

Easily Modify Report Programs

(because you have better things to do)

Ted Holt

Sr. Software Developer, Profound Logic Software

Sr. Technical Editor, Four Hundred Guru



Agenda

- Definitions and background
- The "Cletus" method
- An example



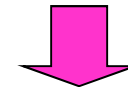
Format of Columnar Reports

Contributions		3/17/15	Page 1
Shift	Name		Amount
=====	=====		=====
1	Fife, Bernard P.		20.00
1	Haywood, Jesse W.		5.00
	Shift total		25.00
2	Heggs, Luther		10.00
2	Figg, Hollis		10.00
	Shift total		20.00
	Grand total		45.00

Traditional Methods of Report Definition

- Output specifications
- DDS

Remember these?



	1	2	3	4	5	6	7	8			
	1234567890	1234567890	1234567890	1234567890	1234567890	1234567890	1234567890	1234567890			
1	XX/XX/XX	WEXLER U. STUDENT GRADE REPORT					PAGE XX0X				
2											
3				EXAM	EXAM	EXAM	EXAM	EXAM	AVG.		
4	STUDENT NO.	NAME			1	2	3	4	5	GRADE	
5											
6	XXX-XX-XXXX	X.	XXXXXXXXXXXXXXXXXX			X0X	X0X	X0X	X0X	X0X	X0X
7	XXX-XX-XXXX	X.	XXXXXXXXXXXXXXXXXX			X0X	X0X	X0X	X0X	X0X	X0X
8	XXX-XX-XXXX	X.	XXXXXXXXXXXXXXXXXX			X0X	X0X	X0X	X0X	X0X	X0X
9											
10								CLASS AVERAGE		X0X	

Problem with Traditional Methods

Making one change . . .

- Adding a column
- Deleting a column
- Moving a column
- Resizing a column

Problem with Traditional Methods

requires making more changes.

- Adjust column headings, detail lines, subtotals, and grand totals.

Problem with Traditional Methods

- Modifying DDS and O specs by hand is tedious.

- RLU stinks.



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A Different Approach

- Published in Four Hundred Guru on April 14, 2004
 - "An Alternative to Externally Described Printer Files"
 - <http://www.itjungle.com/fhg/fhg041404-story02.html>
- Updated
 - "An Alternative to Externally Described Printer Files, Take 2"
 - <http://www.itjungle.com/fhg/fhg041404-story02.html>

Advantages of the "Cletus" Method

- Column headings, detail line, and total lines adjust together.

Advantages of the "Cletus" Method

- Spacing and skipping are easily controlled with simple assignment statements.

Advantages of the "Cletus" Method

- Most of the report logic is reusable code in a template.

The PrintLine Data Structure

- Length is the record length
- Defines the columns of a report
- All subfields are alpha

The PrintLine Data Structure

- Includes unnamed spacer fields to separate the columns
- Overlapping columns may be defined with **OVERLAY** keyword.

The PrintLine Data Structure

D	PrintLine	ds	132
D	Column01		7
D			1
D	Column02		25
D			1
D	Column03		7
D			2
D	Column04		15

The PrintLine Data Structure

D	PrintLine	ds	132
D	ColCusNo		7
D			1
D	ColCusName		25
D			1
D	ColQtySold		7
D			2
D	ColAmount		15

Loading the Data Structure

- Use same structure for column headings, detail lines, and column totals

Loading the Data Structure

- Use EVAL for character data
- Use EVALR for numeric data

Loading the Data Structure

- Use %EDITC and %EDITW functions to load numeric fields

Loading Column Headings

```
eval      Column01 = 'State'  
eval      Column02 = 'Name'  
evalr     Column03 = 'Account'  
eval      Column04 = 'City'  
exsr      Print
```

Loading a Detail Line

```
eval Column01 = State
eval Column02 =
    %trimr (LstNam) +
    ' ' + Init
evalr Column03 =
    %editc (CusNum: '4')
eval Column04 = City
exsr Print
```

Loading Column Totals

```
eval      Column02 = State + ' total'  
evalr    Column04 = %editc(Count:'3')  
eval     SpaceBefore = DoubleSpace  
exsr     Print
```

Note: There is no need to load unused columns because each write clears the data structure.

