error if you try to use a name of another object of the same type and name in the same folder), and press ENTER or click away from the object name. The object will be renamed.

If you initially place an object in a particular folder (or in no folder, but right below the server name itself), you may move or copy it to another location with a simple drag-and-drop operation. Select the object you wish to move and hold your mouse button down. Then, drag the object on top of its new preferred location (a folder if you wish to move the object to that folder, or the server name if you wish to move the object out of a folder and place it right

below the CE server). When you drop the object in its new location, it will then appear where you dropped it. Holding the CTRL key down while dragging will copy the object to its new location, also leaving the object in its original location. If there is already an object with the same name in the destination folder, you will be warned that it will be overwritten.

Deleting a text object or bitmap from the repository is similar to deleting folders. Just select the object you want to delete and press the DEL key. You may alternatively click the X button in the Repository Explorer toolbar or right-click the object and choose Delete from the pop-up menu. And as with folders, deleting text objects or bitmaps can't be undone. Make sure you really want to delete the object from the repository before proceeding. Note that deleting an object from the repository won't delete it from reports that had originally made use of it. It will still remain in those reports, but it won't be available to add to any new reports.

While you can't add a SQL command to the report from the Repository Explorer (you must do this in the Database Expert), you can rename or delete it from there. Use the same steps mentioned previously for deleting or renaming text objects and bitmaps to delete or rename SQL commands.

**NOTE** *If you delete an object from the repository that may be part of existing reports, users will receive an error message when they open the report and attempt to "Update Repository Objects." The object on the report will then appear as it did when the report was last saved.*

### Custom Functions

Add custom functions to the repository from the Formula Workshop. With the Formula Workshop displayed, select the report custom function you wish to add to the repository and click the Add to Repository button. You may also right-click the custom function name and choose Add to Repository from the pop-up menu. And you may also simply drag the custom function name from the Report Custom Functions category of the Formula Workshop to the Repository Custom Functions category (drop on top of any item in the category).

**NOTE** *You won't be prompted for a folder to place the custom function in. The folder structure discussed earlier applies only to text objects and bitmaps. Custom functions are placed in a separate area of the repository just for them. If you assigned categories to your custom functions when you created them, the categories will be retained when you place the custom function in the repository.*

Deleting a custom function from the repository is quite straightforward. Simply expand the Repository Custom Functions category of the Formula Workshop, select the custom function that you wish to delete, and press the DEL key. You may alternatively right-click the custom function name and choose Delete from the pop-up menu. In either case, you'll be warned that deleting a custom function from the repository can't be undone. Confirm that you want to delete the function and it will be permanently removed from the repository. Note that deleting an object from the repository won't delete it from reports that had originally made use of it. It will still remain in those reports, but it won't be available to add to any new reports.

### SQL Commands

Add SQL commands to the repository in the Database Expert (creating SQL commands is discussed in more detail in Chapter 16). First, create the SQL command so that it appears in the Selected Tables list of the Database Expert. Then, right-click and choose Add to Repository from the pop-up menu.
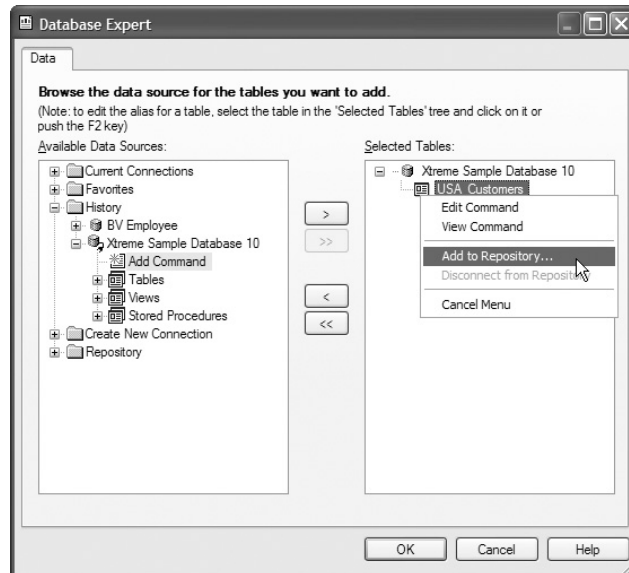
If you haven't previously logged on to CE, you'll be prompted to do so. You'll be presented with a dialog box similar to previously described dialogs prompting you to name the object and choose a location in the repository for the object (SQL commands can be stored in the same folder structure you set up in the Repository Explorer). You may optionally specify the author, as well as changing the description for the SQL command to something other than the SQL statement that makes up the command (which is placed in the description text box by default). When you click OK, the SQL command will be added to the repository. It will then appear in the Repository section of the Database Expert.

