

CHAPTER 2

Combined Analysis Basics



Let us start our deeper dive into the mechanics of a combined analysis with some basic combinations of report criteria within the same subject area. The same rules apply when working with multiple subject areas, but a little practice with some simple combined reports will allow us to become familiar with the process. I will begin with some procedural information on the steps involved in combining reports, and along the way will cover some of the rules that must be adhered to in order to successfully combine reports.

Basic Combined Analyses

Combining reports begins the same way as building any other report. You begin by selecting your subject area from the Getting Started screen. On the Build And View Analysis – Step 1 screen, you will select the columns you want to appear in your analysis. You can go ahead and adjust the formulas and filters as you like, just like you would on any other report. One thing you want to consider carefully at this point, however, before you begin the steps to combine this report with other reports is the order of the columns. If you begin the combined analysis process with the correct columns in the desired order, it will save you several steps later on in the process.

Once you have your columns on your report and you have determined that you will need a combined report to achieve your desired results, click the plus sign (+) button on the Advanced heading near the bottom of the Build And View Analysis – Step 1 screen. Expanding the Advanced section exposes the Combine with Similar Analysis button. Clicking this button opens a menu of all of the available reporting and analytics subject areas, as shown in Figure 2-1.

To begin combining reports, click the subject area you want to use for the second report in your combined analysis. Your screen will immediately change. The Columns section of the screen slides down, and a new section named Set Operations appears at the top of the screen. Inside this section of the screen you will find three links inside of boxes that look a lot like filter groups. Each of these links affects what appears in the Columns and Filters sections located below the Set Operations section.

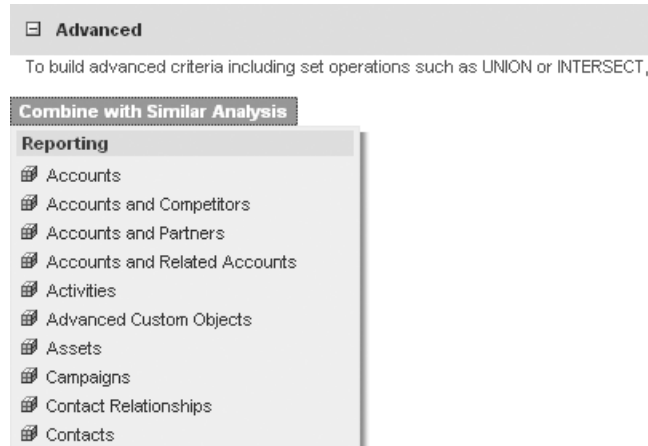


FIGURE 2-1. *Combine with similar analysis subject areas*

The Cancel button in the Set Operations section will cancel the combination of reports and return you to a standard report. The criteria report that is highlighted when you click the Cancel button is retained and the other criteria are removed. If you have Results Columns selected when you click Cancel, all columns are removed from the report and you are left with a blank report in the subject area of the first criteria report.

Criteria Reports

You initially have two criteria and one set of result columns. The criteria are the individual report requests that you are combining to populate the result columns. You will notice that one of these links is always highlighted. The highlight indicates which set of columns and filters are visible below.

When you initially arrive at this screen, the second criteria report is highlighted and you do not have any columns in the Columns section. You will see, however, that there is a dotted-line outline of columns shown here (Figure 2-2). The column name from the base report, which is now your first criteria report, is shown in each column outline. You need to populate this criteria report with columns by clicking the appropriate columns from the Column Selector on the left side of the screen. This brings us to Combined Analysis Rule #1 and Rule #2.

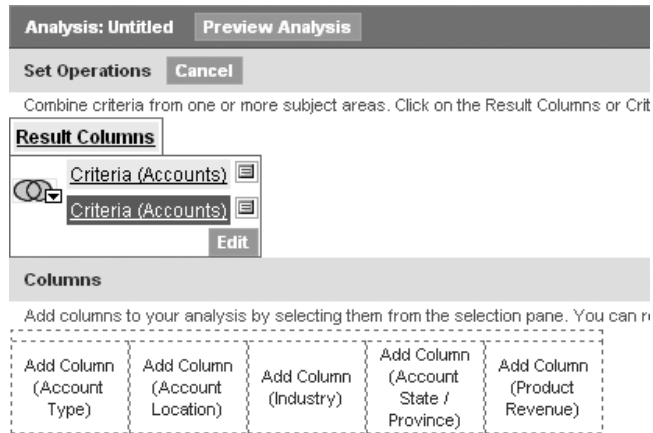


FIGURE 2-2. *Beginning a combined analysis*

Rule #1 Each criteria report must have the same number of columns. There must be a result column for every column in the criteria reports.

Rule #2 Each criteria report column must be the same data type as the column in the same position in the other criteria report(s).

As you click columns from the left, the column is added to the criteria report. Clicking the columns in order saves you the trouble of dragging the columns around to the correct location. Remember: The location of the columns is very important. You must align columns so that columns in each position are the same data type as the columns in the same position in the other criteria reports. You must also ensure that you have added a column to each of the open spots in the new criteria report.

You will also notice that there is a small icon to the left of the criteria report links that bears the image of a Venn diagram. This icon indicates the type of set operator being used to combine the criteria reports. Each of the four versions is shown in Figure 2-3.

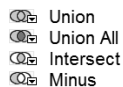


FIGURE 2-3. *Set operators*

As mentioned in the previous chapter, we can use four different operators to combine our reports. Each of these four set operators has a specific use within your Oracle CRM On Demand reports. The Union operator performs a merge of records from two report criteria. Use the Union operator when you need to combine results without creating duplicates. This is the default set operator. Use the Union All operator when you need to combine results without checking for duplicates. The Union All operator is the most efficient of all the set operators, as it does not need to compare records from one criterion to records from other criteria. Use the Intersect operator when you need to identify records that are exactly the same in both criteria. The result of this operation is a set of records that appear in both criteria reports. Finally, use the Minus operator when you want to remove records from one criteria report result that appear in the second criteria report result. It is very important to consider that two records are not considered duplicates unless the values in every column are exactly the same in both records.

Continuing our exploration of a basic combined analysis, you will notice that the columns on the criteria reports have three buttons available on each column, where there are normally four in a standard report. The Column Properties button is not available on the criteria report columns. You can, however, edit the column formulas and add column filters. If you are not already familiar with column formulas and advanced filters, you should refer to my book *Oracle CRM On Demand Reporting* (McGraw-Hill, 2008). This chapter will provide a brief overview of basic report development as it applies to combined analyses.

You will modify the formulas as you would any report; just bear in mind that the data type of each column must be the same across the criteria. If you change the format of a column using the CAST function, you will need to ensure that the same column in other criteria reports is the same data format. When you click the Edit Formula button, the Edit Column Formula window appears with the column's analytic field reference in the Column Formula field. You can supplement this field reference with formula functions and other column references to build a custom equation in the column. Your column formula will reference columns from the subject area of the criteria report. You are not able to reference columns from another subject area, even if you are combining this report with one from another subject area. Each criteria report is a single report built on a single subject area and must adhere to the same rules as any other report in Oracle CRM On Demand.

32 Oracle CRM On Demand Combined Analyses

You will also filter criteria reports with column filters, just like you would in any other report. You will find that you very often will filter criteria reports in order to isolate specific records that you want to remove from the report using a Minus operator. This is one of many reasons to filter your criteria reports.

Applying filters to your criteria report allows you to control which data you use to populate your report. You can think of a filter as a method of identifying which data the criteria report will or will not use. Each filter is made up of three components: a column to filter, the value you want to use within the filter, and the condition that describes how the filter value is applied to the filter column. Many of these conditions, called operators, are available for your filters.

You can apply filters to one or more columns. These columns may or may not be included in your criteria report as a column in the final result set. Filters may be connected with an AND or an OR statement to affect the logic of how multiple filters work together. You can group filters together to create more complex filter logic. The options and possible combinations are plentiful, and range from very simple to extremely complex.

The most common way to initiate the creation of a filter is by clicking the New Filter button on the column you intend to filter. Doing so opens the Create/Edit Filter window shown in Figure 2-4. You use this method to create a column filter on a column that you have included in your report. Of course, it is possible, and often desirable, to filter a report on a column not visible in the report results. To open this window for a column without adding it to your criteria report, hold down your CTRL key while clicking the column in the column list

You will create most of your filters using the Create/Edit Filter window. On this window, you see the three basic components of the column filter. At the top of the window, you find the filter column. Below that is the Operator field where you will select one of the operators for your filter. In the Value field you will enter the filter value, or select the value from the right to populate the Value field. With a text column, you have the option of displaying the possible values in a list and then clicking the value in the list to add it to the filter.

