How To Write Custom Reports

In Sage 100 Contractor (formerly Master Builder)

By Jim Schuett

Instruction Guide & Resource Manual

Sage 100 Contractor "Report Writer"

Easy to Read ▪ SQL Formulas ▪ Illustrations

1   TABLE OF CONTENTS

     - 5 -   *Licensed Only To*: Valley Commercial Contractors L.P.

6   REPORT FORMS AND SYSTEM REPORTS

Let's start with the Report Form and it will be easy to understand, as you see it up *close and personal*.

6.1   REPORT FORM

WHERE TO FIND REPORT FORM EDITING

| CLICK | Click On: | STEP 1 | Menu 3-1-1 | STEP 2 | Edit | STEP 3 | Form Design |
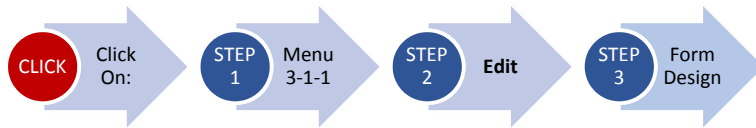
For this example, from the Sage 100 menu screen

STEP 1: Click on menu 3-1-1.

STEP 2: Click "Edit",

STEP 3: Then / click "Form Design".
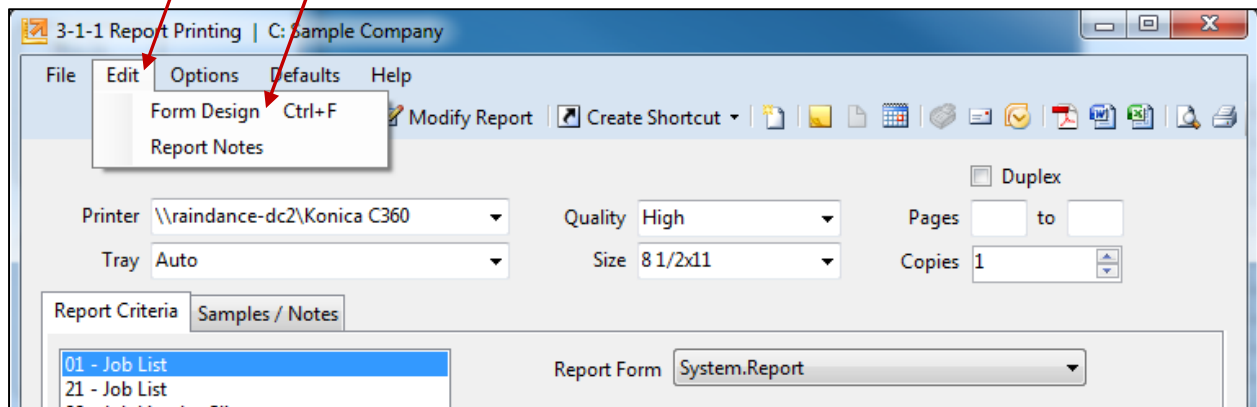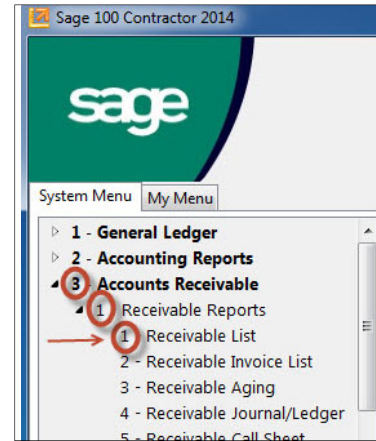
REPORT FORM: STRUCTURE & LAYOUT

6.1.1   HEADER
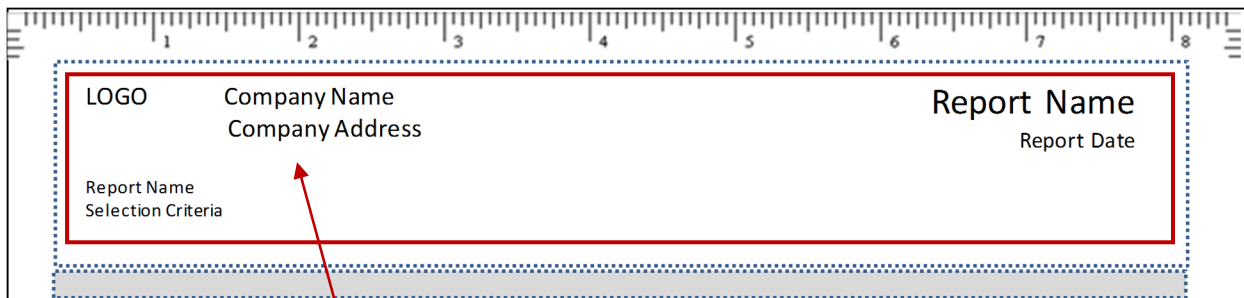
Report Form: "Header"

Here is the type of information you could see in the top (header) part of the report form.