PART I

You may rename a SQL command you added to the repository either in the Repository Explorer or the Crystal Enterprise Explorer that appears when you first log on to the repository from the Database Expert. The process is identical in all situations. Select the object, hold down the mouse button for a few seconds to put the object in edit mode, and make the change. You may also right-click and choose Rename from the pop-up menu.

Deleting a SQL command from the repository must be done in the Repository Explorer—you cannot delete a SQL command from the repository in the Database Expert. Once you've closed the Database Expert and have arrived at the report Design tab, display the Repository Explorer. Navigate the folder structure to find the desired SQL command. Right-click the SQL command name and choose Delete from the pop-up menu, click the X button in the Repository Explorer toolbar, or press the DEL key. Note that deleting an object from the repository won't delete it from reports that had originally made use of it. It will still remain in those reports, but it won't be available to add to any new reports.

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**NOTE** *New Crystal Reports 10 Business Views are also stored and managed in the repository. Complete details on how to maintain repository-based Business Views are available in Chapter 17, "Creating and Using Business Views."*

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# Adding Repository Items to Reports

Once you've added objects to the repository as outlined earlier in the chapter, you, along with other users sharing the same repository, will want to add the items to reports. Repository versions of text objects, bitmap graphics, custom functions, SQL commands, and Business Views are added in different places throughout Crystal Reports.

## Text Objects or Bitmap Graphics

Add these items to your report from the Repository Explorer (which can be displayed by clicking the Repository Explorer button in the Standard toolbar or with the View | Repository Explorer pull-down menu item). If necessary, log on to Crystal Enterprise. Then, simply expand any folders to reveal the text objects and bitmaps that are available. If you want to see properties for a repository object, right-click the object and choose Properties from the pop-up menu. A small dialog box will appear showing various pieces of information about the object.

To add the object to the report, simply drag it from the Repository Explorer to the report. As when dragging and dropping fields from the Field Explorer, an outline will appear as you drag. When you've reached the desired position for the object, release your mouse button. The text object or bitmap graphic will be placed on the report.

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**TIP** *Don't be alarmed when you are unable to format or resize objects you add to the report from the repository. These objects are "connected" to the repository and can't be edited, resized, or formatted until they have been "disconnected." This is discussed later in the chapter.*

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## Custom Functions

Make use of repository custom functions in the Formula Workshop. You may add a custom function to the report from the repository directly, which will place it in the Formula Editor's

function tree for use like built-in Crystal Reports functions. Alternatively, you can use the Formula Expert to create a formula based on a custom function from the repository.

To add a custom function to the report directly, so that it appears in the Formula Editor's function tree, begin by displaying the Formula Workshop. You may do this by clicking the Formula Workshop button in the Expert Tools toolbar, or by choosing Report | Formula Workshop from the pull-down menus.

Expand the Repository Custom Functions category of the Formula Workshop until you find the custom function that you wish to use (you may need to log on to Crystal Enterprise if you haven't previously). Select the function you wish to add and click the Add to Report toolbar button in the Formula Workshop toolbar. You can also right-click the function name in the Formula Workshop tree and choose Add to Report from the pop-up menu. And finally, you may simply drag the custom function you wish to add to the report from the Repository Custom Functions category to the Report Custom Functions category of the Formula Workshop tree.
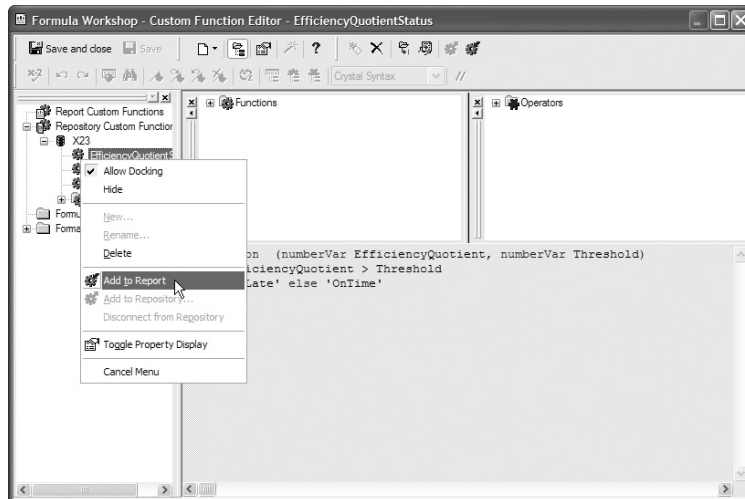