To display values to choose from, you have several options. Click the All Choices hyperlink to display all valid values for the current field. This often results in a lengthy list with multiple pages. Each page of this list displays 10 values, and you are able to scroll through the pages using the number bar

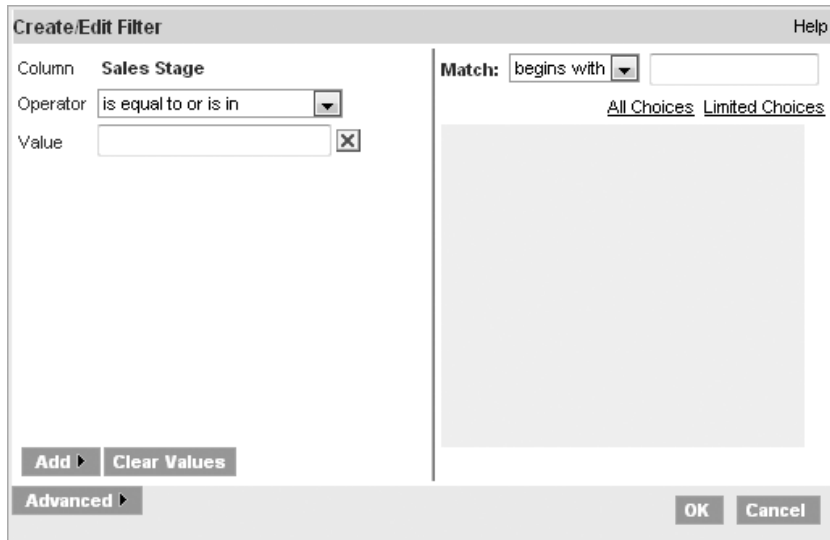


FIGURE 2-4. *Create/Edit Filter window*

and arrows at the bottom of the window. If displaying all of your choices is a little too much, you have the option of clicking the Limited Choices hyperlink. The resulting list of values is dependent on any other filters already added to the report.

You may also perform a search on the valid values using the fields just above the All Choices and Limited Choices hyperlinks. Select “begins with,” “ends with,” or “contains” from the drop-down list, and enter a search value in the field to its right. Then click one of the links to see a list of values that meet your search criterion.

To reopen the Create/Edit Filter screen for a filter that you have added to your criteria report, click the Filter Options button to the right of the filter. This opens a menu. Select Edit Filter to open and make changes to the filter. You may also choose to edit the column formula on your filter. This allows you to customize the column formula directly in the filter without modifying the report columns.

You will notice that you also have the option to cut or copy the filter. This is helpful when you need to modify complex filters. To remove a filter, click the Delete button to the far right of the filter.

34 Oracle CRM On Demand Combined Analyses

As you continue to add filters to your criteria report, Answers On Demand ties these filters together with the AND statement. This is the default setting, but you are able to change the way your filters work together by clicking the AND link to change it to an OR connector between the filters. When you have the presence of both an AND and an OR connection between filters, the filters will automatically group together.

Continuing to click the AND/OR statements and ungrouping filters enables you to configure your filters to get the data you want in your reports. Often, report developers mistakenly think that it takes more than one report to collect different sets of data when perhaps a report with the appropriate groups of filters will do exactly what they need.

Answers On Demand also contains some pre-defined filters that you can use in your criteria reports. To add a pre-defined filter to your report, click the Open Saved Filter button. This opens a window displaying the folder structure. Drill down into the filter folders by double-clicking the folders to display the contents. You will notice that the filters that are available here are specific to the subject area you are working with. Select from one of the available filters and click the OK button. Answers On Demand reacts by displaying the Apply Saved Filter window shown in Figure 2-5. This window shows you the location of the filter and, more importantly, the contents of the filter.

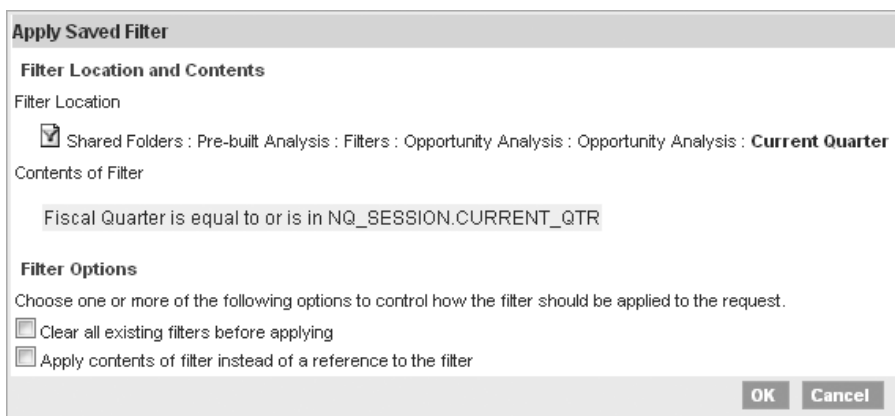


FIGURE 2-5. *Apply Saved Filter window*

You also have a couple of options when applying this filter to your criteria report. You may choose one or both of these options. The first option you have is to clear all existing filters before applying the filter. Click the Clear All Existing Filters Before Applying check box, and when you add the pre-defined filter to your criteria report, it replaces all other filters already on your criteria report. Leave this option unchecked, and this filter appears at the end of the list of filters already on your criteria report, if any. The other option is to apply the contents of the filter instead of a reference to the filter. If you find that you need to make changes to one of your custom saved filters, apply the contents of the filter to a report and make the needed changes to the filters; then save the filter again with the same name to overwrite the previous version.

I would also like to offer a bit of strategy for designing combined analyses, especially when you are working with criteria reports that involve some complex filters. Build a test version of your individual criteria reports as separate simple reports so that you can see the results of your filters on the data returned by the report. This way you can design and validate your filters before implementing them within your criteria reports. When you have combined multiple criteria and look at your report results, it is often difficult to tell which records are the results of which criteria reports, and this can make validating the filtering difficult as well.

Adding Criteria Reports

Sometimes two criteria reports are enough to give you the results you need, and sometimes it takes three or more criteria. You may have noticed that the Advanced section has gone away now that we are combining reports, so adding criteria reports is a bit different. To add another criteria report, you have two options. The first method is to click the Edit button in the bottom-right corner of your criteria report group and select Create New Criteria from the menu. This opens up the list of subject areas, just like you saw before when you initiated the combined analysis. Selecting a subject area from this list adds a criteria report with the outlines of the columns from the other criteria. Adding columns to this new criteria report is the same process as described earlier.

Another option for adding a criteria report is actually a very handy shortcut when you are combining criteria reports from the same subject area. Click the Properties button to the right of one of your existing criteria report links and select Copy. Now click the Properties button again and

select Paste. A copy of the criteria report is added immediately below the selected criteria report. This copy includes all of the columns and filters of the copied criteria report, so you do not need to individually add all of the columns into the new criteria report. You can simply make any necessary changes to the formulas and filters. I will often use this method to copy my first criteria report immediately after initiating the combination of reports and paste in a third criteria report rather than adding columns to my second criteria. I then simply click the Properties button on the empty criteria report and select Cut to remove it from the combined analysis.

Result Columns

So far, we have focused on the criteria reports that make up the combined analysis, but the actual visual layer of the combined report is represented by the Result Columns. You will find the Result Column link above all of your criteria reports. Clicking the Result Columns link shows what appears to be another set of report columns in the Columns section of the screen. These columns are not actually columns with an analytic field reference to columns inside of a subject area. In fact, you will notice that the Column Selector has been replaced with a brief explanation of what result columns really are.

“Result columns are those columns that will be returned when a request combines more than one criteria. Numbers of columns and their data types must be consistent across all criteria and result columns. Adding a result column therefore requires that you add a column of the same type to each of the combined criteria.”

This statement is not entirely true, but we will get into that more in Chapter 5 where I address result columns and result column formulas.

For now, we can consider the result columns as the visible layer of the combined analysis. The data from the multiple criteria reports collects in the result columns. You will notice that the columns shown here have four buttons available: Column Properties, Edit Formula, Remove Column, and Order By. You will notice that the Filter button is not available. The Edit Formula button is available, but if you take a peek at the formula of any of your result columns, you will find that there is no formula. Remember, these columns are not referencing the subject areas and pulling data from the Oracle CRM On Demand databases. Result columns are the representation

of the columns across your criteria reports. Finally, the Order By button next to the name of each column is available here on the Result Columns but was not available on the criteria reports columns.

Formatting Result Columns

In this section, I discuss the Column Properties and Order By buttons. Let us begin with the Column Properties button. Clicking this button opens the Column Properties window. As you can see in Figure 2-6, this window contains four tabs: Style, Column Format, Data Format, and Conditional Format. The intent of this book is not to exhaustively document report development, but to provide you with the information you need to create combined analyses, so we will take a quick look at each of these tabs.

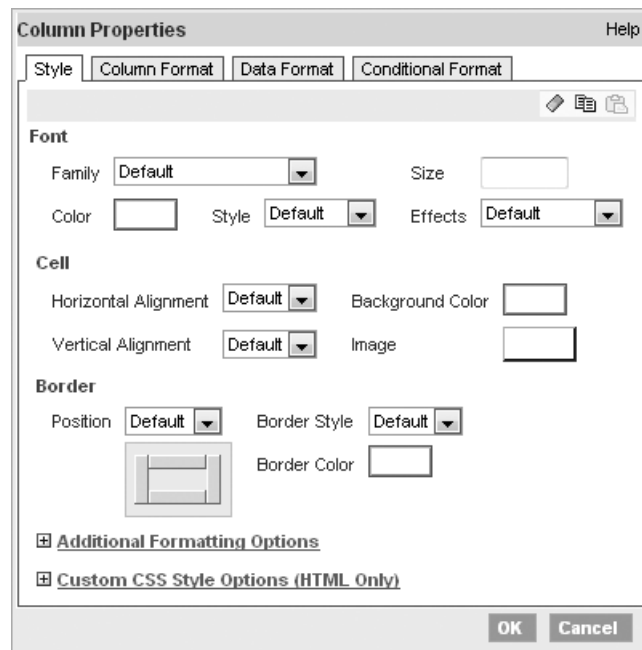


FIGURE 2-6. *Column Properties window*

Style Tab The Style tab of the Column Properties window allows you to manipulate how fonts and table cells appear on your report. The font settings available here allow you to set the font family, size, color, style, and effects. Your font family options are Arial, Arial Black, Arial Narrow, Courier New, Garamond, Lucida Sans Unicode, Microsoft Sans Serif, Times New Roman, Tahoma, and Verdana. If your company has a standard company font, you may want to select a font for your reports that adheres to this standard.

