

69 Creating footers & headers with PRINT LAYOUT

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Pixel counting while using **PRINT LAYOUT** aids in the positioning of report elements.

PRINT LAYOUT uses only the information on a layout between the header and detail lines. It is up to the programmer to assemble a sequence of **PRINT LAYOUT** commands which, when printed together, will create a complete report.

With **PRINT LAYOUT**, you are able to enhance the appearance of a report by dynamically changing the color or patterns of certain report elements based on values of fields or calculations. Using **PRINT LAYOUT** enables you to graphically differentiate information; placing a frame around only the reimbursables in a financial report, for example.

Since the database designer is in complete control of the sequence of events when using **PRINT LAYOUT**, considerations must be given to the generation and tracking of page headers and footers in a report.

The easiest way to invoke a **PRINT LAYOUT** is to use the **APPLY TO SELECTION** or **APPLY TO SUBSELECTION** commands. For example:

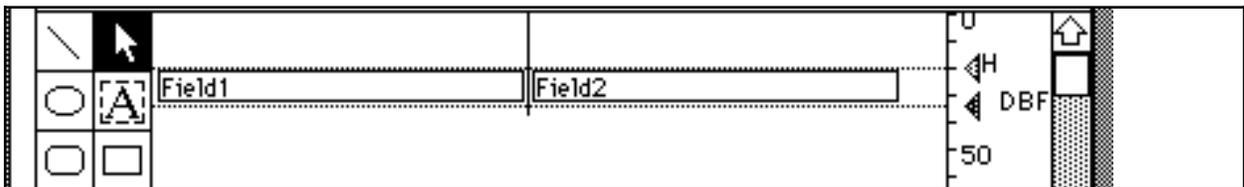
PRINT SETTINGS

```
APPLY TO SELECTION([File];PRINT LAYOUT([File];"Detail"))
```

FORM FEED

Since **PRINT LAYOUT** does not automatically invoke the print settings dialogs, you must precede it with the **PRINT SETTINGS**, and follow with the **FORM FEED** command to flush the print buffer.

The above example requires a layout called "Detail" to be created for the specified file. The fields to be printed reside between the header and detail division lines.



An **APPLY TO SELECTION** will walk down the selected records and use the "Detail" layout to sequentially assemble the information in the print buffer. When the buffer fills, the page will be sent to the printer.

During the **APPLY TO SELECTION**, 4th Dimension will sense when the print buffer fills, causing a form feed to be issued, thus ejecting the current page and allowing a new page to be assembled. The last page will be manually ejected by the **FORM FEED** command.



Footers and Headers

In order to handle footers and headers, the report must sense when the assembled page in the print buffer reaches a certain predetermined length. At this point, a sequence of **PRINT LAYOUT** for the footer, **FORM FEED** and **PRINT LAYOUT** for the header can be sent to the buffer.

Pixel counting is a convenient method of determining the position of the current line of a report being assembled in the buffer. In the above layout, there are 13 pixels between the Header and Detail dividers. Every time a **PRINT LAYOUT** is activated, a variable called vPixCount is incremented by 13 in the procedure of the layout using the calculation: vPixCount:=vPixCount+13.

Create a layout called "header", make the separation between the header and footer markers 100 pixels. Be sure to increment the vPixCount variable with vPixCount:=vPixCount+100. Similarly, create a layout called "Footer" 50 pixels high, include a calculation to increment vPixCount by 50.

Create a variable (vEndBodyPix) in order to stop printing the details when the vPixCount advances past a preset limit and to invoke the footer procedure. The footer procedure will calculate how far to space down from vEndBodyPix in order to the footer in its correct location as determined by (vFooterPix).

When vPixCount is incremented greater than vEndBodyPix, the following global procedure should insert a footer, perform a **FORM FEED** and then insert a header. The first piece of code is installed in the input layout's procedure.

The following procedure will call the Print Details global procedure for every record in the selection.

