

OPERATORS INDEX

Operators are special symbols or words that describe an operation or an action to take place between two or more values.

Operators are used in formulas. Crystal Reports reads the operators in a formula and performs the actions specified.

Select the operator of interest from the choices below:

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OPERATORS INDEX (ALPHABETICAL)

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OPERATORS INDEX (BY USAGE)

Arithmetic Operators

<u>Add</u>	+
<u>Subtract</u>	--
<u>Multiply</u>	*
<u>Divide</u>	/
<u>Percentage</u>	%
<u>Negate</u>	--()

Conversion Operators

<u>To Dollar</u>	\$
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Comparison Operators

<u>Equal</u>	=
<u>Not equal</u>	<>
<u>Less than</u>	<
<u>Greater than</u>	>
<u>Greater than or equal</u>	>=
<u>Less than or equal</u>	<=

String Operators

<u>Concatenate</u>	+
<u>Subscript</u>	[]
<u>In String</u>	in

Range Operators

<u>Make range</u>	to
<u>In range</u>	in

Logical Operators

<u>And</u>	and
<u>Or</u>	or
<u>Not</u>	not

Array Operators

<u>Make array</u>	[.]
<u>Subscript</u>	[]
<u>In Array</u>	in

Miscellaneous Operators

<u>Assignment</u>	:=
<u>Parentheses</u>	()
<u>If then else</u>	if--then--else
<u>Statement separator</u>	;

ARITHMETIC OPERATORS INDEX

Arithmetic operators are used to calculate **number** or **dollar** values.

Select the operator of interest from the choices below:

<u>Add</u>	+
<u>Subtract</u>	--
<u>Multiply</u>	*
<u>Divide</u>	/
<u>Percentage</u>	%
<u>Negate</u>	--()

CONVERSION OPERATORS INDEX

The conversion operator is used to convert one data type to another.
Select the operator of interest:

To Dollar \$

COMPARISON OPERATORS INDEX

Comparison operators are used to compare data in a data field with a constant, with the content of another data field, or with a formula result.

Select the operator of interest from the choices below:

<u>Equal</u>	=
<u>Not equal</u>	<>
<u>Less than</u>	<
<u>Greater than</u>	>
<u>Greater than or equal</u>	>=
<u>Less than or equal</u>	<=

STRING OPERATORS INDEX

String operators are used to Concatenate strings, to extract substrings from strings(**Subscript**), or to test for the presence of substrings in strings (**In String**).

NOTE: Crystal Reports operators are case sensitive. Thus, ABC is not equal to abc, and thus abc is not in the string ABCDEF, etc.

Select the operator of interest from the choices below:

<u>Concatenate</u>	+
<u>Subscript</u>	[]
<u>In String</u>	in

RANGE OPERATORS INDEX

Range operators are used to create ranges (**Make range**) and to see if a value is within the range created (**In range**). These operators test for consecutive values such as dates, text, or amounts which fall within a range.

Select the operator of interest from the choices below:

<u>Make range</u>	to
<u>In range</u>	in

LOGICAL OPERATORS INDEX

Logical operators are used to create conditions that require a logical relationship between two or more values. Conditions that use logical operators are called logical expressions.

- A **and** B means that **both** A and B must be true for the condition to be satisfied (to return a TRUE value);
- A **or** B means that **either** A or B (or both) must be true for the condition to be satisfied (to return a TRUE value), and
- A **not** B means that A **must be true** but that B **must not be true** for the condition to be satisfied (to return a TRUE value).

Select the operator of interest from the choices below:

And and

Or or

Not not

ARRAY OPERATORS INDEX

Array operators are used to build a list of data fields, constants, or text strings. These lists can then be used for checking to see if a field exists in the list, or for extracted elements by their position. Whereas the range operators are used to see if an item exists in a range of values, these operators allow you to see if an item exists in a set of non--contiguous values.

Select the operator of interest from the choices below:

Make array [,]

Subscript []

In Array in

MISCELLANEOUS OPERATORS INDEX

Miscellaneous operators are used to indicate an order in which calculations are to be performed or to build formulas setting conditions, that if met, trigger specific consequences.

Select the operator of interest from the choices below:

Assignment :=

Parentheses ()

If--then--else if--then--else

Statement separator ;

Add Operator

Operator (Symbol/Word)

+

Usage

$x+y$

« Add values x and y »

Example(s)

$5 + 6 = 11$

$\{file.Qty1\} + \{file.Qty2\} = 1487$

« where $\{file.Qty1\} = 366$ and $\{file.Qty 2\} = 1121$ »

$\{file.Amt1\} + \{file.Amt2\} + \{file.Amt3\} + \{file.Amt4\} = 20$

« where $\{file.Amt1\} = 2$, $\{file.Amt2\} = 4$, $\{file.Amt3\} = 6$, $\{file.Amt4\} = 8$ »

$\{file.Class1\} + 25 = 37$

« where $\{file.Class1\} = 12$ »

Date (1991, 04, 05) + 12 = Apr 17 91

Expanded example(s) using this operator

[Formula 8](#)

[Formula16](#)

Subtract Operator

Operator (Symbol/Word)

--

Usage

x--y

« Subtract value y from value x »

Example(s)

244 -- 112 = 132

{file.Sales} -- *{file.COGS}* -- *{file.S&A}* = 214,972

« where *{file.Sales}* = 455,031, *{file.COGS}* = 188,213, and *{file.S&A}* = 51846 »

{file.OnHand} -- 877 = 114

« where *{file.OnHand}* = 991 »

Date (1991, 04, 05) -- 12 = Mar 24 91

Expanded example(s) using this operator

[Formula 1](#)