To change the font color, click the white box to open the color selector. There are 48 standard colors available here from which to choose. Alternatively, if you know the HTML color code for your desired color, you can enter # and the six-character code in the field at the bottom of the color selector pop-up. This is true for all of the color options throughout Answers On Demand, enabling you to match your company colors precisely. You may also make your font bold, italic, or both using the Style field. The available effects are underline and strikethrough.

Within the cell portion of the Style tab, you are able to apply horizontal and vertical alignment and add a background color to the cell. The default horizontal alignment is left for text fields and right for numeric data. The default vertical alignment is center. To apply a background color, click the white box next to Background Color and select the desired color.

You can add single, double, or thick borders to one or more sides of your cell. You are able to select only one style of border for the cell. You apply the selected style to any side of the cell to which you add a border. To add a border, you can choose All from the Position field to apply a border to all four sides, or you can click the sides of the cell in the diagram below the Position field. The color selector beside Border Color works exactly like the others on this window and allows you to change the color of all borders applied to this cell.

Expand the Additional Formatting Options section, and you find fields that allow you to adjust the size of your column cell and the padding around the value within the cell. The Height and Width fields allow you to adjust the size of the cell by entering a desired size in pixels or by adding a percentage to make the column size relative to the size of the report table. A column width value of 50 is 50 pixels, while a value of 50 percent is half the width of the table. Adjusting the height of a column cell will affect cells across all columns because the table will adjust to the height of the largest cell in order to align the data in the table.

Cell padding provides space between the sides of the cell and the value in the cell. Adding padding around the cell values will override any specified height or width if the padding results in a larger cell size than the cell size setting. The inverse is also true. If the specified cell height and width settings result in a larger cell than the padding would cause, the height and width measurements apply.

There are three small icons in the upper-right corner of the Style tab. The left icon (Clear Cell Format (Restore Defaults)), an eraser, resets all of the style settings to the default values. The copy icon (Copy Cell Format) copies all of the style settings so you can access the column properties of another column and paste the settings using the Paste Cell Format button to that column in one click.

Column Format The Column Format tab (Figure 2-7) permits you to change the way values in the column repeat or group together across related rows of data, change the way the column heading and data react to a user's click of the mouse, or even hide the column from view.

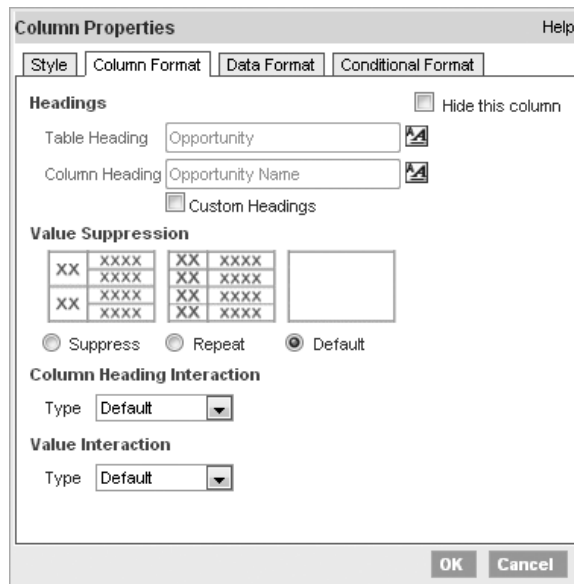


FIGURE 2-7. *Column Properties window – Column Format tab*

40 Oracle CRM On Demand Combined Analyses

To hide a column, select the Hide This Column check box on the Column Format tab. The column will still be part of the report, and will affect the data on the report as if you are displaying the column.

If you want to change the grouping behavior of your columns, you can adjust the value suppression settings on the Column Format tab. To force values to repeat, select the Repeat setting in the Value Suppression section. You should make this change to all columns that you want to repeat.

Often, the field name in Oracle CRM On Demand just does not fit your report. In such cases, you can change the headings to whatever pleases you by clicking the Custom Headings check box and typing the headings of your choice. The column headings appear in your reports. The table headings typically do not. You can apply custom formatting to each of your headings. Click the Edit Format button, located to the right of each field, to open the Edit Format screen. This screen is exactly the same as the Style tab, with the same options that you can apply to the table or column heading.

The final two fields on the Column Format tab allow you to adjust the interactivity of the column heading and the column value. The values in each of these fields are Default, None, Drill, and Navigate. Columns have different default interactivity behaviors depending on the column and the subject area you are using. If you know that you do not want any interactivity, select the None option. This will remove any default interactivity that may exist.

The interactivity allows users to drill down to see additional detail by filtering data on the value that the user clicks in the report. The navigate interactivity setting allows users to click a value in your report to navigate to another report. The report passes the value that the user clicks to the target report. When you select Navigate from the interactivity field, a new Select Navigation Target button becomes available. Clicking this button opens up two additional fields. These fields are the Target field, to identify the target report, and the Caption field, to provide the value that will appear in the pop-up menu that appears when multiple target reports are available. To identify a target report, click the Browse button and navigate through the report folders to select the target report. Add a suitable caption to the Caption field if you are planning to add targets. If identifying only one target, the caption is not necessary.

Data Format The Data Format tab allows you to transform the data in the column into another format. This tab changes depending on the type of column. To change the format of the data in the column, click the Override Default Data Format check box. Doing so activates the fields on the tab, allowing you to select the desired format.

Conditional Format A common desire for reports is to highlight data that is below or above a particular threshold, or meets some other criteria that makes the data special in some way. Perhaps you want to assign a color to every salesperson and highlight their opportunity data in their color. Perhaps you want to call out service requests that have been open for longer than a week. You might even want to display some sort of graphic next to records that meet some requirement.

You can accomplish all of these things with conditional formatting. The Conditional Format tab in the Column Properties window, shown in Figure 2-8, allows you to add formatting to column data that meets a defined condition.

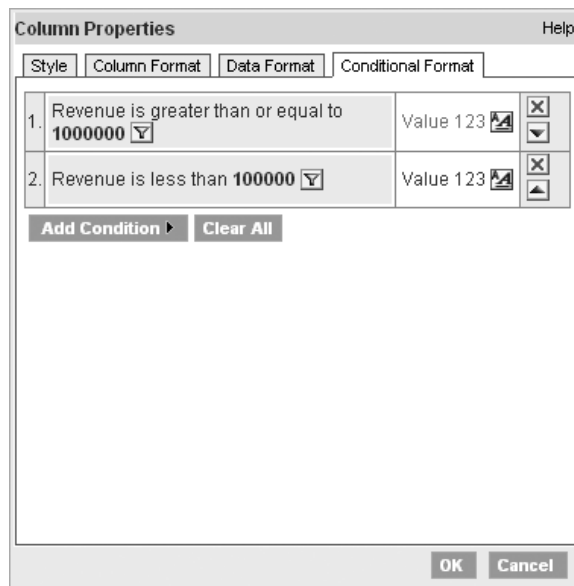


FIGURE 2-8. *Column Properties window – Conditional Format tab*

42 Oracle CRM On Demand Combined Analyses

You access this tab for the result column you wish to apply the formatting to. The conditions may be based on this result column or on another result column in the report.

To add a condition, click the Add Condition button on the tab and select the result column on which you want to base the condition. You will notice that you are able to select from any of the columns present in your report, including the column you are formatting. Upon selecting a column, you will receive what looks like an error message that states “Invalid Formula.” Well, I suppose this is by design, but it is a bit misleading and has caused many to think that conditional formatting is not possible with combined analyses. If you recall, the result columns have no formula, which is why we receive this mild protest, but if you click OK, the Create/Edit Filter window opens. Here, you select the condition and enter the value with which to compare the result column data. Upon clicking OK, the already familiar Edit Format window appears for you to define the format for data meeting the condition. This formatting applies only to the column you are currently editing. If you want to apply a background color for an entire row, for instance, you will need to replicate your conditional formatting for each result column.

You may continue to add conditions to the result column to set formatting options for multiple conditions. When multiple conditions exist, the report evaluates the conditions beginning with the first condition in the list. When the report encounters data that meets a condition, it applies the conditional formatting and evaluates no additional conditions for that data cell. This means that the order of your conditions is very important.

After adding conditions to the Conditional Format tab, you can change the order of your conditions using the up and down arrow buttons next to each condition. Use these buttons to adjust the order to get the behavior you desire, remembering that for each row, the report evaluates the conditions starting with the first in the list, and once a matching condition applies, no further evaluation occurs for that row. I should point out that conditional formatting within a pivot table only works when the condition and the subsequent format are referencing the same column.

Sorting Columns

The Order By button is the button to the right of the column name on Step 1 of the Build And View Analysis screen. This button shows two arrows: one pointing up and the other pointing down. When the button appears this way, the column is unsorted.

Clicking the Order By button will toggle the sort direction. Click once for an ascending sort. The button now appears with single green triangle pointing up. Click the button again, and the column changes to a descending sort. The triangle on the button now points down. Click the button a third time, and you return to the initial unsorted state.

