R&R Report Writer *Technical Bulletin*

Column and Line Shading
in R&R Report Writer for DOS

Product: R&R Report Writer   **Oper Sys:** DOS®
Version: 4.0

Summary

R&R Report Writer allows you to highlight selected data in a report by using attributes such as bold, italic, and underscore. In version 4, R&R Report Writer also allows those of you with laser printers to highlight selected areas of your report with shading. The figures on the next page illustrate the two types of shading explained in this article:

- Column shading

- Line shading

Column Shading

As Figure 2 illustrates, column shading enables you to highlight one or more columns of data in a report. The trick to producing this type of shading is to insert shading characters (in this case extended ASCII character 176) immediately below the data field(s) to be shaded. Then, using Version 4's new /Line Print Height command, you can assign the line with the shading characters a line height of 0, which forces the shading characters to overprint the line above them. Figure 1 illustrates the report layout that produced the report in Figure 2. The Line Status window shows you the characteristics of the line containing the shading characters.
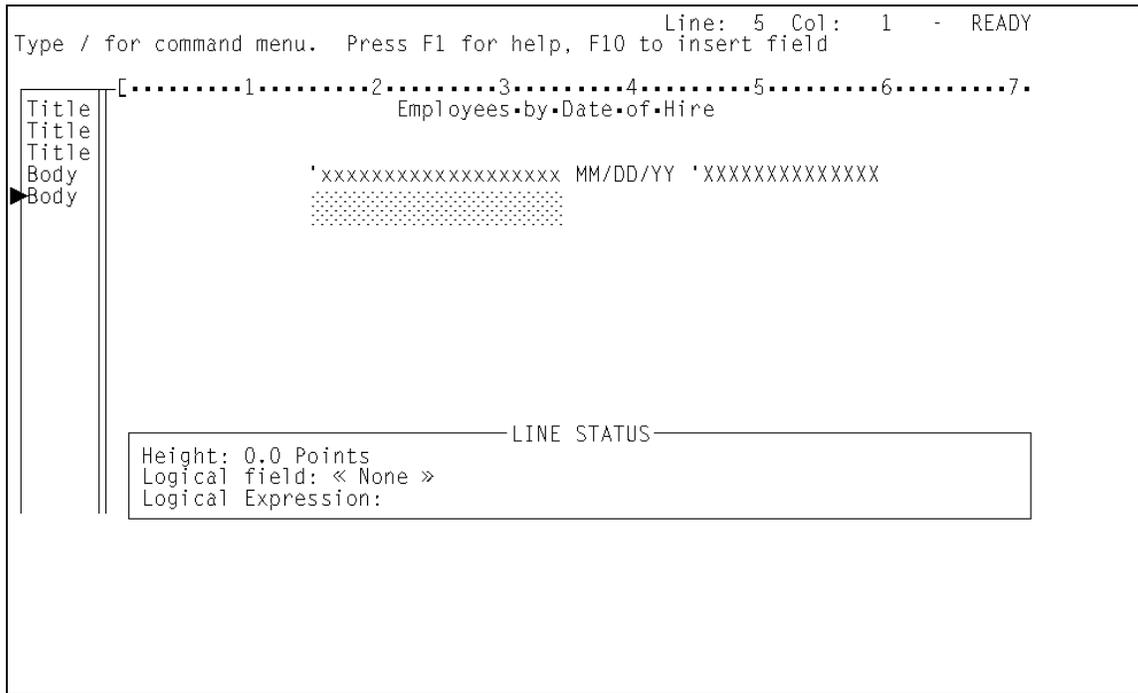
```
                                          Line:  5  Col:   1   -   READY
Type / for command menu.  Press F1 for help, F10 to insert field

       ┌·········1··········2··········3··········4··········5·········6·········7·
       [·········1··········2··········3··········4··········5·········6·········7·
  Title│              Employees·by·Date·of·Hire
  Title│
  Title│
  Body │          'xxxxxxxxxxxxxxxxxxx MM/DD/YY 'XXXXXXXXXXXXXX
▶ Body │                    ::::::::::::::::::::::::::::::::
       │                    ::::::::::::::::::::::::::::::::




                                    ┌─────────LINE STATUS─────────┐
                    │               │ Height: 0.0 Points          │
                    │               │ Logical field: « None »     │
                    │               │ Logical Expression:         │
                    │               └─────────────────────────────┘
```

Figure 1. Report Layout for Column Shading.