- Company info like name, address, phone numbers.
- Report info like report name, selection criteria, and date, client and job Information.

     - 16 -   *Licensed Only To*: Valley Commercial Contractors L.P.

6.4 CHANGING FIELD PROPERTIES

6.4.1   Fonts and Sizes
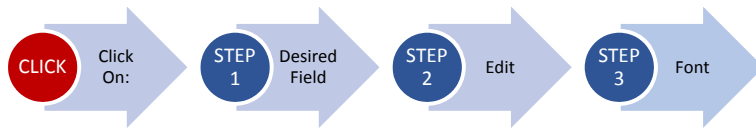
To change the font or size of a field,

STEP 1: Click on "**Desired Field**" to change

STEP 2: Click on "**Edit**"　　　　　　(or just click on

STEP 3: Click on "**Font**"　　　　　　the Font icon)
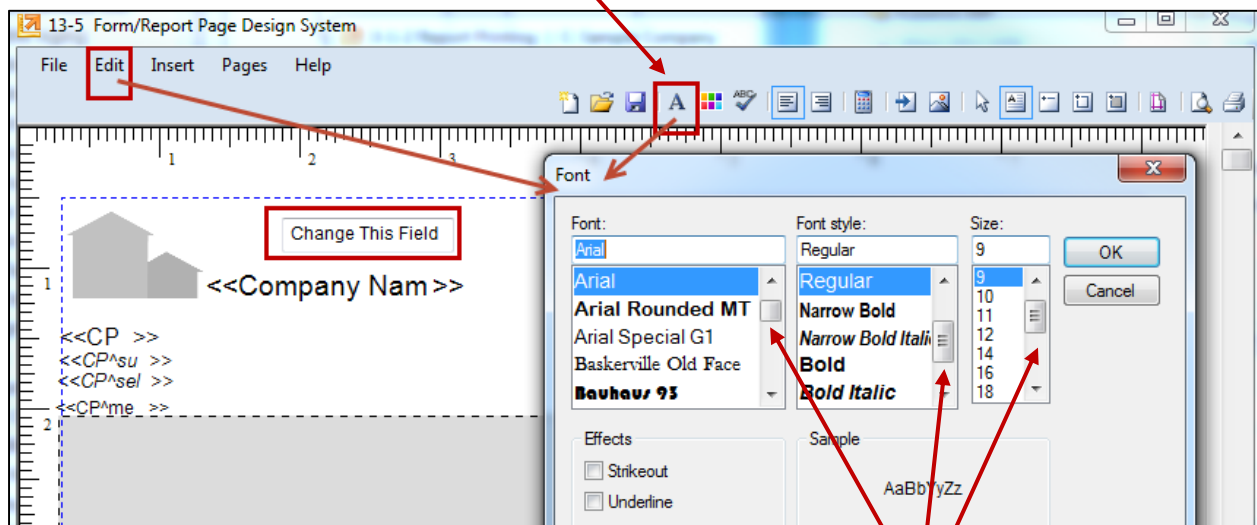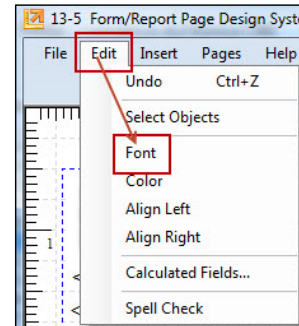
- In the Font window, select the Font, Font Style, then Size. (Use scroll bars to see all fonts & sizes)
- Choose "Underline" if desired, then choose the "OK" button.
- Continue in same way to make other font / size changes on other fields.

NOTE　　If you want to change more than one field to the same font and style size, click the first field, then hold down the Control (Ctrl) key then click on the other fields you want to change. Make the changes as above. All the fields will be changed.

　　　　　- 25 -　*Licensed Only To*: Valley Commercial Contractors L.P.

6.3 HOW TO ADD NEW FIELDS TO A REPORT FORM

How do I enter fields onto Report Forms?

CLICK → Click On: → **STEP 1** → Grid Area → **STEP 2** → Insert Field
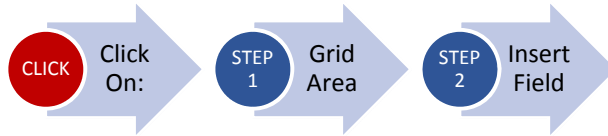
STEP 1: Click the **grid area** where you want the field to appear.