The sorts are alphanumeric, with numbers coming before letters, and uppercase letters coming before lowercase letters. You are able to sort by multiple columns in your reports. The column you specify a sort on first will be the primary sort. The column you specify a sort on next will be your secondary sort. A small numeral 2 appears in the lower-right corner of the sort button indicating that this column is the secondary sort. Likewise, the next column you sort on is the tertiary sort and the button shows a small numeral 3 in the lower-right corner.

Report Views

Step 2 of the Build And View Analysis wizard is all about the report views. Views are the visible elements of the report, just like result columns have been described as the visible layer of the data in your combined analysis. Views are the objects on the report layout that display the data from the result columns of your combined analysis. Every report, when first created, contains a Title view and a Table view.

Next I provide a brief look into some of the primary views that you will commonly use in a report. As you modify your reports, you will at times want to edit existing views, add views, or remove views from the layout. To add a view, you will click the Add View button on the Build And View Analysis – Step 2 screen (Figure 2-9) and select the type of view you wish to add to the report.

Each view has three buttons in its upper-right corner. The first of these three buttons is the Format View button. This button opens the Edit Format window, which allows you to set vertical and horizontal alignment for the view and to modify the border around the view.

The second button is the Edit View button. This button opens the Edit View screen for its view. This is where most of your view configuration takes place as described for the views next.

The third button is the Delete View button, which would be more appropriately named Remove View. Clicking this button does not exactly delete the view from the report. It does remove the view from the report layout, however.

44 Oracle CRM On Demand Combined Analyses

Build and View Analysis [Help](#) [Back](#)

Step 1

Define Criteria

Step 2

Create Layout

Step 3

Define Prompts
(optional)

Analysis: Untitled

Preview Analysis

Layout Views

Add View

Add reporting layouts to your analysis using Add View, and configure each layout using the Edit View icon.

Title				
Table				
Account Type	Account Location	Industry	Account State / Province	Product Revenue
	Central	Media & Entertainment	MD	1321600.00
			MN	876600.00
	East Side	High Technology	WA	1024700.00
			DE	1433300.00
Finance Office		High Technology	MN	781100.00
			Manufacturing	SC
HQ		Automotive	GA	1594200.00
			Financial Services	AZ
		High Technology	GA	1750700.00
			IA	960000.00
			TX	616700.00
			IL	1595700.00
Customer		Media & Entertainment	MD	679900.00

FIGURE 2-9. *Build And View Analysis – Step 2 screen*

Title View

Clicking the Edit View button on the Title view takes you to the Edit View: Title screen where you can adjust the settings for the title. On this screen you can modify the text that appears in the Title view of the report.

If you want to show a custom title rather than the saved report name, type the title you want to appear in the Title field and uncheck the Display Saved Name check box. If you add a custom title and do not uncheck the Display Saved Name check box, both will show on your report.

Place an image URL in the Logo field to include a logo or other graphic in your Title view. The logo is placed to the immediate left of your title text. This logo file must be hosted in a Web-accessible location on your own server so that users are able to access the image.

If you want a subtitle on your report that appears just below the title, add it in the Subtitle field. Only text may be included in the Title and Subtitle fields.

It is often helpful to include information about when the report was run. In the Started Time field you have the option of selecting Display Date, Display Time, or Display Date And Time in your Title view. Of course, you may leave the default setting of Do Not Display if you do not want to display a date or time in your Title view.

Most of the Title view elements have their own formatting settings. You will find a Format Value button next to the Title, Logo, Subtitle, and Started Time fields, in addition to a Format Title View button at the top, which allows you to format the entire view. Within each of these Edit Title windows you are able to apply formatting to each individual element. The relative location of each element is fixed, though it is possible to change alignment, size, and colors.

As you adjust the settings for this and other views, you are able to see a preview of how the view will appear on your report. The Display Results section at the bottom of the edit screens usually updates automatically as you make changes to the view format. You may also refresh the preview by clicking the Display Results link. If you do not want to see the preview, you can remove the check mark from the check box and the preview will not show. With some complex views, you may find it helpful to turn off the Display Results preview for better performance during your layout edits.

Table Formatting

Every report also starts with a basic Table view. The Table view includes all visible columns that you have included in your report. The formatting of the cell values in the Table view is based on the column format set on the result columns in Step 1. The header row displays the column name of each column as specified in your results columns. If you set a custom name for any result columns on Step 1, those custom names are applied on the Table view. The sort order set on the result columns on Step 1 also controls the sort order of the data in the Table view. If no specific sorts are set, the table sorts data in ascending order, beginning with the leftmost column.

The Table view is *very* important to the developer of combined analyses. The Table view provides a clean look at the actual rows returned by the report, so you can more easily see which criteria reports each row is coming from in the combined report. You will often find yourself returning to the Table view to troubleshoot your combined reports.

46 Oracle CRM On Demand Combined Analyses

Paging controls appear in the Table view if there are more than 25 records in the result set. These paging controls provide navigation buttons to page through the results one page at a time and buttons to display all pages and to return to the first page of results. The default location for these paging controls is below the table.

Click the Format View button on the Table view from the Step 2 screen, and the Edit Format window appears. Here you may set the horizontal and vertical alignment to adjust how the table appears on top of the base layer. Background color, borders, size, and padding are also available here, just like the other Edit Format windows we have used.

Clicking the Edit View button takes you to the Edit View: Table screen where you can apply formatting to your table. By default, any format settings you made to your columns on Step 1 are set here on the table. You can change your column formatting here using the same format tools as on Step 1. You can also add, move, and remove columns while editing your table, but you do not want to do that when working with a combined analysis. Deleting a column here will remove the column from the results columns, but not all of the criteria reports. This, of course, violates Rule # 1 mentioned earlier, and you will get an error message when you attempt to run a report with fewer result columns than criteria columns. Moving up to the title bar above the columns, you will find another button with a sigma on it. This is the Grand Total button, and it functions just like the Total By button, containing the same options. The difference here is that the Grand Total button adds a Total row at the bottom of your table. To the immediate right of the Grand Total button you will find the Edit Table View Properties button. Clicking this button opens the Edit View window. The lower half of this window should be familiar to you. The five fields at the top of this window are properties specific to the Table view.

Something you will see here that you did not see back on Step 1 is the Total By button on your nonmetric result columns. This button has a sigma (Σ) on it and appears to be grayed out or unavailable. This simply indicates that you have not added a subtotal for that column. Click a result column's Total By button to activate totaling and include a subtotal in all metric columns for each value in the column. The aggregation rules on the metric columns dictate how the values are aggregated. Once you have activated totaling on a column, if you click the Total By button again, you see the pop-up menu with some additional settings.

Select None on the pop-up menu to remove the subtotals from your report column. The only location option for the subtotals is After, so you will always see a check mark next to After on this menu.

Click the Format Labels menu item to apply formatting to the subtotal measurement label. The default value is the value in the column field followed by "Total." If you would rather have some other label for your subtotals, or if you want to apply a new format to the label cell in the table, click Format Labels to open the Edit Format window. The Edit Format window is one you should be familiar with at this point in the book, but you also will see a new field here. The Folder field, while bearing a misleading name, is actually the measurement label, and entering a new value into this field changes your measurement label.

Click the Format Measure Values menu item to open the Edit Format window and adjust the format settings of the column subtotal values.

The Paging Controls field allows you to control if and where the table paging controls will appear. Paging controls are the navigation arrows that appear in a Table view when the result data contains more than 25 records. You can choose to display the paging controls at the top of the Table view or at the bottom of the Table view. If you select Hide This Column in the Paging controls field, the paging controls will not appear on your report. A word of warning on hiding the paging controls: If your result data contains more than 25 records and you have hidden the paging controls, your users will not be able to access the records beyond the first 25, unless you have changed the number of rows displayed on each page.

The Rows Per Page field is a freeform numeric field where you can set the number of rows to include on each table page. The minimum value accepted is one.

The Display Column & Table Headings field gives you control over which values appear in the column headings and how they should appear. The default setting is to display only column headings. You may also choose to display both column and table headings. You can display the table headings as a separate row or before the column heading on the same row. The As Table.Column (where needed) option causes both the table name and column name to appear in the column heading for those columns that have the same name. You also have the option to not display a heading row on the table by selecting No column or table headings.

The Enable Alternating Row “green bar” styling check box applies light green background shading to every other row in the table. This can enhance the readability of tabular reports with many rows. My advice, if you want to use the green bar styling, is to be sure to set your table columns to repeat values rather than suppress values. This setting is on the Column Format tab of the Column Properties window

The Enable Column Sorting In Dashboards option activates column sorting in your table. Users will be able to click a column header to sort the data by that column. This feature works very much like the column sorting in a record list.

The next two tools on this view affect only the way your table appears in the preview on the Edit View: Table screen. The Refresh button refreshes the data in the table. Do not use the browser refresh while editing your table. Doing so will return you back to Step 1 of the Build And View Analysis screen and any changes will be lost.

The Display selector allows you to control what displays in the preview on the Edit View: Table screen. By default, the display includes header toolbars with results. You may choose to display header toolbars only or results only by selecting a different value from the Display field.

Chart Views

On Step 2 of the Build And View Analysis screen, you will find the Add View button just above the preview of your report views. Clicking this button opens a menu of views that you can insert into your report. One of these options is Chart. Selecting Chart from the Add View menu will insert a basic chart into your report.

Whether you are adding a new chart or editing an existing chart, you will find yourself on the Edit Chart View screen. Here, the buttons and picklists in the header bar above the chart allow you to set the properties and chart type for your chart view. These charting controls are very similar across all chart types.