PRINT SETTINGS

```
vEndBodyPix:=650 `footer trigger position in pixels from top of page
APPLY TO SELECTION([File];PrintDetails) `Calls following global
FORM FEED
```

```
`Global Procedure: PrintDetails
```

```
PRINT LAYOUT([File];"Detail") `Each record printed here increment vPixCount by 13
```

```
If (vPixCount>vEndBodyPix) `time to insert a footer?
```

```
    PRINT LAYOUT([File];"Footer") `increment vPixCount by 50
```

```
    FORM FEED
```

```
    vPixCount:=0 `reset the pixel counter for this page
```

```
    PRINT LAYOUT([File];"Header") `increment vPixCount by 100
```

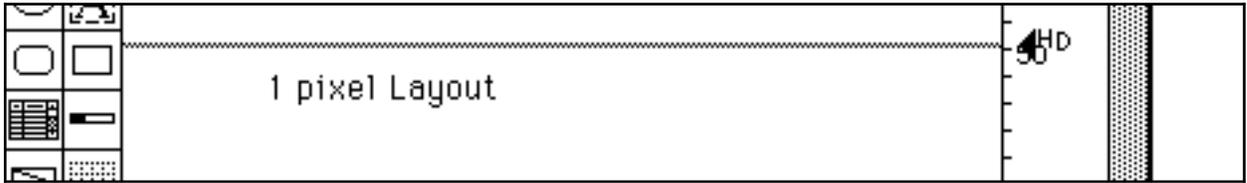
```
End if
```

Consistent spacing of the footers

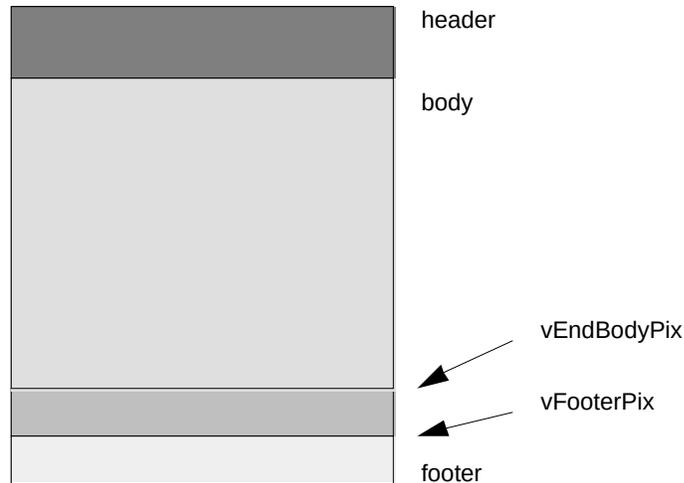
Different combinations of PRINT LAYOUTs affect the final value of vPixCount, causing the footer to be positioned slightly different for each page.

Create a 1 pixel layout to be used for spacing purposes, call it "1PixFill". Be sure to include a layout procedure to increment vPixCount by 1: (vPixCount:=vPixCount+1). 1 pixel layouts are created by placing the header divider directly adjacent to the detail divider.





Important note: when creating a blank spacing layout, be sure to NOT leave it completely blank; 4th Dimension will not print layouts containing nothing. I usually include a brief description of the layout's purpose just below the detail line in order to satisfy this requirement.



The following procedures will print a report with headers and footers using the **PRINT LAYOUT** command.

PRINT SETTINGS

vEndBodyPix:=500 `last position of data on page

vFooterPix:=600 `start printing footer position

vPixCount:=0 `pixel counter

PRINT LAYOUT([File1];"Header") `increment vPixCount by 100 in layout proc

APPLY TO SELECTION([File1];*PrintDetails*)

While (vPixCount#vFooterPix) `1 pixel footer spacing loop for final footer

PRINT LAYOUT([File1];"1Pix") `increment vPixCount by 1, in layout proc

End while

PRINT LAYOUT([File1];"Footer") `in the proper position, no need to increment vPixCount

FORM FEED

The following global procedure will be called in the above procedure's **APPLY TO SELECTION**.

`Global Procedure: PrintDetails

PRINT LAYOUT([File1];"Detail") `record printed here, increment vPixCount by 13

If (vPixCount>vEndBodyPix) `time to insert a footer?

While (vPixCount#vFooterPix) `1 pixel footer spacing loop

PRINT LAYOUT([File1];"1Pix") `increment vPixCount by 1, in layout proc

End while

PRINT LAYOUT([File1];"Footer") `in the proper position

vPixCount:=0 `reset the pixel counter for the next page

FORM FEED

PRINT LAYOUT([File1];"Header") `increment vPixCount by 50 in layout proc



End if