STEP 2: Click the "**Insert Fields from a List**" Icon.
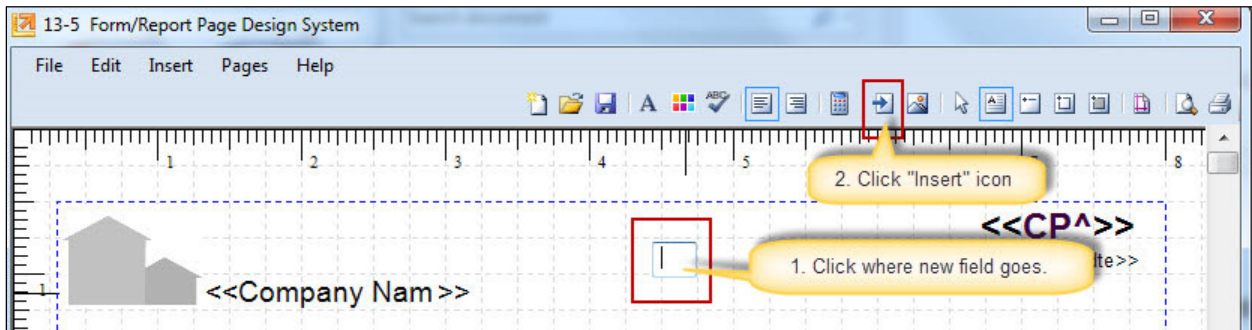
Choose a field to enter by clicking on it in the list.

- Left column: **Tables by Menu**
- Right column: **Fields in** (the table selected)
- Note the right column scroll bar, move this down to see all the fields available.
- Clicking on the desired field, inserts the field into the report form.
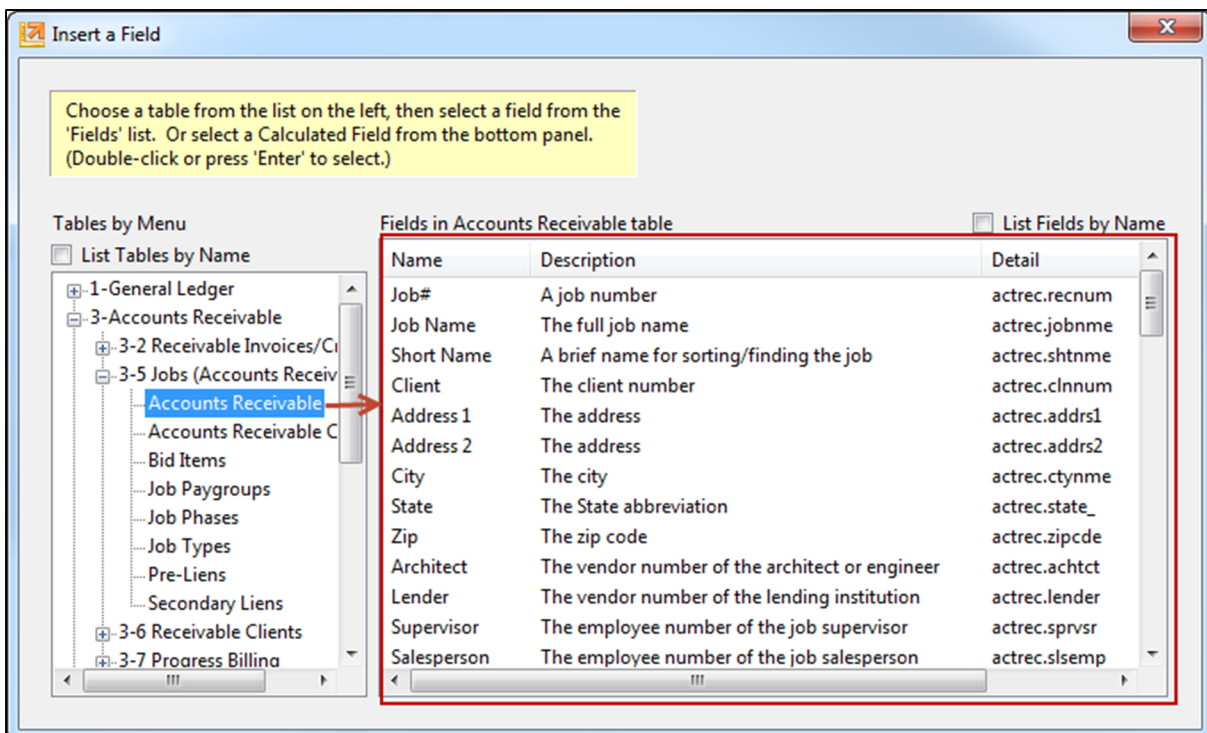
9　PRIMARY TABLE

9.1　WHAT PRIMARY TABLE SHOULD YOU USE?

First, take a look at the Primary Table List in the Resources Section of this book.
As you can see there are a lot of them. It should make it easier to pick the right one.

9.2　PRIMARY TABLES & THEIR SUB-TABLES
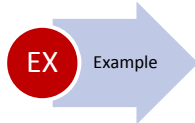
EX Example

Accounts Receivable Primary Table

Full A/R Expanded TableMain

Tables Accessible from A/R Primary Table:

- Each table (in red box) below "connects" to the primary table.
- Each table below *may* have sub-tables also accessible.

ACCOUNTS RECEIVABLE PRIMARY TABLE

**Sub-Tables to the
A/R Primary Table:**

- AP Invoices
- AR Invoices
- Job Paygroups
- Job Phases
- Pre-Liens
- Secondary Liens
- Schedules
- Service Invoices
- Receivable Clients
- Accounts Payable
- Employees
- Local Payroll Taxes
- Tax Districts
- Ledger Accounts
- Departments
- Job Types

ALERT READ THIS

It's important to understand the way these tables "connect" to the primary table, and how they don't connect.