In the Graph field, select the form of chart that you want to insert into your report. Your options here include Area, Horizontal Bar, Bubble, Vertical Bar, Line, Line Bar Combo, Pareto, Pie, Radar, Scatter, and Step. When you select a value from the Graph field, the chart preview updates to display the selected graph with the current settings.

The Type field varies slightly depending on the value you have selected in the Graph field. In most cases, you can choose between a three-dimensional appearance and a two-dimensional appearance for your chart. The bar style graphs (horizontal, vertical, and line bar combo) have added options for two- and three-dimensional stacked types. The Scatter graph type values are Scatter and Scatter With Lines. When you select a value from the Type field, the chart preview updates to display the chart with the selected type.

Finally, the Style field allows you to select shapes and shading formats depending on the graph selected. Not every graph has options available in the Style field.

The first button on the title bar is the General Chart Properties button. The icon for the General Chart Properties button is similar to the Column Properties icon you are accustomed to seeing on the columns in Step 1. Click this button, and the General Chart Properties window opens.

On the General Chart Properties window, you can format the title, data labels, and chart size. By default, your chart will not have a title. To add a title, click the Custom Title check box and type your desired title in the Title field. Click the Text Format button next to the Title field to set the font family, color, style, and font size for your title on the Text Format window.

In the Data Labels section of the General Chart Properties window, you can set how and when data labels will appear in your chart. The default setting for showing data labels is to show your data labels on rollover. This means that the amount reflected by an element on your chart displays whenever the mouse pointer moves over that element. You may click the Text Format button next to your chosen data label setting to modify the font appearance.

Click the Override Default Data Format check box if you want your values to display in a different format. Your choices are to display your numbers as numbers, currency, or percentages. Make this selection in the Treat Numbers As field. You may also adjust the format for negative values in the Negative Format field. Finally, you are able to select the number of decimal places to include in the data values and choose to use a thousands separator within the values.

If you have identified a new data format on the columns already, then that selected format is used by default. You can change that format using the fields described earlier.

The Size section of the General Chart Properties window allows you to adjust the overall size of the chart in your report. You may enter the Height and Width in points to adjust the chart size, or you can use the sliders beneath and to the right of the chart preview to set the chart size. The benefit of using the Height and Width fields is that you can set the size precisely and beyond the limits of the sliders. Using the sliders, the width range is 90 to 810 points and the height range is 60 to 540 points.

The next button on the title bar is the Axis Titles And Labels button. This button opens the Axis Titles & Labels window, which contains two or three tabs, depending on the chart type. The Left tab (and Right tab for some charts) allows you to configure the title and label formats of the vertical axis. The Title section controls the axis title, which will default to the column name for the values displayed along that axis. You can change the title by clicking the Custom Title check box and typing a new value in the Title field. Format the title's appearance using the Text Format button next to the Title field.

The Labels section of the Left and Right tabs contains a series of fields allowing you to format the scale labels. The Display Scale Labels check box permits you to turn the labels off by removing the check mark. If you want to keep the labels, you can format their appearance by clicking the Text Format button next to the check box field and the remaining check boxes and fields on the tab.

The fields that appear on the tab depend on whether your scale labels are text or numerical. When formatting either text or numeric scale labels you can choose to rotate those labels. Click the Rotate Labels check box and select the angle you want to use. Your options are between 90 and -90 degrees. Answers On Demand may only apply the rotation if necessary.

Two settings for text scale labels are options for staggering the labels or skipping labels if necessary. These two check boxes appear only on the tab when the scale labels are alphanumeric. When your scale labels are numeric, you have the option of abbreviating the number in percentages, thousands, millions, billions, and trillions. Simply click the Abbreviate check box and select the abbreviation type. You can also override the numeric data format by clicking the Override Default Data Format check box and then identifying how you want to treat the numbers, the negative format, and the number of decimal places. You also have the option of using the thousands separator.

The Bottom tab also has a Title section and Labels section for modifying the title and scale labels of the bottom axis. The options here are exactly the same as the Left tab for an alphanumeric data type.

The next button is the Axis Scaling (number of ticks, min, max, etc.) button. This button takes you to the Axis Scaling window, which will have one or two tabs, depending on the type of chart. A line bar combo, for instance, has a scale on the left vertical axis and on the right vertical axis. Both the left and the right tabs on the Axis Scaling window contain the same fields, but may have different settings within those fields.

The Axis Limits section in the Axis Scaling window allows you to control the value range for your chart axis. Within the Axis Limits section, you have three choices. You can keep the default scale, which is determined dynamically based on the upper and lower numbers within the data you are charting. You can also zoom to the data range, which is similar to the default scale, but adjusts the axis scale so that the data represented in the chart occupies roughly three-quarters of the scale. The third option is to specify the scale manually. This is where you risk skewing the perception of the data significance. Upon selecting the Specify Manually option, you use the Minimum Value and Maximum Value check boxes and fields to manually set the upper, lower, or both thresholds of the chart.

The next section on the Axis Scaling window, Tick Marks & Scale Type, allows you to adjust the number of horizontal major and minor ticks are present on your axis scale. The easiest way to figure out how many ticks you should insert is to take the top number of the scale, divide by the size of each major section of your scale, and then add one. You may also specify the number of minor ticks. This is the number of ticks between your major ticks. To determine the number of minor ticks, divide the span between major ticks by the size of your desired minor tick and then subtract one.

The final check box on this window changes your scale from a standard scale to a logarithmic scale. The logarithmic scale of measurement uses the logarithm of a physical measurement rather than the measurement itself. Logarithmic scales have specific applications—usually with datasets that have very large ranges or some statistical analyses.

Click the Edit Scale Markers button on the Axis Scaling window to open the Scale Markers window. Here you can add markers in the form of lines or ranges to your chart. To add a marker, click the Add button. Give the marker a name in the Caption field. This caption will appear in the chart's legend. Select the type of marker, either Line or Range, in the Type field. The purpose of next two fields depends on your selection in the Type field.

For a line marker, the first field is the width of the line in points. The second field identifies the position of the marker line on your axis scale. The Advanced Options button to the right of the Position field opens the Advanced Options window that allows you to use a column value to position your marker line. For instance, if you have included a column that calculates an average value, you could use that column to locate your marker in order to identify the average value on your chart. If you identify a column for your marker that contains different values across the rows of your table, the marker will appear at the first value that it encounters in the table. Sorting your data may affect which record determines the marker position. You can also set the color for your marker line by clicking the color box and selecting a new color from the palate, or entering an HTML color code and clicking OK.

For a range marker, the first field identifies the low end of the range and the second field identifies the high end of the range. The Advanced Options for each of these fields is the same as described for the line marker. A range marker applies shading on the background across the width of your chart between the marker amounts specified.

To the right of the Axis Scaling button is the Additional Charting Options button. This opens the Additional Charting Options window. This window contains four tabs, each dedicated to a different element of your chart.

The first tab is the Grid Lines tab. Here you can change the color of the major and minor grid lines. Clicking the Override Defaults check box enables the check boxes on the tab that allow you to disable major and minor, vertical and horizontal, grid lines.

The next tab, Legend, provides some control over if and where your chart legend appears. You can choose to display your legend on the right (default), left, top, or bottom of your chart. You may also select None in the Location field to remove the legend from your chart. The Format button next to the Location field provides some typical text-formatting controls. You may also indicate the number of columns that your legend should contain if there are enough to spread across more than one column.

The Interaction tab allows you to select the type of interaction that will occur when a user clicks part of the chart. The default setting is Drill. You may disable interactivity or set up a navigation path to another report.

The fourth tab, Borders & Colors, allows you to set a color for your chart's background, text, and border. To change the color for any of these, click the color box next to its label and select a new color from the palate,

or enter an HTML color code. The border and background encompass the entire chart, including the title and legend. The text elements that the color setting affects are the axis titles.

The Format Chart Data button opens the Format Chart Data window where you can format the appearance of your chart data elements. You can specify the color and style for each series and each chart component. This window appears differently for different charts. The Format Chart Data window for basic bar charts is the least complex. To change the color of the bars in your chart, uncheck the Use Default check box for the series position you want to recolor, and then click the color box and select or enter your new color.

The Format Chart Data window for a line chart provides the same coloring settings, plus some settings for the line type and width. You have the option of choosing a plain (default) line, dotted line, dashed line, or the dash-and-dot line for each series. You can set the width of your line from zero to six points. Lines may also have symbols at each data point. You can select the symbol shape from the Symbol Type field. Your choices of symbols are square, triangle, round, diamond, and a plus sign. You can also choose to turn the symbol off.

The Line Bar Combo chart uses both the Line and Bar versions of the Format Chart Data window. The Chart Component field allows you to switch between formatting your lines and your bars.

The Format Chart Data window for the Pareto chart combines the line and bar formatting fields onto one screen, allowing you to set the color of the bar with the upper color box at each position and the line formatting with the lower set of fields at each position.

With a pie chart you have the option of exploding one of the chart wedges out of the circle. With a bubble chart you have the additional option of making the bubbles appear three-dimensional or two-dimensional. Regardless of the chart type, one final common element on the Format Chart Data window is the Clear All button. Any time you feel you have gone a little too far with your formatting, click the Clear All button to reset all options back to their default values.

With the bubble, line bar combo, and pie charts you are able to make additional special formatting changes by clicking the Advanced Properties button. On the bubble chart, this button opens the Chart Type Special window containing a slider for adjusting the bubble size percentage. On the line bar combo the Chart Type Special window contains a single check box

that allows you to synchronize the line and bar axis scales. Finally, the pie chart's advanced properties permit you to format the data values as a percentage of the total or the actual value represented by each wedge. You can also define what information is included in the data label. You can display the value only, the name only, or both name and value.