To ensure that this report layout produced the report in Figure 2, we followed the steps outlined below to create the report: 0

1. First, we made sure that one of our printers has a font whose symbol set includes one or more shading characters light enough to overprint data without obscuring it. In this case, the HP LaserJet II has a 12-point, 10-pitch Courier font with the PC-8 (also called IBM-US) symbol set. In this symbol set, characters with decimal numbers 176, 177, and 178 are shading characters, of which character 176 is the lightest. To make sure we would print the finished report on the right printer, we used the /Print Destination Printer command to select the HP LaserJet II.

2. Next, we made sure that this font and any others we wanted to use in the report were available. Because we wanted to use the Helvetica font from the Microsoft Z font cartridge, we used the /Print Font-File command to attach the RRHP_Z font information file (FIF) to the report. This FIF gives R&R Report Writer information about both the internal Courier font needed for the shading characters and all the fonts on the Z cartridge.

NOTE: You do not need to attach a font information file if you want to use only fonts internal to the printer.

Employees by Date of Hire

David Smith	10/12/81	Software
Robert D'Angelo	03/01/82	Software
Nancy Gibson	07/05/83	Marketing
Elizabeth Pike	08/22/83	Marketing
Paula Hartwick	08/17/87	Documentation
Vincent Castaldi	06/27/88	Software
Joan Jacobs	07/01/88	Administration
Jeff Scott	03/01/89	Administration
Howard Spence	07/24/89	Product Support
John MacDonald	10/30/89	Documentation
Anne Sullivan	11/13/89	Administration
Steven James	11/27/89	Marketing
Philip Keever	12/27/89	Software
Kathleen Sullivan	01/02/90	Product Support
Anthony Cruz	01/22/90	Administration
Thomas Jefferies	04/09/90	Marketing
Marilyn Vitale	08/27/90	Marketing
Janet Kalia	09/10/90	Product Support
Robert Ball	10/01/90	Product Support

Figure 2. Sample Report with Column Shading.

Employees by Date of Hire
David Smith 10/12/81 Software
Robert D'Angelo 03/01/82 Software
Nancy Gibson 07/05/83 Marketing
Elizabeth Pike 08/22/83 Marketing
Paula Hartwick 08/17/87 Documentation
Vincent Castaldi 06/27/88 Software
Joan Jacobs 07/01/88 Administration
Jeff Scott 03/01/89 Administration
Howard Spence 07/24/89 Product Support
John MacDonald 10/30/89 Documentation
Anne Sullivan 11/13/89 Administration
Steven James 11/27/89 Marketing
Philip Keever 12/27/89 Software
Kathleen Sullivan 01/02/90 Product Support
Anthony Cruz 01/22/90 Administration
Thomas Jefferies 04/09/90 Marketing

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Marilyn Vitale 08/27/90 Marketing
Janet Kalia 09/10/90 Product Support
Robert Ball 10/01/90 Product Support

Figure 3. Sample Report with Line Shading.

3. After attaching the FIF, we pressed F8 to see if the ruler pitch matched the pitch (number of characters per inch) of the font in which the shading characters would print. In this case, the ruler pitch was automatically set to 10, to correspond to the pitch of the report's default font (the first font in the attached FIF). Since the Courier font with the shading characters is a 10-pitch font, we did not have to change the ruler pitch. We pressed Enter to retain the current pitch.

    NOTE: If the ruler pitch is smaller than the pitch of the shading font, your shading characters will print with gaps between them.

4. Next, we created the report layout, typing text fields in the title area and inserting data fields on the first body line. We used the /Line Print Font command to apply 14-point Helvetica to the title line and 10-point Helvetica to the data fields in the body area. We also used /Line Print Attribute to make the title bold.

5. Because Helvetica is a proportional font, one whose characters vary in width, we weren't sure how much space each data field would occupy on the report. To maintain the columnar alignment of the report, we used the /Field Width command to assign a width of 2 inches to the NAME field. This width should be sufficient to accommodate any name in the database, but if a name is longer, R&R Report Writer will truncate it at 2 inches instead of pushing the data in the HIREDATE and DEPT fields to the right.