　　　　- 44 -　　*Licensed Only To*: Valley Commercial Contractors L.P.

11 EXPANDED PRIMARY TABLES

A/P INVOICE LINES

- A/P Invoice Lines
  - A/P Invoices
    - Purchase Orders
      - Equipment
        - Equipment Types
      - Tax Districts
        - Tax Entities
      - Purchase Order Types
    - Subcontracts
      - Cost Divisions
      - Subcontract Types
    - Accounts Payable
      - Vendor Types
      - RFP Types
    - Accounts Receivable
      - Receivable Clients
        - Products List
        - Lead Sources
        - Client Types
        - Client Statuses
        - Mail Lists
        - Service Areas
        - Company Sizes
        - Contract Types
      - Local Payroll Taxes
      - Departments
      - Job Types
    - Job Phases
  - Takeoff Parts
    - Cost Codes
      - Workers Compensation
    - Cost Types
    - Schedule Tasks
      - Task Types
    - Part Classes
  - Ledger Accounts
  - Ledger Subaccounts
  - Inventory Locations
    - Employees
      - Payroll Positions
      - Paygroups
      - Payroll Unions

A/P INVOICE PAYMENTS

- A/P Invoice Payments
  - A/P Invoices
    - Purchase Orders
      - Employees
        - Payroll Positions
        - Workers Compensation
        - Paygroups
        - Payroll Unions
      - Equipment
        - Equipment Types
      - Tax Districts
        - Tax Entities
      - Purchase Order Types
      - Schedule Tasks
        - Task Types
    - Subcontracts
      - Cost Divisions
      - Subcontract Types
    - Accounts Payable
      - Ledger Accounts
      - Cost Codes
      - Cost Types
      - Vendor Types
      - RFP Types
    - Accounts Receivable
      - Receivable Clients
        - Products List
        - Lead Sources
        - Client Types
        - Client Statuses
        - Mail Lists
        - Service Areas
        - Company Sizes
        - Contract Types
      - Local Payroll Taxes
      - Departments
      - Job Types
    - Job Phases

A/P INVOICES

- A/P Invoices
  - A/P Invoice Payments
  - A/P Invoice Lines
    - Takeoff Parts
      - Part Classes
    - Ledger Accounts
    - Ledger Subaccounts
    - Inventory Locations
  - Secondary Payees
  - Purchase Orders
    - Employees
      - Payroll Positions
      - Workers Compensation
      - Paygroups
      - Payroll Unions
    - Equipment
      - Equipment Types
    - Tax Districts
      - Tax Entities
    - Purchase Order Types
    - Schedule Tasks
      - Task Types
  - Subcontracts
    - Cost Divisions
    - Subcontract Types
  - Accounts Payable
    - Cost Codes
    - Cost Types
    - Vendor Types
    - RFP Types
  - Accounts Receivable
    - Receivable Clients
      - Products List
      - Lead Sources
      - Client Types
      - Client Statuses
      - Mail Lists
      - Service Areas
      - Company Sizes
      - Contract Types
    - Local Payroll Taxes
    - Departments
    - Job Types
  - Job Phases

12 GLOBAL CALCULATED FIELDS

Global calculated fields are a good way to copy a calculation from one report to another. Many pre-defined calculations are in the Global Calculated Fields list, but not all.

A **calculated field** is a type of field representing an expression. When you generate a report, Sage 100 Contractor determines the result of the calculated field based on information stored in the databases. After creating a calculated field, you can add it to the list of calculated fields available for use in the design.

Saving calculations to the **Global Calculated Fields** list is a good way to copy a calculation from one report to another. Many calculations are in the Global Calculated Fields list, but not all.