Each Edit view for charts contains a series of check boxes that you use to indicate which result columns to include in your chart and where the column data should appear. Depending on the chart type, you will see a column of check boxes beneath icons representing chart elements. You will have between two and five columns of these check boxes. Some charts also allow you to identify if and where to apply measure labels. The specific requirements of each chart type are described in the following section.

To the right of these check box controls, you have a preview of your chart. This preview may update automatically as you make changes, but you will find that you need to click the Redraw button at times to refresh the preview. If you ever feel like you have gone too far with your chart formatting, you can click the Restore Default button to return to the default format for the current chart.

Pivot Tables

Pivot tables are by far the most flexible, most configurable, most complex, and most important view for combined reports. Unlike a normal Table view, the Pivot Table view allows you to move data around, organize metrics into columns, create sections of data by segment, and create separate pages for data based on a particular column value. Pivot tables can take on many different forms and serve a multitude of purposes. Due to the way a pivot table aggregates data by row, it is often used on a combined analysis to force rows from two different criteria to come together as a single row in the report result. We will discuss this use of the Pivot Table view specific to combined analyses in Chapter 4.

A Pivot Table view is made up of six different layout areas into which you can place your data columns: Pages, Sections, Rows, Columns, Measures, and Excluded. Each area serves a specific purpose and has a different set of formatting options. Your result columns make up the data layer. You can also apply some special formatting to this layer. The most basic pivot table is a simple reorganization of report data into the pivot table layout areas.

Each area in the pivot table layout serves a different purpose and has different effects on the data that appears in your pivot table. As you move columns in and out of these areas, the preview in the Display Results area will refresh to show the new arrangement.

The Rows area organizes data into rows, grouping the data from left to right, very much like a normal Table view. You can change this horizontal grouping by changing the order of the columns in the Rows area.

The Measures area typically contains metric columns. This area is where any measures are associated with the values in the Rows and Columns areas. You may also place nonmetric data in the Measures area. You will notice that the column values appear null when in the Measures area. This is because nonmetric columns have a default aggregation rule of “none.”

Create a cross-tab matrix by adding database columns to the Columns area. Your pivot table will have a column for each value in the database column. The values in the Measures area will now relate to both the rows and columns where each row intersects each column. The combination of the Rows, Measures, and Columns areas is considered the Content portion of the pivot table.

Placing a column in the Sections area in your pivot table will separate the pivot table content into a separate table for each value in the section area column. For instance, placing the User Name column in the Sections area creates a separate table for each user.

Placing a column in the Pages area has a similar effect as the Sections area, only the Pivot Table view will show only one table at a time based on the column value selected from a drop-down list above the table. Each value in the column is a value in the drop-down list, and selecting a new value in this field changes the pivot table below to show only data related to the selected value.

The Excluded area is a place to put any columns that you do not want affecting your pivot table. Any columns placed in this area are removed from the Pivot Table view but not the report. The ability to exclude columns makes it possible to include multiple Pivot Table views with different content in your report.

The Pivot Table view is rather useful, even without a lot of formatting. The ability to rearrange the data and show multiple views of the same data is a great asset to your reporting design, but that is only the beginning. With some basic formatting and even a little creative formatting, the Pivot Table view can take on appearances well beyond the basics.

View Properties

Most of the formatting of pivot tables takes place within the pivot table areas and on the columns themselves. There is a single property affecting the entire pivot table that you are able to modify. In the title bar on the Edit View screen for your pivot table you will find the Pivot Table View Properties button.

Clicking this button opens the Edit View window. The only property you can edit here is the “green bar” styling. Clicking the check box enables this styling and causes every other row in the pivot table to take on a light green background. The Alternate field lets you choose to shade every other row, beginning with the innermost column, or to alternate the rows across the entire table. The innermost column is the last column in the Rows area of your pivot table. The rows in the Measures area are given the alternating style when you set the alternate method to either Innermost Column or All Columns.

You do not have to accept the default format of the “green bar” styling. You can make the alternating rows any color you please by clicking the Set Alternate Format button. This button opens the standard Edit Format window allowing you to set the format for the font, cell, and border of every other row.

Adding Totals and Formatting the Rows Area

In the Rows area, to the right of “Rows” in the upper-left corner, you see a Σ button. The letter sigma is a mathematical symbol for sum. Click this button to open the Total menu. Initially, the None option is checked, indicating that no totals are included in the pivot table for the rows. To add totals, select either the Before or After option. The Before option creates a Grand Total row at the top of your pivot table, and the After option gives you a Grand Total row at the bottom of your pivot table. The total of the metric columns appears and aggregates the data across all rows based on the aggregation rule for the metric column. You can display this Grand Total row before or after the measure values, but not both.

The default label for the row total is “Grand Total.” You can change this if you like, along with the format of the label, by again clicking the Σ button and selecting Format Labels. A typical Edit Format window opens, but with the addition of a Folder field at the very top of the window. The Folder field, despite the misleading name, is actually tied to the label for the row total. Enter a new label into this field. You may also apply any formatting options to the font, cell, or border as you normally would.

You can also format the values in the Total row by clicking the Σ button and selecting Format Values. Again, a typical Edit Format window opens where you can format the font, cell, and border for the measure values in the Total row.

Adding Totals and Formatting the Columns Area

You may have noticed that your Columns area contains a Measure Labels object. The Measure Labels object contains two buttons when you have added a field into this section. The first is a More Options button, and the second is a Totals button. You will also notice that you also have a Totals button to the right of “Columns” in the upper-left corner of the Columns area, just like the one in the Rows area. These two Totals buttons are redundant, except that the Totals button on the Measure Labels object is fully functional, while the other will insert a Total column but its formatting options are not functional. The totals produced by the Measure Labels total are placed after each Measure field. The column totals are placed at the end of the table.

For this reason, I recommend we ignore the Σ button on the Columns area and use only the buttons on the Measure Labels object to insert and format totals in the Columns area.

Click the Σ button to open the Total menu on the Measure Labels object in the Columns area. The default option of None is initially selected here, too. To add a Total column, select the Before, After, At The Beginning, or At The End option. The Total column will contain a total of each metric across all columns in each row.

Column totals are really only applicable when you have split a metric into multiple columns by adding a database column to the Columns area and want to see a total across all of those columns. If you do not want to intermingle these individual Total columns within the metric columns, you can choose to group all of your Total columns together.

The default label on your Total columns consists of the column name being totaled followed by “Total.” You can change this if you like, along with the format of the label, by again clicking the Σ button and selecting Format Labels. A typical Edit Format window opens, but with the addition of a Folder field at the very top of the window. Just like changing the label on the Grand Total row, enter a new label into the Folder field. The text you type into the Folder field is applied to all of your Total columns, which could become confusing if you have multiple metrics in your pivot table,

so you will probably want to keep the name of the metric in the Total column. You can do this by entering the at sign (@) into your new label.

The other formatting options for the label affect only the labels for the Total columns. If you want to modify the measure labels (the column name, not the value name) of the metric columns, you can click the More Options button. This opens another menu. Select Format Measure Labels to open an Edit Format window that allows you to format all of the measure labels. If you have not already formatted the Total column labels, the measure labels format will also format the labels on the Total columns.

The More Options menu also includes an option to hide the measure labels. Select Hidden, and the labels showing the name of the columns in the Measures area are hidden from sight in the pivot table. This option does not hide the labels on any Total columns that you have added in the Columns area.

You can also format the values in the Total columns by clicking the Σ button and selecting Format Values. Again, a typical Edit Format window opens where you can format the font, cell, and border for the measure values in the Total columns.

Adding Totals and Formatting the Sections Area

As you know, the Sections area allows you to split your pivot table into separate tables—one for each value in a column. But what if you want to have the entire pivot table for all values and the individual tables? To the right of “Sections” in the upper-left area, you see yet another Σ button. Click this button, and you see a familiar menu. Adding a total on the Sections area adds an additional pivot table to the view. This additional table is a summary of all sections. You can place this summary table either before the other sections by selecting the Before option or after the other sections by selecting the After option on the Section Totals menu.

The default label on this summary table is “All Sections.” You can change this by selecting the Format Labels option in the Section Totals menu. The Folder field allows you to add your own label to the total table. The other format settings on the Edit Format window apply to this label as well. Selecting Format Values from the Section Totals menu allows you to format the values within the measures of your section summary table.

The second button in the Sections area is the Section Properties button. Clicking this button opens the Section Properties window where you are able to configure the display of column headings on the columns in your

Sections area. You will also find options for inserting a page break and showing blank rows.

You have four options for displaying the column headings within your section. By default, the column heading is not displayed, showing only the column value in the Sections area. If you want to display the column headings in the Sections area, click the radio button next to the location option of your choice. You can select Above, Left, or Before. Left and Before are similar. Left places the column heading to the left of the column value, but treats the heading and the value as if they are in separate cells. If you are displaying multiple rows of values in the section, the headings and values will align across the rows. The Before option places the heading to the left of the value, separated by a space as if concatenated into a single value.

In the Options section of the Section Properties window, the Insert Page Break field provides you the ability to insert a page break between sections. Your page breaks are only in effect when you print the report to a PDF file. The Insert Page Break field will have at least four options, but will have more if you add more than one column to the Sections area.