Since a repository custom function can potentially call other custom functions within the repository, you may be asked to confirm the addition to the report of other custom functions. Once you do this, all custom functions you've added from the repository will now appear in the Custom Functions category of the function tree for you to add to formulas.

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*TIP*   *More details on creating formulas with the Formula Expert and using custom functions in formulas can be found in Chapters 5 and 6.*

## SQL Commands and Business Views

Add repository-based SQL commands and Business Views to your report from the Database Explorer, the Set Location dialog box, or another data-related dialog box that you typically use to add database tables to the report. In these dialog boxes, you'll see a Repository folder that

you can expand to see the folder structure that has been set up in the repository. If prompted, log on to Crystal Enterprise. Then, expand the folders to reveal SQL commands or Business Views that are located in the repository. An example of the Database Expert is shown here:
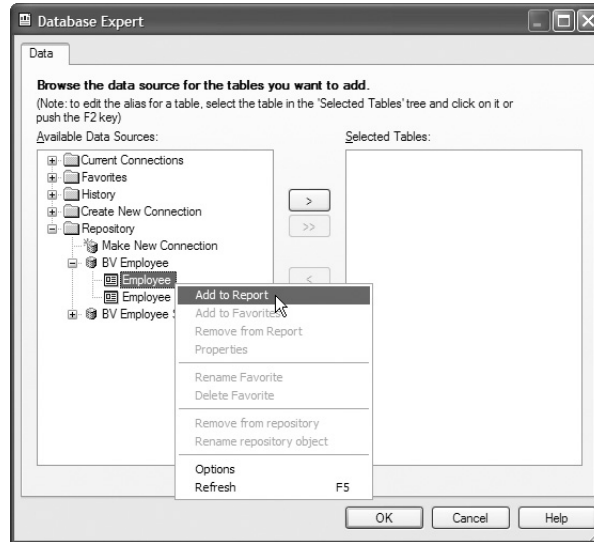


Choose the SQL command or Business View that you want to add to the repository. You may then click the right arrow to add the selected repository SQL command to the report, right-click the command and choose Add to Report from the pop-up menu, or just drag the command or Business View from the left side of the Database Expert to the right side. Similar procedures will add SQL commands and Business Views to the report from the repository in other data-related dialog boxes.

## Changing Repository Items on Your Report

As indicated earlier in the chapter, you may become confused once you add an object from the repository to your report. This might occur if you attempt to change the format of a text object you added from the repository, resize a bitmap graphic you added from the repository, or change the text of a SQL command or custom function that's been added to the repository. In all these cases, you'll discover that the objects are "locked" or set to a read-only status— you won't be able to make these kinds of changes.

This behavior is by design. In order to ensure that the repository controls the appearance and behavior of these objects, they remain *connected* to the repository once you've added them to the report. As long as they're connected, the repository will control their appearance and size (in the case of text objects and bitmap graphics), or their text (in the case of SQL commands and custom functions). Probably the most obvious clue that an object is connected is the inability to change it. However, in some dialog boxes, you'll also notice a small vertical-bar icon next to the object's name, which will indicate that the object is connected to the repository.

The main benefit of leaving objects connected to the repository is to allow them to be updated automatically if anybody else makes changes to the repository. For example, if you have added a common company logo and slogan to your report using a repository-connected bitmap graphic and text object, you'll probably want all reports using those objects to automatically reflect changes to the repository should your logo or slogan change. In order to ensure consistency with this behavior, individual changes to the objects once they've been added to reports shouldn't be allowed.