Spacing and Skipping

Use a printer control data structure to control spacing and skipping.

```
FPAY922P o f 132 printer prtctl(PrtCtl)
F oflind(Overflow)
```

```
D PrtCtl ds
D SpaceAndSkip 1 12
D SpaceBefore 1 3
D SpaceAfter 4 6
D SkipBefore 7 9
D SkipAfter 10 12
D CurrentLine 13 15s 0
```

Spacing and Skipping

- If SpaceAndSkip is blank, the program assumes you want to space once before printing.

Writing to the Printer

Use the WRITE opcode with the printer file name in factor 2 and the data structure in the result field.

```
write Pay922P PrintLine
```

Features of the Template

- Single spacing (before) is assumed.
- The printer data structure and spacing/skipping data structure are always cleared after writing to the printer.

Features of the Template

- Predefined spacing and skipping constants improve readability.
- Works with SQL input (my preference) or input opcodes (e.g., READ).

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Example Time

Programs DEMO1C (CL driver) and
DEMO1R (Report program)

File QCUSTCDT is in library
QIWS.

Example Time

DEMO1C (CL driver)

```
pgm
ovrdbf qcustcdt share(*yes)
opnqryf qcustcdt +
      keyfld((state) (lstnam) (init))
call demolr
clof qcustcdt
dltovr qcustcdt
endpgm
```

Example Time

```
Fqcustcdt if e      disk      prefix(C_)
Fqsysprt  o  f 132 printer oflind(Overflow)
F                                                prtctl(PrtCtl)
```



Program described

Example Time

D	PrtCtl	ds		
D	SpaceAndSkip	1	2	
D	SpaceBefore	1	3	
D	SpaceAfter	4	6	
D	SkipBefore	7	9	
D	SkipAfter	10	12	
D	CurrentLine	13	15s	0

Example Time

D SingleSpace	c	' 001 '
D DoubleSpace	c	' 002 '
D NoSpacing	c	' 000 '
D TopOfForm	c	' 001 '

Example Time

D	PrintLine	ds	132
D	Column01		7
D			1
D	Column02		25
D			1
...	3 columns omitted		
D	Column06		12
D			1
D	Column07		2

Example Time

```
D SaveState      s   like (C_State)
D CdtDue1        s   like (C_CdtDue)
D CdtDueR        s   like (CdtDue1)
D BalDue1        s   like (C_BalDue)
D BalDueR        s   like (BalDue1)
```

Example Time

```
// subroutine PrintDetail
Column01 = C_State
Column02 = %trimr(C_LstNam) + ' ' +
           C_Init
evalr Column03 = %editc(C_CusNum: '4')
Column04 = C_City
evalr Column05 = %editc(C_CdtDue: 'J')
evalr Column06 = %editc(C_BalDue: 'J')
exsr Print
```

Example Time

```
// subroutine PrintHeaders
DoubleStrike = True
PageNbr += 1
PrintLine =
'Customer List by State (' +
    %trim(psdsProcName) + ' )      ' +
    %editc(psdsSysDate:'Y') + ' ' +
    %editw(psdsSysTime:' : : ') +
    ' Page ' + %char(PageNbr)
SkipBefore = TopOfForm
exsr Print
```

Example Time

```
evalr      Column03 = 'Account'  
evalr      Column05 = 'Credit'  
evalr      Column06 = 'Balance'  
SpaceBefore = DoubleSpace  
exsr      Print
```

Example Time

```
// control totals
Column02 = '      ' + SaveState +
           ' total'
evalr Column05 =
    %editc(CdtDue1:'J':*CurSym)
evalr Column06 =
    %editc(BalDue1:'J':*CurSym)
eval  Column07 = '*'
SpaceBefore = SingleSpace
SpaceAfter  = SingleSpace
exsr Print
```

Quizzette

How would you make the following changes?

1. Allow 5 fewer positions for the name.
2. Add 2 spaces between credit due and balance due.

Quizzette

3. Double-space the detail lines.
4. Double-strike the control totals and grand total.
5. Put the city column after state?

EVAL *INLR = *ON ;