Of course, No Page Break is the default setting. The next two values are Innermost Column and Outermost Column. The innermost column is the last column in the Sections area. The page break function inserts a page break after every unique section based on the column selected in this field. Uniqueness of sections is based on the section column values from the outermost column to the innermost column. Selecting Innermost Column in this field will guarantee that each section is on its own page.

You will also notice that each column present in your Sections area appears in the list of values for the Insert Page Break field. If you have more than two columns in your Sections area, you will have more than just an innermost column and outermost column to choose from. You can insert a page break after sections based on any column by selecting the column in this field. Remember that uniqueness is determined from the first column working inward, so selecting the second of three columns will group all sections where the first two section columns are the same onto the same page.

If you add a column to the Sections area that is blank on some of the records, you will have a section with no name. The Pivot Table view truncates out the space that would otherwise be occupied by a value. The difference is subtle, but clicking the Show Blank Rows check box causes the pivot table to retain this space.

The cell and border format options affect the section header area above the table in each section. The line that appears by default above the section name is a top border on the Sections area. If you want to change or remove this border, you will make that change here. The additional formatting options on the Section Properties window affect the text area of the section header and do not change the size of the section header.

Adding Totals and Formatting the Pages Area

When you add a column to the Pages area, a drop-down list appears at the top of your pivot table that works like a filter. This page filter field gives you the ability to dynamically change the content of the pivot table based on a selected value. The field contains only the values in the column. Suppose you want to also have the option of seeing all of the values in the one pivot table.

To the right of “Pages” in the upper-left area, you see Pages area’s Σ button. Click this button, and you see a familiar menu. Adding a total on the Pages area adds the All Pages option to the drop-down list. Since the pivot table will display the first page in the list when the report initially runs, if you select Before in the Totals menu, your pivot table will default to show all pages when the report runs. Selecting After places the All Pages option at the end of the list. The All Pages option is only available for the first column in the Pages area.

Content Properties

You may have noticed that there is an area between the Sections area and Rows area and to the left of the Columns area. You are not able to drop a column into this area. The only object here is a Content Properties button. Content in this case is defined as the Rows, Columns, and Measures areas of the pivot table. Click this button, and the Content Properties window opens.

At the top of this window you find three check boxes, the third of which is selected by default. The first option here is to hide the content of the pivot table. If you have not added any columns to your Pages or Sections area, then your pivot table essentially disappears.

If you have added a column to your Columns area in your pivot table, you may have noticed that columns are present that do not contain any data and are not needed in the pivot table. Another situation that leads to blank columns is a pivot table with the same column placed in both the Sections

area and the Columns area, which is not unusual at all. The second check box on the Content Properties window serves to remedy this design issue. When you choose to limit columns based on section values, any column that has no values in it will not appear in the section's pivot table.

The third check box in the Content Properties window limits rows based on section values. This check box is selected by default, as it is unusual to want to show blank rows within your table.

The formatting options on the Content Properties screen affect the entire content area. Again, the content area is the Rows, Columns, and Measures areas. Here you may add a background color to the entire content area, add a border, and adjust the alignment of the entire table. By default, pivot tables center themselves. Often, it is more desirable to move the entire table to the left. You would make that adjustment here.

Formatting Columns in Your Pivot Table

On each result column that you have added to your Pivot Table view, you will find up to three buttons next to the column name. All of the columns have a More Options button. Many will have the Totals (Σ) button. You will also find that columns in any area other than the Measures area have an Ordering button.

The availability of many of these buttons and the options beneath them are dependent on the area and, in some cases, the location within the area of the pivot table. There are, however, several options that are common across all columns.

Click the More Options button and select Format Headings from the menu. This opens the Edit Format window. To change the heading on the column, type a new value in the Folder field. The remaining options on the Edit Format screen also affect the heading for that column in your pivot table.

While the formatting affects only the heading on the column, if you adjust the width of the heading using the additional formatting options, the entire column, including the column values, adjusts according to the width setting. It is not possible to widen the heading and not the values. The inverse is true, as formatting the value width also affects the heading. If you adjust both the column heading width and the column value width, the larger of the two settings will control the width of the column. Concerning text alignment within the heading and values area, the width setting does affect the location of the center or left side of the column.

62 Oracle CRM On Demand Combined Analyses

Click **More Options** and select **Format Values** to open the **Edit Format** window for the values portion of the column. I often find myself needing to apply the same formatting across many column headings or column values in my pivot tables. After formatting one heading the way I like, I click the copy icon in the upper-right portion of the **Edit Format** screen and then paste my formatting into the other column headings.

If you want to include one of your columns in your pivot table more than once, click the **More Options** button and select **Duplicate Layer**. This inserts an exact copy of the column into the same area. The copy will retain any formatting that you had applied to the original column before creating the duplicate. You can now move this duplicate to any of the other areas and apply formatting.

Duplicating a column is often quite useful when you want to show a column value in a pivot table section and rows, for instance, or perhaps you want to include a measure in a pivot table twice with different aggregation rules.

Once you have added a duplicate, a new menu option becomes available on both the original and duplicate columns. Click the **More Options** button and select **Remove Duplicate** to remove that copy of the column from the pivot table.

Click the **More Options** button and select **Remove Column**, and you will be removing the column from the entire report. This means that you are not only removing the column from the pivot table, but all other views, too. If you select the **Remove Column** option, a dialog box appears confirming that this is what you really intend to do. Remember, if you want to remove a column from the pivot table only, drag it to the **Excluded** area.

In addition to the options in the **More Options** menu that are common to all columns added to a pivot table, every column outside of the **Measures** area has an **Ordering** button. To override default sorting in your pivot table, click the **Ordering** button on the column you want to sort on. Sorting within the pivot table is quite different from sorting in a normal table.

Sorting only affects the area that contains the column. Sorting a column in the **Pages** area changes the order of the values in the page list box. Sorting a column in the **Sections** area affects the order in which the sections appear in the **Pivot Table** view.

In the **Rows** area, the grouping effect restricts the sort of column values within the confines of the column to the left.

Formatting Columns in the Rows Area

A column's More Options menu changes based on the area of the pivot table to which the column is assigned. Columns in the Rows area have two additional options: Hidden and New Calculated Item.

Click the More Options button and select Hidden to hide a column in your pivot table. Just like hiding a column in a regular table, the column continues to affect the table, but does not appear in the results. If you simply excluded the column from the report, the values within that column would have no effect on your pivot table.

You can still sort on a hidden column, which is useful if you want to sort by a specific column but want the values displayed in a location that would sort incorrectly based on the grouping of data.

Within the areas of the pivot table, you are able to add totals for the various columns. These totals are grand totals of all values. On the specific columns, you are able to add subtotals for each column value. When you have two or more columns in the Rows area, all but the innermost column will have a Totals (Σ) button.

Click this button to open the Total menu. Initially, the None option is checked, indicating that no subtotals are included in the pivot table for the row. To add subtotals, select the Before, After, At The Beginning, or At The End option. The Before option creates a total over each value in the column. The After option gives you a total row after each value. The At The Beginning and At The End options will group all of your subtotal rows together at the top or at the bottom of the table, respectively.

If you want to display a row label between each value in a column but do not want to show the totals, select the Labels Only (No Totals) option in the Totals menu. A blank row bearing the name of the column value is inserted into the table based on the location selected earlier.

The default label for the row total shows the row value followed by "Total." You can change this if you like, along with the format of the label, by again clicking the Σ button and selecting Format Labels. A typical Edit Format window opens, but with the addition of a Folder field at the very top of the window. Enter a new label into this field. You may also apply any formatting options to the font, cell, or border as you normally would.

If you want to retain the value name in the heading, you can use the "@" wildcard to represent the value name. For instance, if you type @ **Subtotal** in the Folder field, your Total row will display the value name followed by "Subtotal."

You can also format the values in the Total row by clicking the Σ button and selecting Format Values. Again, a typical Edit Format window opens where you can format the font, cell, and border for the measure values in the total row.

Formatting Columns in the Columns Area

In the Columns area of the Pivot Table view, you have the option for new calculated items and also the ability to add subtotals. The functionality is the same as described in the Rows area, but the location and purpose is somewhat different due to the location of the columns.

When describing the pivot table areas earlier, I mentioned adding totals on the Measure Labels object. There we saw that you are able to insert a Total column for each measure column. The Totals button on the columns in the Columns area allows you to insert a Total column for each value in a column when you have more than one column here. As you add columns, the order of the columns controls how the columns are displayed in the pivot table. The individual values for the second column are grouped beneath each value in the first column.

All columns in the Columns area, except for the last column, have a Totals (Σ) button. Click this button to open the Total menu. Initially, the None option is checked, indicating that no subtotal columns are included in the pivot table. To add subtotals, select the Before, After, At The Beginning, or At The End option. The Before option creates a Total column before each value in the column. The After option gives you a Total column after each value. The At The Beginning and At The End options will group all of your subtotal rows together at the top or the bottom of the table, respectively.

The default label for the column total shows the column value followed by "Total." You can change this if you like, along with the format of the label, by again clicking the Σ button and selecting Format Labels. A typical Edit Format window opens, but with the addition of a Folder field at the very top of the window. Enter a new label into this field. You may also apply any formatting options to the font, cell, or border as you normally would. Like before, if you want to retain the value name in the heading, you can use the "@" wildcard to represent the value name.

You can also format the values in the Total column by clicking the Σ button and selecting Format Values. Again, a typical Edit Format window opens where you can format the font, cell, and border for the measure values in the Total column.