6. To insert the shading characters, we moved down to the line immediately below the NAME data field and pressed Shift F3 to display R&R Report Writer's extended character screen. We moved the cursor to the lightest shading character, pressed F3 to select it, and pressed F3 20 times to insert 20 of these characters on the report layout. Since the Courier font in which these characters will print is 10 pitch (i.e. has 10 characters per inch), these 20 characters will occupy 2 inches in the report, exactly the width we assigned to the NAME data field.

7. Because 12-point 10-pitch Courier is the default font for this report (Font number 1 in the attached FIF), we did not need to explicitly apply a font to the text field consisting of the

shading characters. (When a field is first entered or inserted on the report layout, the default font is automatically applied to it.) However, to make sure, we highlighted the shading field and pressed F4 to check that the field would print in the correct font.

8. Next, we used the /Line Print Height command to manually specify heights for two lines on the report layout. We assigned a line height of 12 points to the body line containing the data fields and a line height of 0 (in any unit of measure) to the body line containing the shading field. By making the line height of the data line the same as the point size of the font applied to the shading characters (12 point), we forced the shading characters to overprint and completely fill the line above them. (If we had not changed the height of the line containing the data fields, the shading characters would have overlapped, since the first body line would have automatically taken on the height of the largest font on the line, Helvetica 10 point.)

9. Finally, we used the Version 4 /Print Preview command to preview the report before we printed it. In the unzoomed display, the shading obscured the data. However, when we zoomed in closely, we could see both shading and data. We could also check to see that the shading characters filled the column completely, without gaps between lines or characters. After exiting preview, we printed the report to an HP LaserJet II, to produce the output illustrated in Figure 2.

Line Shading

Figure 3 illustrates a second type of shading possible with R&R Report Writer: line shading. In this case, instead of shading specific lines based on the content of the lines (see the last paragraph for information about this type of shading), we have shaded every other line to simulate "green-bar" shading. This type of shading improves the readability of dense, single-spaced listings because it helps the reader distinguish one line from another.

Like the column shading report, this report uses shading characters and zero line height to shade lines containing data fields. In addition, it uses R&R Report Writer's line logical feature to turn this shading on for alternate lines. Figure 4 shows the layout for this report with the Line Status window showing the height and logical condition attached to the shading line. Instructions for the report follow.
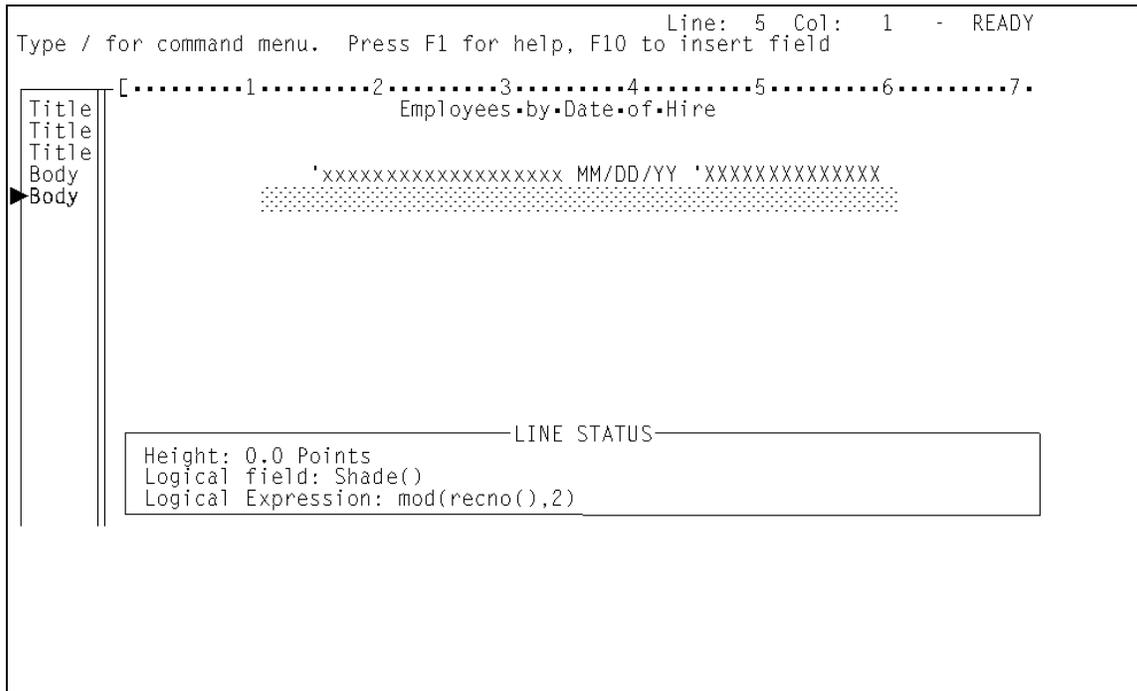
```
                                          Line:  5  Col:   1   -   READY
Type / for command menu.   Press F1 for help, F10 to insert field

             [··········1··········2··········3··········4··········5··········6··········7·
   Title                       Employees·by·Date·of·Hire
   Title
   Title
   Body               'xxxxxxxxxxxxxxxxxxxx MM/DD/YY 'XXXXXXXXXXXXXX
  ►Body               ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::




                                          ─LINE STATUS─
             Height: 0.0 Points
             Logical field: Shade()
             Logical Expression: mod(recno(),2)
```