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*TIP*    *To ensure connected objects will be updated when you initially open your reports, you must make one of two choices. By choosing File | Options from the pull-down menus and checking the Update Connected Repository Objects on Open option on the Reporting tab, you ensure all reports automatically update connected objects when opened. If you only want to update connected objects on a report-by-report basis, leave this global option off and instead check the Update Repository Objects check box on the Open File dialog box when opening a Crystal Report.*
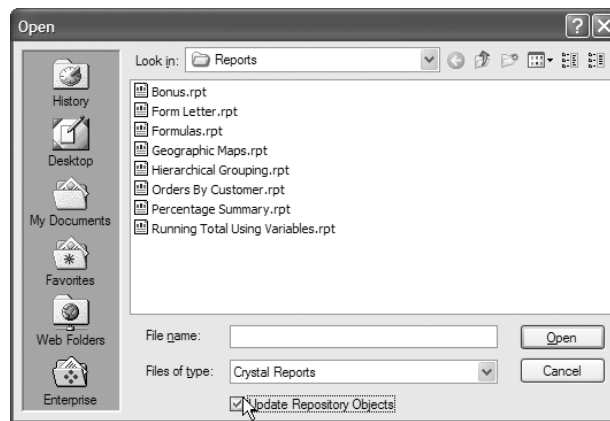


To change this behavior and manually make changes to objects you've added from the repository, you must *disconnect* them from the repository. Begin by right-clicking the object. In the case of text objects or bitmap graphics, right-click directly on the object in the Design or Preview tabs. For SQL commands or custom functions, right-click the command or function name in their respective dialog boxes. From the pop-up menu, choose Disconnect from Repository. Notice that you may now resize or reformat text objects or bitmap graphics, as well as changing the contents of SQL commands or custom functions. Also, you'll notice the previously mentioned vertical bar "connected" icon is no longer visible.

Be aware, though, that these objects will now behave as though you just added them to the report—they won't be automatically updated by the repository any more. Using the company logo and slogan example mentioned previously, if you disconnect the objects from the repository and save the report, they won't reflect any repository changes the next time you open the report.

### Updating Repository Versions of Objects

Continuing with the company logo and slogan examples referred to previously in this chapter; what if you are in charge of updating the repository copies of the company logo and slogan? Or, you may have a company-wide custom function that requires changing for a new fiscal year or a new bonus program. In these situations, you must add the object from the repository to your report, make changes, and update the repository with the changed object.

As mentioned previously, you can't edit or modify an object that's connected to the repository. This may cause confusion if you are required to update the repository copy of an object. To get around this confusion, consider the steps required to update the repository copy of an object:

1. Add the object to a report from the repository.

2. Disconnect the object from the repository.

3. Make necessary changes to the object.

4. Save the object back to the repository in the same folder and with the same name as the original object.

Step 4 will exhibit behavior that is slightly different than the first time you added the object to the repository. When you attempt to add an object to the repository in the same folder with the same name, you will be warned that an object already exists and given the opportunity to update the version in the repository with the version that you're saving. If you choose to do this, the old repository object will be replaced with the updated version.

Once you've performed these steps, note that the updated object you just added back to the repository will once again be connected—you won't be able to change formatting or contents. To make future changes to the object, you must once again disconnect it from the repository.

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**NOTE** *Business Views are modified using the Crystal Enterprise Business View Manager—you cannot update Business Views from inside Crystal Reports. The Business View Manager is discussed in detail in Chapter 17.*

## Controlling Repository Rights

With a shared repository, as with company database connections and network resources, you may wish to limit the ability to update or delete repository objects to a certain set of key users, while permitting the rest of those sharing the repository to just add existing repository items to their reports. As the Crystal Reports 10 repository is now managed by Crystal Enterprise, you make use of Crystal Enterprise user and group permissions to accomplish this.

While typical Crystal Enterprise user and group right assignment is accomplished in the Crystal Management Console (more detail on Crystal Enterprise architecture and management is discussed in Part II of the book), repository rights are maintained in the new Crystal Enterprise Business View Manager. If you don't already have access to the Business

View Manager in an existing Crystal Enterprise installation, you must specifically install the Business View Manager on a Windows computer from the CE product CD. And, needless to say, since the repository is now part of Crystal Enterprise, you must have a functional Crystal Enterprise system in place to make use of the Business View Manager.