Formatting Columns in the Measures Area

The More Options button on columns in the Measures area contains some very different options from the other areas. You can transform your values into percentages and indexes of portions of your data, change the way data aggregates, and display running totals. You could perform many of these calculations on the column directly on Step 1 of the Build And View Analysis screen, but the formulae required to group the data and perform the calculations are a bit more complex.

Click the More Options button and move your mouse to the Show Data As option. Another submenu opens showing three options. By default, your measure columns are set to show the data values. You also see options here for Percent Of and Index Of.

Move your mouse over the Percent Of option and you will see another submenu with options for showing the values as a percentage of the column, row, section, page, column parent, row parent, and layer. Select one of these options to change the column values to a percentage calculation.

Select the Percent Of Column option to see the calculated percentage of the column represented by the value in each row. When you have not added any columns to the Columns area, the Percent Of Row option results in 100 percent for each row, as the value displayed in that row is 100 percent of that value in that row. When you are grouping data into column values, this option will give you the percentage that the column value represents within that row.

The Percent Of Section option converts the column values into a percentage of the section. The values in the columns will total to 100 percent for each section of the pivot table view. Likewise, the Percent Of Page option converts the column values into a percentage of the page represented by each value. All of the percentages in the entire Pivot Table view will total to 100 percent.

If you have multiple columns in the Columns area or multiple columns in the Rows area, you may find that you need to select the Percentage Of Column Parent Or Percentage of Row Parent option. This will give you the percentage of the topmost column or outermost row, respectively.

The Percent Of Layer option allows you select the exact column for which you want to see the percentage. This may be necessary when the desired column is not represented by the page, section, row parent, or column parent.

The Index Of option contains the same submenu options as the Percent Of option, and provides the exact same functionality in a different format. The Percent Of option results in values reflected as percentages. The Index Of option results in index values. So if you would rather see “.38” than “38%,” use the Index Of option.

You can use a different aggregation rule in the pivot table as you do on the column directly on Step 1 of the Build And View Analysis screen. This allows you to duplicate columns and display different calculations for the same columns, for instance.

To set the aggregation rule on a measure column, click the More Options button and move your mouse to Aggregation Rule. A submenu displays, showing all of the available aggregation rules. Twelve values are available for your pivot table measure column value aggregation.

If you want to display your column values as a running sum across the rows of data, click the More Options button and select the Display A Running Sum option. The aggregation rule on the column affects this calculation, too. An aggregation rule of Count coupled with the Display As Running Sum option results in a running count in the column.

Formatting Columns in the Sections Area

Columns that you add to the Sections area control the way that the pivot table breaks into smaller tables within the Pivot Table view. In the More Options menu of columns in the Sections area you will find some of the same options I described in other areas, in addition to a couple of new options we have not yet discussed.

The Hidden option hides the column values just like in other areas, but when the column is in the Sections area, the application of the effect is a little different. Since each section contains a separate table based on the columns in the Sections area, hiding the column here causes the value to disappear but retains the splits based on the values in the column. This potentially results in an unlabeled section.

You may have a good reason for hiding a column value here—for example, you may want to split the table based on some criteria but do not want to display that value, and instead want to display the values in another column that you have included in the Sections area.

When you add multiple columns to the Sections area, it is the combination of these columns that determines what the section contains. Each unique combination of column values from each column results in a separate section.

The column values are initially displayed on a single line separated only by a space. If you are displaying column headings in your sections, the headings and values are all strung together in a single line.

To show each value on a separate line in the section heading, click the More Options button on a column you want to move to the next line and select the Place Value In New Row option. The column value, and heading if displayed, moves to the next line in the section heading.

When you have multiple columns in your Sections area, you will find that the first column value is repeated for each of the values in the second column. You may want to display the value from the first column in the first section, but then only show the value from the second column in the remaining sections until the next value in the first column is reached. To accomplish this effect, click the More Options button on the first column and select the Hide Repeated Values option.

Just as we are able to add column totals in the Rows and Columns areas, the Totals button on the columns in the Sections area allows you to insert a summary section for each value in a column. You will need more than one column in the Sections area to have this option. As you add columns, the order of the columns controls how the sections are created and ordered in the pivot table. The individual values for the second column are combined with each value in the first column to form unique sections.

All columns in the Sections area, except for the last column, have a Totals (Σ) button. Click this button to open the Total menu. Initially, the None option is checked, indicating that no summary sections are included in the pivot table. To add a summary section, select the Before, After, At The Beginning, or At The End option. The Before option creates a total section before each section containing a unique value in the column. The After option gives you a total section after the sections for each value in that column. The At The Beginning and At The End options will group all of your total sections before or after all of the sections.

The default label for the summary section shows the column value followed by "Total." You can change this if you like, along with the format of the label, by again clicking the Σ button and selecting Format Labels. A typical Edit Format window opens, but with the addition of a Folder field at the very top of the window. Enter a new label into this field. You may also apply any formatting options to the font, cell, or border as you normally would. Like before, if you want to retain the value name in the heading, you can use the "@" wildcard to represent the value name.

You can also format the values in the summary section by clicking the Σ button and selecting Format Values. Again, a typical Edit Format window opens where you can format the font, cell, and border for the measure values in the section.

Formatting Columns in the Pages Area

Columns that you add to the Pages area control the content of the page selector drop-down list. This area uses column values in a very different way than the other areas, so it stands to reason that the options on the columns here are a little different, too. In the More Options menu of columns in the Pages area you will find some of the same options, but the effects are unique.

The Hidden option hides the column values, just like in other areas, but since the column values in the Pages area are displayed as values in a drop-down list, the application of the effect is rather counterproductive. Since the combination of column values determines the content of the page selector, hiding one of the columns causes repeating values in the drop-down list. I have never needed to do this.

If you are creating a separate drop-down list for each column, hiding a column results in an error, as you must display at least one value per drop-down list.

When you add multiple columns to the Pages area, it is the combination of these columns that determines what the pivot table page contains. Each unique combination of column values from each column results in a separate page. The column headings are initially displayed on a single line separated by a hyphen, and the values on the single drop-down list are also displayed with a hyphen.

To create a new drop-down list for each column, click the More Options button on the column and select the Start New Page Dropdown option. A new drop-down list for the column appears on the next line in the Pages area of the pivot table.

As with the other areas, you will find the New Calculated Item option on your More Options menu for the columns in the Pages area. The New Calculated Item gives us the same flexibility here as in the other area, only the values appear in the drop-down lists. You can use calculated items in the Pages area to filter out pages or group data into single pages. The process for creating a new calculated item here is the same as in other areas of the pivot table.

Just as we are able to add column totals to create a summary section in the Sections area, you can also create summary page options in the page selector drop-down list. All columns in the Pages area, except for the last column, have a Totals (Σ) button. Click this button to open the Total menu. Initially, the None option is checked. To add a summary page, select the Before, After, At The Beginning, or At The End option. The Before option creates a page value in the list before each column value. The After option gives you the additional page value after each column value in the drop-down list. The At The Beginning and At The End options will group all of your total pages before or after all of the values in the drop-down list.

The default label for the new value is the column value followed by "Total." You can change this if you like by clicking the Σ button and selecting Format Labels. A typical Edit Format window opens with the Folder field at the very top of the window. Enter a new label into this field. Like before, if you want to retain the value name in the heading, you can use the "@" wildcard to represent the value name.

Since the label for the new page actually appears in the drop-down list, any format changes you make beyond the name are ignored. You can format the values in the summary pages by clicking the Σ button and selecting Format Values. Again, a typical Edit Format window opens where you can format the font, cell, and border for the measure values in the section. When you display a summary page in the report, the data is formatted according to the settings here.

Filter Prompts

Step 3 of the Build And View Analysis screen allows you to add column filter prompts to reports. Well, given that you filter the criteria reports rather than the result columns on a combined analysis, applying column filter prompts to the result is simply not possible at this time. If you access Step 3 – Define Prompts and click the Create Prompt button and then select Column Filter Prompt, you will actually receive a message informing you that "Prompts are not currently supported for requests that combine criteria."

If you have column filter prompts on a report prior to adding criteria and making the report a combined analysis, you must remove the column filter prompt from the report in order for the report to run properly. Refer to Chapter 6 for more information on filtering in a combined analysis.

Classifications of Combined Analyses

Let us wrap up this tour of basic combined analysis with some classifications of different types of combined analyses. We consider a report that combines the results of two or more request criteria a combined analysis. At the most basic level of classification of combined analyses, we can describe a combined analysis by the type of criteria reports included in the report. If you were to combine multiple criteria from the same subject area, using many of the same columns with perhaps different filters, you would have a unified report. If you were to combine criteria from different subject areas, you would have a federated report.

Unified Reporting

A unified report is the easiest form of combined analysis to build, simply because you can take advantage of the copy and paste functionality on the criteria reports to easily replicate the first criteria report and then make the necessary filter and formula changes in the additional criteria reports. The unified report form of combined analysis is generally used for two reasons. One is to aggregate multiple metrics that exist in different fields on the same record. The other, which is discussed in detail in the next chapter, is negative (null) reporting, where you are looking to report on records with and without a particular relationship to other records.

Federated Reporting

You use a federated report primarily because it is the only way to get the data you need in the report. Most reports can be achieved without any sort of combined analysis because the subject areas that you have at your disposal are actually quite complete, and most relationships between Oracle CRM On Demand data records are easily exposed within the confines of those data marts. Occasionally, though, you will have configured some sort of relationship between objects, or by virtue of your company's business needs are assuming a relationship between records that does not exist exactly as you need in the standard Oracle CRM On Demand schema.