Figure 4. Report Layout for Line Shading.

To create this report, we followed the first five steps given for column shading, then we continued with the steps outlined below:

6. To insert the shading characters, we moved down to the line below the data fields and pressed Shift F3 to display R&R Report Writer's extended character screen. We moved the cursor to the lightest shading character, pressed F3 to select it, and pressed F3 50 times to insert 50 of these characters on the report layout. (If we had wanted the shading to extend across the page, we could have filled the entire line, from 0 to 8.5 inches.) Since the pitch of the font in which the shading characters will print is the same as the ruler pitch (in this case, 10 characters per inch), the line of shading on the printed report will start and stop exactly where the ruler line indicates.

7. As in the column shading report, we did not need to apply a font to the shading characters, because a newly entered text field is automatically assigned the default font for the report -- in this case 12-point 10-pitch Courier.

8. Again, we used the /Line Print Height command to manually specify heights for the body lines on the report layout: 12 points for the body line containing the data fields and 0 for the body line containing the shading field. This forces the 12-point shading characters to overprint and completely fill the line above them.

9. Next, we used the /Field Calculate Create command to create a field called SHADE to control printing of the shading line. Since we want the shading line to print for every other

record, we need a calculated field expression that will return alternating true and false values or, since numeric fields can serve as logical fields, alternating zero and non-zero values. The expression for SHADE uses R&R Report Writer's MOD and RECNO functions to do just this:

MOD (RECNO(),2)

Used without a file alias argument, RECNO() returns the number of the current composite record. The MOD function takes two arguments, a dividend (in this case the value of RECNO) and a divisor (2), and returns the remainder of the division.

Thus, the value of this expression in the first composite record of the report will be MOD(1,2) or 1. The expression's value in the second composite record will be MOD(2,2) or zero. The value in the third composite record will be MOD(3,2) or 1, and so on. Since zero is the same as a logical false value and one (or any non-zero value) is a logical true value, this field can be used as a logical field to control line printing.

1. After creating the SHADE field, we used the /Line Print Logical command to make the value of SHADE control the printing of the shading line. As Figure 4 illustrates, the Line Status window displays this condition. When the value of SHADE is 1, the line with the shading characters will print. When the value of SHADE is 0, the line with the shading characters will not print.

11.   Finally, as we did in the column shading report, we used the /Print Preview command to preview the report before we printed it. We zoomed in to make sure that the shading alternated as we intended and that the shading characters filled the line without gaps or overlaps. After exiting preview, we printed the report to an HP LaserJet II, to produce the output illustrated in Figure 3.

Note that the same technique could be used to highlight selected lines of a report. In this report, for example, we could have shaded lines for employees in a selected department or employees hired after a selected date. In these cases, the expressions for the SHADE field might have been as follows:

DEPT = "Administration" or HIREDATE >= CTOD("01/01/90")