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**NOTE**   *Other Business View capabilities of the Business View Manager not relating to repository rights are covered in Chapter 17, "Creating and Using Business Views."*

Start the Business View Manager from your Windows start menu. You will be prompted to log on to Crystal Enterprise. Ensure that you use a CE user ID (initially, the Administrator ID or a member of the Administrators group will be required) that provides sufficient rights to change repository security. The Business View Manager will appear, with a docked Repository Explorer window appearing inside it (similar in appearance to the Repository Explorer in Crystal Reports). If you choose, you may "undock" the Repository Explorer and move it around as a free-floating window.
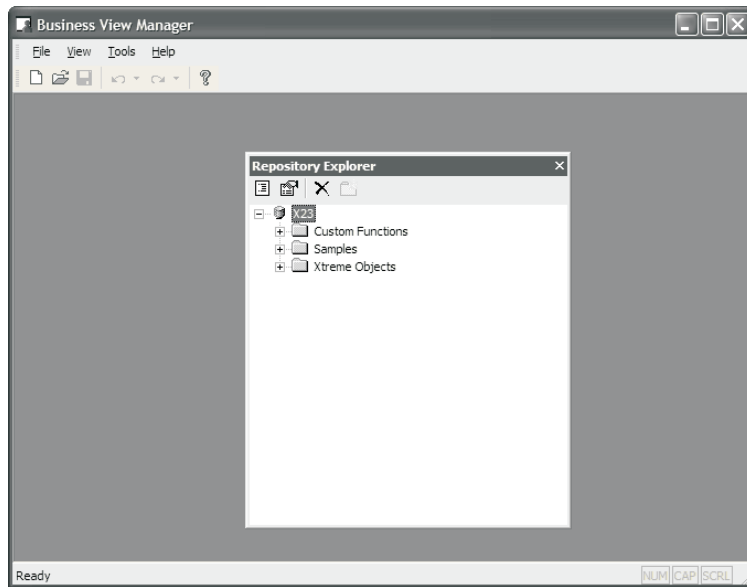


Notice that the folder structure of the repository is exposed in the Repository Explorer: your CE Crystal Management Server name appears at the top of the folder hierarchy, with top-level folders appearing below them. If you click the plus sign next to a folder, it expands to show any subfolder or repository objects within it.

Notice an additional folder labeled Custom Functions that you may not have seen before in other versions of the Repository Explorer for Formula Workshop. This is the dedicated folder within the repository where all custom functions are held. As you can't specify a folder name in the Formula Workshop when adding a custom function, they will all be placed in this single repository folder.

Consider this repository folder and object hierarchy carefully when planning your repository security plan. If you simply want to supply a single set of repository rights for the entire repository (perhaps you want Administrators to have full repository rights, but everyone else to have only read rights), you may set repository rights at the *Crystal Management Server level.* However, if you want to provide more granular rights (perhaps you want a Sales group to have full rights to the entire Sales repository folder or just certain objects or subfolders within the Sales folder), then you may set rights at the *folder and object level.*

Furthermore, you will want to consider the concept of *rights inheritance,* the capability to set rights at a higher level in the repository (perhaps on the Crystal Management Server or a top-level folder) and have the rights automatically *inherited* by folders, subfolders, and objects at lower levels. By creative use of different levels of rights and inheritance, you have very tight control (perhaps more than you'll need) over repository rights.

## Controlling Rights at the Crystal Management Server Level

Begin by considering the overall set of rights you want to give to the repository as a whole; these will be the rights you set at the Crystal Management Server level. All folders, subfolders, and objects in the repository will inherit the rights you set here. If, as discussed previously, you only wish to have a single set of rights apply to the entire repository, you need only set rights at this level.