To find Global Calculated Fields, go to the   (define Calculated Fields) icon/button.
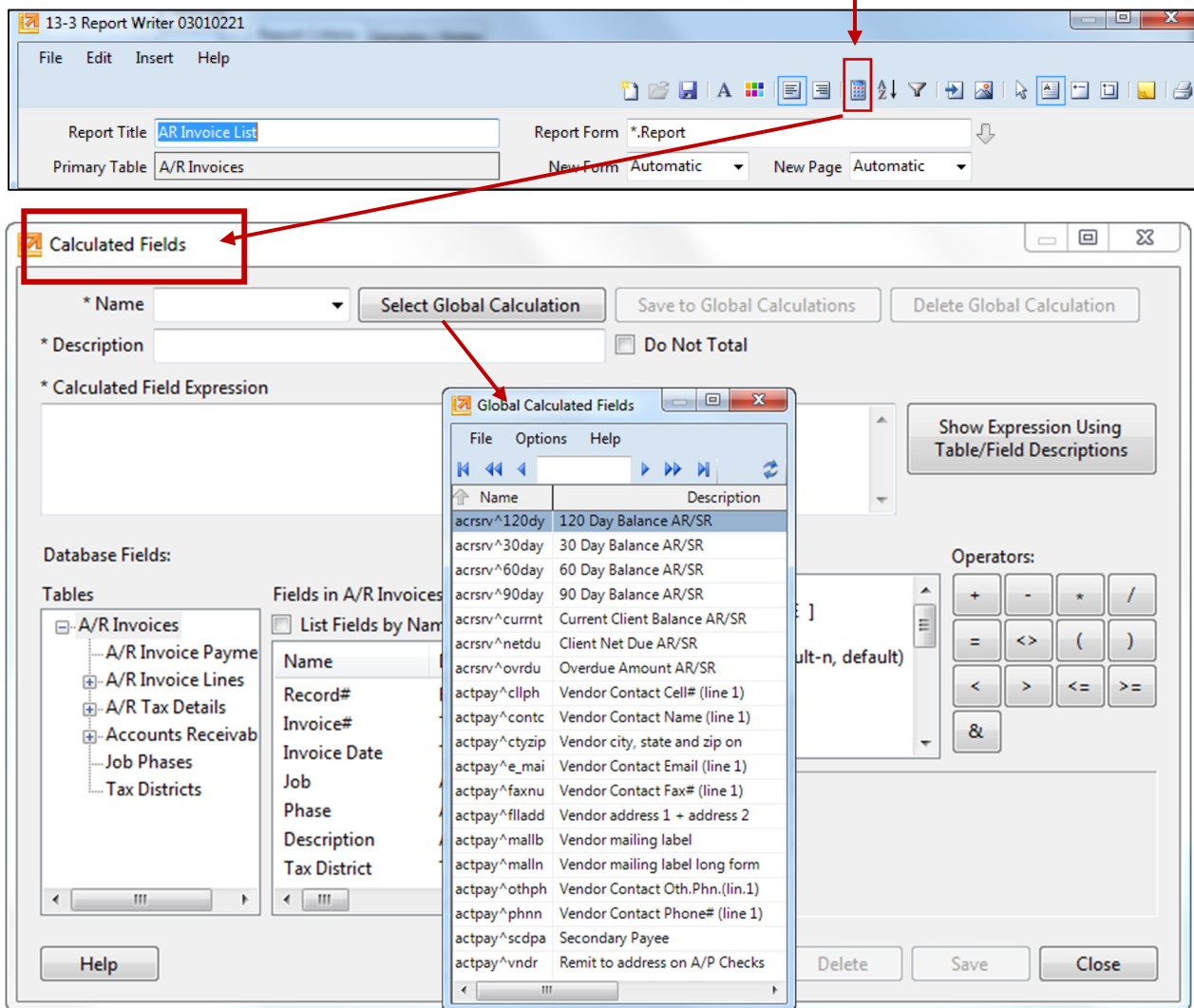
Click on "Select Global Calculation" to see list.

The list of calculations is much longer than what is visible in the window. Use the arrows at top to scroll through the list. Sage 100 Contractor comes with a selection already in the list.

          Licensed Only To: Valley Commercial Contractors L.P.

15.1 HOW TO WRITE CALCULATED FIELDS

In the following sub-sections, each type of calculated field is discussed with the general structure and simple examples of each type.

INFO
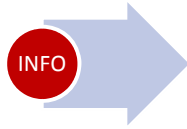
In the Reference Section in this book, *hundreds* of calculated field examples are shown for referencing calc fields used in the various primary tables (Sage menu items, like Job Cost or A/R Invoices). Refer to these frequently.

To access the Calculated Fields screen (see screen on prior page), open any report in Sage 100 that has the "Modify Report" button. For this example, use report 3-1-1-21 Job List.
Click on Sage Menu 3, then 1, then 1, then report 21.

CLICK Click On: STEP 1 Modify Report
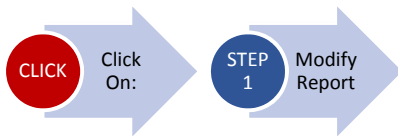
Once in report 3-1-1-21,