Begin by selecting the top-level Crystal Management Server name in the Repository Explorer. Then, right-click and choose Edit Rights from the pop-up menu. The Edit Rights dialog box will appear, as illustrated in Figure 7-1.
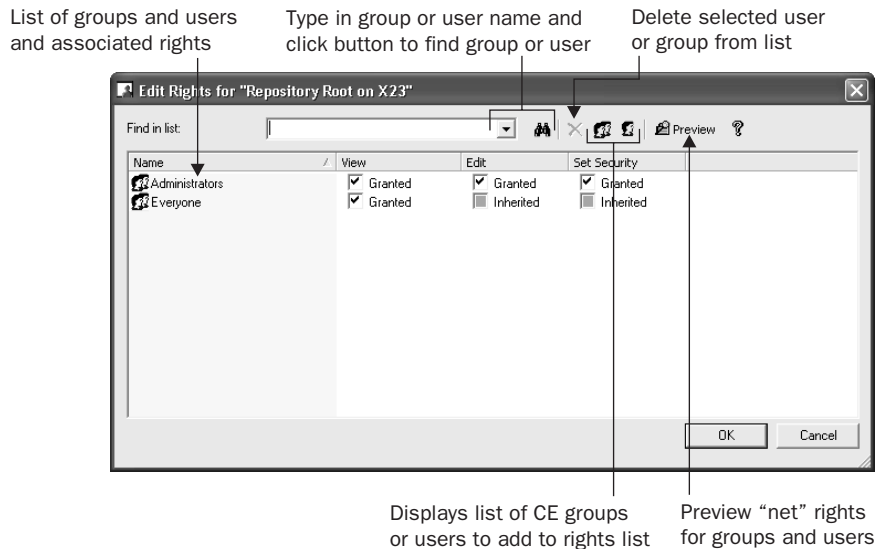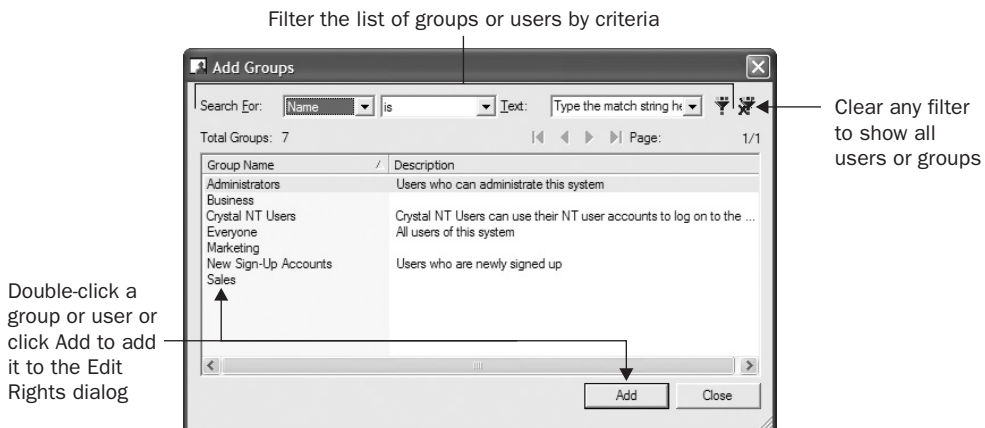


**FIGURE 7-1**    The Edit Rights dialog box

You'll see a list of Crystal Enterprise groups and users that have already been granted or denied rights at the Crystal Management Server level (a freshly installed Crystal Management Server will initially show the Administrators and Everyone group here). Note the three different rights that can be set for each user or group:

- **View**   The ability to add objects in the repository to reports
- **Edit**   The ability to add new objects to the repository, or update and delete existing objects in the repository
- **Set Security**   The ability to change repository security settings for others

Further, if you cycle through the available options for each right by clicking the check box, you'll notice that a right can be granted, denied, or inherited. *Granting* the right explicitly gives that right to the chosen group or user. *Denying* the right explicitly takes the right away from the chosen group or user. And, allowing the right to be *inherited* will grant or deny the right on the basis of higher-level security settings (at the Crystal Management Server level, inherited rights apply only to the Administrators group, which is automatically granted all rights to the repository).

If you wish to specifically grant or deny rights to additional groups or users, you'll need to add the group or user to the list by clicking the Add Groups or Add Users button in the Edit Rights dialog box toolbar. These buttons will display an additional Add Groups or Add User dialog box showing all Crystal Enterprise groups or users (to actually create additional CE groups or users, you must use other CE administrative tools, such as the Crystal Management Console—you can't add these here). Use this dialog box to choose an additional group or user to add to the Edit Rights dialog box.

Filter the list of groups or users by criteria



Clear any filter to show all users or groups

Double-click a group or user or click Add to add it to the Edit Rights dialog

Once the additional groups or users you've added appear in the Edit Rights dialog box, you can grant or deny rights to that group or user by clicking the appropriate check boxes.

The next time you set rights for the Crystal Management Server, the new groups and users you added will reappear with the specific rights you granted or denied appearing next to them. If you wish to remove a group or user that you previously set rights for, select the user or group and click the Delete toolbar button (the X).

Although it's not as relevant at the Crystal Management Server level, you may still want to see what the ultimate or *net* set of rights is for each group or user. Do this by clicking the Preview button in the Edit Rights dialog box toolbar. The list of users and groups will change, showing the actual combination of rights that result from explicit settings and inheritance. If you need to change any rights, click the Preview button again to return the list to its "editable" state.

Once you've set rights for all necessary groups and users, just click OK to close the Edit Rights dialog box. The rights you set will be saved on the Crystal Enterprise system and will take effect immediately for all repository users. The rights you set at the Crystal Management Server level will automatically be inherited by all folders and objects in the repository.

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**CAUTION**    *Be careful when denying rights at the Crystal Management Server level. If you deny a right to a group or user at this level, that user or group won't have the right anywhere in the repository, even if you explicitly grant it at a lower level. Because of the repository's inheritance rules, denial of rights takes precedence over granting of rights when rights are inherited.*

## Controlling Rights at the Folder and Object Level

If you wish to take advantage of Crystal Enterprise's folder- and object-level repository security, perform similar steps to those discussed previously for setting repository security at the Crystal Management Server level. However, prior to choosing the Edit Rights option from the pop-up menu, ensure that you've selected the desired folder, subfolder, or object in the Repository Explorer that you want the rights to apply to. The same Edit rights dialog box will appear.

If you've granted or denied rights for groups or users at a higher level, you'll already see the group or user listed in the Edit Rights dialog box. You may either change rights that may be inherited by clicking the check boxes for existing groups or add additional groups or users to the Edit Rights dialog box by clicking the Add Groups or Add Users button in the Edit Rights dialog box toolbar.

The important thing to consider when setting rights at this level is inheritance. If a right has already been granted or denied at a higher level (the Crystal Management Server or a higher-level folder), that right will be inherited at this lower level. Specifically, if a right has been denied at a higher level, even granting it at this lower level won't give the group or user the right. If a right hasn't been granted or denied at all, granting at this level will enable the right for the group or user. If a right has never been specifically granted (either at this or a higher level), then the user won't have the right.

Once you've specified rights at the lower level, click the Preview button to see the set of net rights granted to users and groups. This net rights display takes into account inherited rights from a higher-level folder and the Crystal Management Server, as well as rights specifically granted and denied at this level. By using the Preview button, you can

see what each group and user will ultimately be able to do within this folder or to this object. If you need to modify rights after viewing net rights, click the Preview button again to return the list of groups and users to an "editable" state.
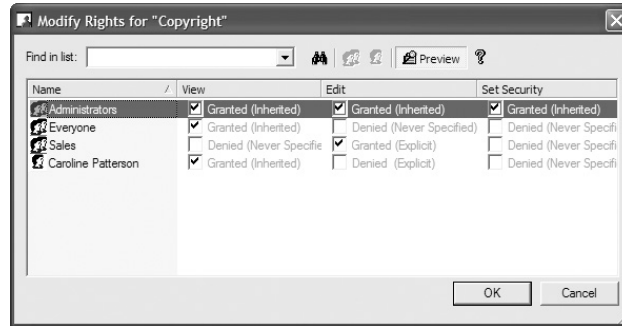


**NOTE** *Preventing users from updating or deleting repository objects will still allow them to "detach" objects from the repository and change them once they've been placed on the report. However, if they make any changes to such objects, they still won't be able to update the repository with their updated versions.*

## Migrating a Version 9 Repository to Version 10

When the repository was first introduced in Crystal Reports 9, it was not managed within Crystal Enterprise. The default repository installed with Crystal Reports 9 was a Microsoft Access database stored on the local C drive. If you wished to share a repository among more than one report designer, you were required to "point" all Crystal Reports 9 users to a shared database (perhaps one stored on Microsoft SQL Server, Oracle, or other standard SQL database) where a common repository database was kept.