STEP 1: Click on the Modify Report button.
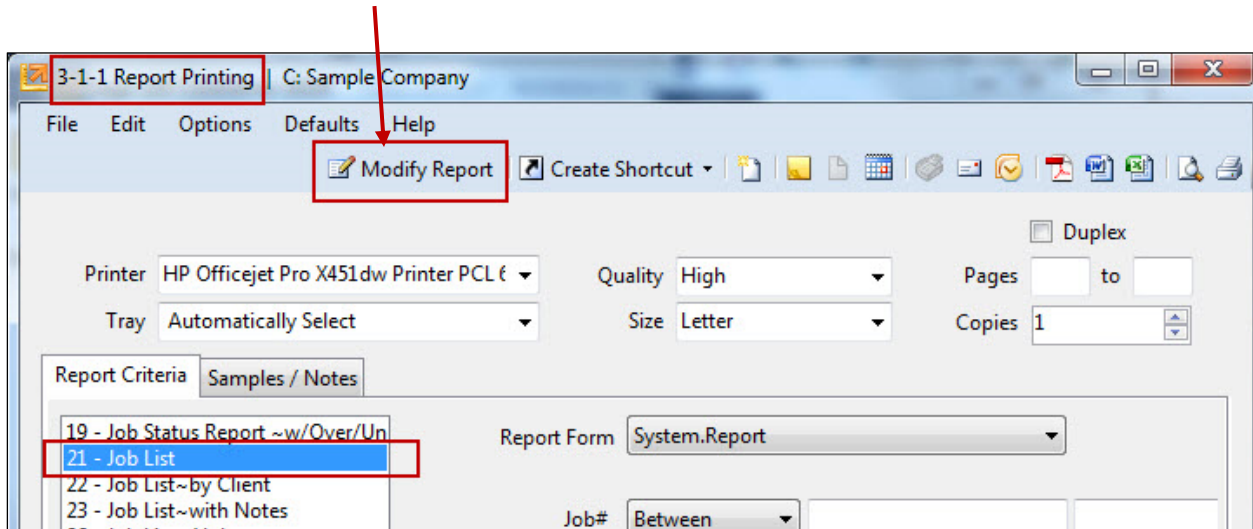
This opens Report Writer's System **Report Printing** screen (menu 13-3).

　　　　　　Licensed Only To: Valley Commercial Contractors L.P.

15.6 SQL STATEMENTS

SQL Statements

The SQL Queries operator enables you to return a value that meets specific conditions.

Within the **Select From Where** expression, you enter the fields, functions, and constants.

When building an SQL expression, you can use any mathematical or relational operations as well as language operators. The placement of operators is critical to proper calculation and some operators are placed before rather than after the fields. The following list describes the language operators you can use in an SQL expression:

Operator	Description
Select	Locates data for the selected field.
Select Sum	Locates and totals all figures for the selected field. You can use **Select Sum** in place of the **Select** portion of the expression.
From	Indicates the source database. Usually follows the **Select** portion of the expression.
Where	Defines the criteria that data must meet for use in the query. Usually follows the **From** portion of the expression.
Between	Defines a range of data. The **Between** operator works similar to **>=** and **<=**.
Inner Join	Creates a relationship between two tables.

SQL Statements

[SELECT…FROM…WHERE…]

- **Select**   Locates data for the selected field.
- **From**   Indicates the source Table in the database.
- **Where**   Defines the criteria that data must meet for use in the query.

See Section 11.1 to review "**How to Write Calculated Statements**".
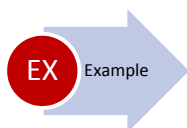
EX Example →   **SQL Statements:**   *Cost Code Name (In Timecard Line Table)*
                    [SELECT cstcde.cdenme FROM cstcde WHERE cstcde.recnum={tmcdln.cstcde}]

- [**SELECT** cstcde.cdenme
- **FROM** cstcde
- **WHERE** cstcde.recnum={tmcdln.cstcde}]

Additional Samples of "Join" Statements

EX Example
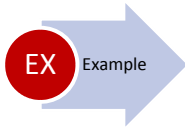
11-1-11-21 Overdue Service Reminders
Overdue Amount AR/SR
[Select Sum(SrvInv.InvBal) From SrvInv Where SrvInv.DueDte < {Date$} And SrvInv.Status < 4 And SrvInv.ClnNum = {RecCln.RecNum}] + [Select Sum(AcrInv.InvBal) From acrinv,actrec,acrinv **Inner Join** actrec on acrinv.jobnum = actrec.recnum Where AcrInv.DueDte < {Date$} And AcrInv.Status < 5 And actrec.clnnum = {RecCln.Recnum}]
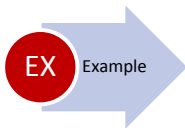
EX Example

4-1-3-41 Vendor Period Aging
Line Total(for line suppression)
[SELECT(acpinv.invbal)FROM acpinv WHERE acpinv.actper <= {[P]} and acpinv.status < 5 and acpinv.recnum = {acpinv.recnum}] +
[SELECT(acppmt.amount + acppmt.dsctkn + acppmt.aplcrd)FROM acppmt, acpinv, acppmt **inner join** acpinv on acppmt.recnum = acpinv.recnum WHERE acpinv.status < 5 and acppmt.actper > {[P]} and acppmt.recnum = {acpinv.recnum}]