Crystal Reports 10's repository is now managed by Crystal Enterprise 10; if you haven't installed Crystal Enterprise 10 in your organization, you will no longer be able to make use of the Crystal repository. Rather than storing repository objects in a separate SQL database, they are now stored in the same database used by the Crystal Enterprise Crystal Management Server. If you have created a shared repository database with Crystal Reports 9, you'll need to migrate all or some of your version 9 repository objects to the new version 10 Crystal Management Server repository for use with Crystal Reports 10.

Business Objects has supplied the Crystal Repository Migration Wizard (a separate Windows program) with Crystal Enterprise 10 to accomplish this migration. If you don't have access to a full Crystal Enterprise installation, you'll need to install the Crystal Repository Migration Wizard to a Windows computer from the CE 10 program CD. Although you can install this migration wizard on a computer with an existing Crystal 9 repository connection, you don't have to—you'll just need to ensure that the computer at least has an ODBC data source that connects to the shared repository database.

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**NOTE** *If you want to copy repository objects from one Crystal Enterprise 10 system to another, use the Crystal Import Wizard instead of the Migration Wizard. The Import Wizard will copy repository objects, along with other objects (such as reports) from one Crystal Enterprise 10 system to another.*

Start the Crystal Repository Migration Wizard from the Crystal Enterprise 10 program group. Once you've read the introductory note, click Next to choose the "source" repository. The Source drop-down list will contain either the name of your existing version 9 repository (if you're running the Migration Wizard from a Crystal Reports 9 or Crystal Enterprise 9 computer) or a list of all ODBC data sources available on your computer (if the computer you're running the wizard on is not connected to a version 9 repository).

Choose the appropriate entry from the drop-down list. If the computer you're using is connected to a version 9 repository, you should find only one entry in the list. Otherwise, choose the ODBC data source name that "points" to your repository database. If you don't find an appropriate ODBC data source name, you'll need to run the ODBC Administrator from the Windows control panel and create an appropriate ODBC data source for the version 9 repository database. If the version 9 repository exists on a secure industry-standard database, such as Microsoft SQL Server, specify a user ID and password for the database. Click Next.

You'll then be prompted to log on to your Crystal Enterprise 10 Crystal Management Server. Supply the Crystal Management Server name, along with a user ID and password that provides Edit rights to the repository (setting repository rights is discussed earlier in the chapter under "Controlling Repository Rights"). The Administrator user ID or an ID in the Administrators group will typically provide sufficient rights. Click Next.

The Source Repository Objects screen will appear, showing all folders and objects in your Crystal 9 repository. By default, all objects will be checked, indicating that they'll be transferred to the new Crystal 10 repository. If there are any objects you don't want to migrate, uncheck them. Click Next.
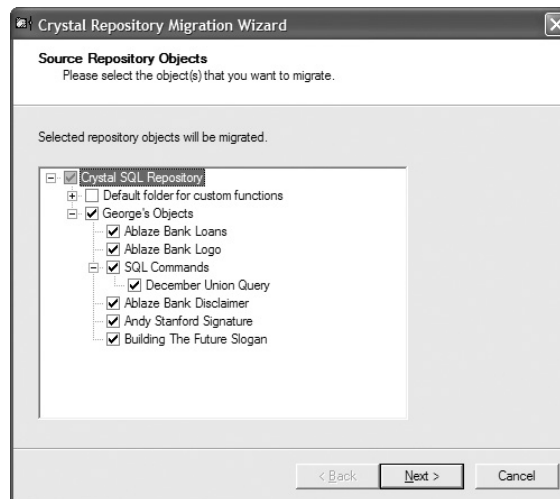
The Migration Wizard will proceed to copy all chosen repository objects to the Crystal 10 repository. The folder structure of the version 9 repository will be re-created in the version 10 repository, and objects will be copied with the same name. Should duplicate objects already exist in the version 10 repository, they won't be overwritten with the version 9 objects. The Migration Wizard will show a check mark next to each successfully copied object. Should any errors occur (perhaps there are duplicate objects in the Crystal 10 repository), a different icon will appear next to the object. Click the object name to see a more detailed explanation of the error.