EX Example
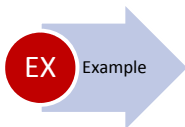
12-1-3-61 Inventory Variance
Ledger line amounts for inventory
[SELECT SUM(lgtnln.dbtamt - lgtnln.crdamt)FROM lgrtrn,lgract,lgtnln,lgrtrn **Left join** lgtnln on lgrtrn.recnum = lgtnln.recnum,lgtnln **inner join** lgract on lgtnln.lgract = lgract.recnum Where lgract.acttyp = 3 And lgtnln.recnum = {lgrtrn.recnum}] + [SELECT SUM(lgtnln.dbtamt - lgtnln.crdamt)FROM lgrtrn,lgract,lgtnln,lgrtrn **Left join** lgtnln on lgrtrn.recnum = lgtnln.recnum,lgtnln **inner join** lgract on lgtnln.lgract = lgract.recnum Where lgract.acttyp = 13 And lgtnln.recnum = {lgrtrn.recnum}]+ [SELECT SUM(lgtnln.dbtamt - lgtnln.crdamt)FROM lgrtrn,lgract,lgtnln,lgrtrn **Left join** lgtnln on lgrtrn.recnum = lgtnln.recnum,lgtnln **inner join** lgract on lgtnln.lgract = lgract.recnum Where lgract.acttyp = 14 And lgtnln.recnum = {lgrtrn.recnum}]

As with any complex calc statement, like the IF () THEN () ELSE () statements shown earlier, it helps to break the statement apart so it's easily to see the similar parts better:
(You do need to put it carefully back together before using.)

     Licensed Only To: Valley Commercial Contractors L.P.

15.7 SAMPLE CALCULATED STATEMENTS

*These SQL and other statements are for reference only. **Test each one** used before relying on data.*

Primary Table:	A/P Invoice Lines		
Report #	Report Name	Calc Name	Calc Description
4-1-2-96	**96 - AP Ledger Distribution**	**apivln^subact**	**subaccount**
	IF(apivln.subact > 0)THEN(apivln.subact)ELSE()		
4-1-2-96	**96 - AP Ledger Distribution**	**apivln`subact**	**subaccount**
IF(apivln.subact > 0)THEN(apivln.subact [SELECT lgrsub.lngnme FROM lgrsub WHERE lgrsub.recnum ={apivln.subact} AND lgrsub.ctract = {apivln.actnum}])ELSE()			
4-1-2-96	**96 - AP Ledger Distribution**	**lgrsub^lngnme**	**SubAccount Description**
[SELECT lgrsub.lngnme FROM lgrsub WHERE lgrsub.recnum ={apivln.subact} AND lgrsub.ctract = {apivln.actnum}]			

Primary Table:	A/P Invoice Payments		
Report #	Report Name	Calc Name	Calc Description
4-1-5-52	52 - Payable Check Details~Job; by Vend	chkdet^jobnme	Job number and name
	IF(acpinv.jobnum > 0)THEN(acpinv.jobnum "" actrec.jobnme)ELSE("0 NONE")		

Primary Table:	A/P Invoice Payments		
Report #	Report Name	Calc Name	Calc Description
4-1-2-21	**21 - AP Invoice List**	**acpinv^invbbl**	**Invoice balance**
	IF(acpinv.status = 4)THEN(Paid)ELSE(IF(acpinv.status = 5)THEN(Void)ELSE(acpinv.invbal))		
4-1-2-23	**23 - AP Invoice List~with Payments**	**acpinv^novoid**	**Amount excluding Voids**
	IF(acpinv.status=5)THEN(Void)ELSE(IF(acpinv.status =4)THEN(Paid)ELSE(acpinv.invnet-acpinv.dscavl))		
4-1-2-23	**23 - AP Invoice List~with Payments**	**acpinv^padvod**	**Balance of Invoice listing Paids and voids**
	IF(acpinv.status =5)THEN(Void)ELSE(IF(acpinv.status=4)THEN(Paid)ELSE(acpinv.invbal))		
4-1-2-51	**51 - AP Invoice List~Land**	**acpinv^ttldis**	**Inv Total Discount**
	IF(acpinv.status >3)THEN("")ELSE(IF(acpinv.dscavl = 0)THEN("")ELSE(acpinv.dscavl))		
4-1-3-31	**31 - Vendor Current Aging**	**acpinv^120day**	**120 Day Balance**
	IF(acpinv.duedte >=(Date$ -3650))THEN(IF(acpinv.duedte <=(Date$ -91))THEN(acpinv.invbal - acpinv.retain)ELSE(""))ELSE("")		
4-1-3-31	**31 - Vendor Current Aging**	**acpinv^30dayB**	**30 Day Balance**
IF(acpinv.duedte >=(Date$ -30))THEN(IF(acpinv.duedte <=(Date$ -1))THEN(acpinv.invbal - acpinv.retain)ELSE(""))ELSE("")			
4-1-3-31	**31 - Vendor Current Aging**	**acpinv^60dayB**	**60 Day Balance**
IF(acpinv.duedte >=(Date$ -60))THEN(IF(acpinv.duedte <=(Date$ -31))THEN(acpinv.invbal - acpinv.retain)ELSE(""))ELSE("")			
4-1-3-31	**31 - Vendor Current Aging**	**acpinv^90dayB**	**90 day balance**
IF(acpinv.duedte >=(Date$ -90))THEN(IF(acpinv.duedte <=(Date$ -61))THEN(acpinv.invbal - acpinv.retain)ELSE(""))ELSE("")			
4-1-3-31	**31 - Vendor Current Aging**	**acpinv^curret**	**Current plus retainage**
	IF(acpinv.duedte >= Date$)THEN(acpinv.invbal)ELSE(IF(acpinv.retain = 0)THEN()ELSE(acpinv.retain))		
4-3-0-21	**21 - Set to Pay Report**	**actpay^numnme**	**Print job# or inv description**
	IF(acpinv.jobnum = 0)THEN(acpinv.dscrpt)ELSE(acpinv.jobnum " " actrec.jobnme)		
4-3-0-21	**21 - Set to Pay Report**	**acpinv^scdpay**	**Secondary Payee Set to Pay**
IF(scdpay.setpay <> 0)THEN("Includes a two-party check to" scdpay.paynme "in the amount of $"scdpay.setpay)ELSE()			

16 SAMPLE REPORTS

03-01-02-03 AR Invoice List by Job / Phase

Actual Report Printout:

       Licensed Only To: Valley Commercial Contractors L.P.

18 DATABASE FORMAT

Field #| Name | Table | Name | Description | Type |Length | Decimals |Related to

A/P INVOICE LINES

	A/P Invoice Lines				TABLE:	apivln			
0	apivln.recnum	apivln	recnum	Record#		Numeric	10		acpinv.recnum
1	apivln.linnum	apivln	linnum	Line#		Numeric	6		
2	apivln.prtnum	apivln	prtnum	Part#		Numeric	15		tkfprt.recnum
3	apivln.prtdsc	apivln	prtdsc	Description		Character	75		
4	apivln.alpnum	apivln	alpnum	Alpha Part#		Character	30		
5	apivln.untdsc	apivln	untdsc	Unit		Character	10		
6	apivln.linqty	apivln	linqty	Quantity		Numeric	7	4	
7	apivln.linprc	apivln	linprc	Price		Numeric	8	6	
8	apivln.extttl	apivln	extttl	Total		Numeric	9	2	
9	apivln.hldamt	apivln	hldamt	Holdback		Numeric	9	2	
10	apivln.invamt	apivln	invamt	Invoice Amount		Numeric	9	2	
11	apivln.gstamt	apivln	gstamt	GST Amount		Numeric	9	2	
12	apivln.pstamt	apivln	pstamt	PST Amount		Numeric	9	2	
13	apivln.hstamt	apivln	hstamt	HST Amount		Numeric	9	2	
14	apivln.actnum	apivln	actnum	Account		Numeric	10		lgract.recnum
15	apivln.subact	apivln	subact	Subaccount		Numeric	10		lgrsub.recnum
16	apivln.invloc	apivln	invloc	Location		Numeric	6		invloc.recnum
17	apivln.sernum	apivln	sernum	Part Serial#		Character	25		
18	apivln.usrdf1	apivln	usrdf1	User Defined		Character	20		
19	apivln.gstsbj	apivln	gstsbj	Subject to GST		Yes/No	1		
20	apivln.gstovr	apivln	gstovr	GST Amount Overriden		Yes/No	1		
21	apivln.pstsbj	apivln	pstsbj	Subject to PST		Yes/No	1		
22	apivln.pstovr	apivln	pstovr	PST Amount Overriden		Yes/No	1		
23	apivln.hstsbj	apivln	hstsbj	Subject to HST		Yes/No	1		
24	apivln.hstovr	apivln	hstovr	HST Amount Overriden		Yes/No	1		
25	apivln.hldovr	apivln	hldovr	Holdback Overriden		Yes/No	1		
26	apivln.linref	apivln	linref	Subcontract Line Referenc		Character	32		
27	apivln.invrec	apivln	invrec	Related Invoice Record#		Numeric	10		

A/P INVOICE PAYMENTS

	A/P Invoice Payments				TABLE:	acppmt			
0	acppmt.recnum	acppmt	recnum	Record#		Numeric	10		acpinv.recnum
1	acppmt.dscrpt	acppmt	dscrpt	Description		Character	12		
2	acppmt.chknum	acppmt	chknum	Trans#		Character	15		
3	acppmt.chkdte	acppmt	chkdte	Date		Date	10		
4	acppmt.actper	acppmt	actper	Period		Numeric	2		
5	acppmt.amount	acppmt	amount	Amount Paid		Numeric	9	2	
6	acppmt.dsctkn	acppmt	dsctkn	Discount Taken		Numeric	9	2	
7	acppmt.aplcrd	acppmt	aplcrd	Credit Taken		Numeric	9	2	
8	acppmt.lgrrec	acppmt	lgrrec	Ledger Ref#		Numeric	10		
9	acppmt.achbch	acppmt	achbch	ACH Payment Batch#		Numeric	7		
10	acppmt.postyr	acppmt	postyr	Posting Year		Numeric	4		

- 166 -   *Licensed Only To*: Valley Commercial Contractors L.P.