[Formula 2](#)

[Formula 4](#)

[Formula 5](#)

[Formula 7](#)

[Formula 12](#)

Multiply Operator

Operator (Symbol/Word)

*

Usage

$x*y$

« Multiply value x by value y »

Example(s)

$2883 * 1999 = 5,763,117$

$\{file.Amount\} * \{file.Qty\} * \{file.Discount\} = 26.25$

« where $\{file.Amount\} = 25.00$, $\{file.Qty\} = 7$, and $\{file.Discount\} = .15$ »

$\{file.Exmpt\} * 356.00 = 152,012$

« where $\{file.Exmpt\} = 427$ »

Expanded example(s) using this operator

Formula 1

Divide Operator

Operator (Symbol/Word)

/

Usage

x/y

« Divide value x by value y »

Example(s)

25 / 5 = 5

25 / 4 = 6.25

1 / 3 = .333333

{file.Sales} / {file.Forecast} = .875

« where {file.Sales} = 52533, {file.Forecast} = 60000 »

{file.DaysDue} / 5 = 22

« where {file.DaysDue} = 114 »

NOTE: If the denominator = 0, the report will be halted with a divide by zero warning from Crystal Reports. If you want to avoid this type of problem, you should put a test in. For example:

if {file.forecast} = 0 then

0

else

{file.sales} / {file.forecast}

Expanded example(s) using this operator

Formula 13

Percentage Operator

Operator (Symbol/Word)

%

Usage

x % y

« Calculate value x as a percentage of value y [(x/y) * 100] »

Example(s)

{file.Balance outstanding} % {file.Credit Limit} means the value of *{file.Balance Outstanding}* is what percent of the value of *{file.Credit Limit}*?

{file.Balance outstanding} % {file.Credit Limit} = 30.00

« where *{file.Balance outstanding} = \$1500* and *{file.Credit Limit} = \$5000* »

{file.Amount} % {file.Credit Limit} means the value of *{file.Amount}* is what percentage of the value of *{file.Credit Limit}*.

{file.Amount} % {file.Credit Limit} = 32.26

« where *{file.Amount} = 2257.87* and *{file.Credit Limit} = 7000* »

: If the denominator = 0, the report will be halted with a divide by zero warning from Crystal Reports. If you want to avoid this type of problem, you should put a test in. For example:

if {file.forecast} = 0 then

0

else

{file.sales} / {file.forecast}

Expanded example(s) using this operator

Formula 6

Negate Operator

Operator (Symbol/Word)

--()

Usage

--(x)

Multiply the value inside the parentheses by --1 »

Example(s)

--(--1) = 1

« Negative times negative = positive »

--(1) = --1

« Negative times positive = negative »

--(0--14) = 14

--({file.QtyOnHnd}) = 144

« where {file.QtyOnHnd} = --144 »

-- (-- (15--18) = --3

« 15 -- 18 = --3, --(--3) = +3, --(+3) = --3 »

Expanded example(s) using this operator

Formula 5

Formula 8

To Dollar Operator

Operator (Symbol/Word)

\$

Usage

\$x

« Convert x from number to dollar »

Example(s)

The following examples all assume the following format (set in the Format Number dialog box): Decimal places = (1.00), Negative sign = (345.00--), Currency symbol = (Float), and Thousands Separator = (1,000.00).

\$12345678= \$12,345,678.00

\$(123 * 456) = \$56,088.00

\${file.Quantity} * 3) = \$42.00

« where {file.Quantity} = 14 »

\${file.Miles} * {file.Pledge} = \$363.35

« where {file.Miles} = 13 and {file.Pledge} = 2.15 »

NOTE: \$ * \$ = error. You can not multiply a dollar with a dollar.

Expanded example(s) using this operator

Formula 5

Equal Operator

Operator (Symbol/Word)

=

Usage

$x = y$

« x is equal to y »

The equal operator tells Crystal Reports to evaluate an expression ($x=y$) and return a YES (if x is *equal* to y) or NO (if x is *not equal* to y)

Example(s)

$\{file.Quantity\} = 3$ is

YES

« where $\{file.Quantity\}$ has a value of 3 »,

NO

« in all other situations ».

$\{file.YTD\} = \{file.Last YearYTD\}$ is

YES

« where the value of the field $\{file.YTD\}$ is identical to the value of the field $\{file.LastYearYTD\}$ »,

NO

« in all other situations ».

$(\{file.Sales\} - \{file.COGS\}) = 22,554$ is

YES

« where calculating the expression $\{file.Sales\} - \{file.COGS\}$ produces the value 22,554, i.e. $\{file.Sales\} = 109,986$, $\{file.COGS\} = 87,332$ »,

NO

« in all other situations ».

$\{file.LNAME\} = \text{"Johnson"}$ is

YES

« where the text string in the $\{file.LNAME\}$ field is "Johnson" »,

NO

« in all other situations ».

Comments

This operator is often used in expressions with the if--then--else operator. For example:

if $\{file.Purchases\} = 0$ then

"Your account had no activity this month."

else

""

« which prints the "Your account..." statement if the $\{file.Purchases\}$ field has a zero value, and prints nothing (indicated by the empty text string ""), if the $\{file.Purchases\}$ field has something other than a zero value.»

Expanded example(s) using this operator

Formula 9

Formula 15

Formula 17

Not Equal Operator

Operator (Symbol/Word)

<>

Usage

$x <> y$

« x is not equal to y »

The equal operator tells Crystal Reports to evaluate an expression ($x <> y$) and return a YES (if x is *not equal* to y) or NO (if x is *equal* to y).

Example(s)

$\{file.Amount\} <> 400$ is:

YES

« where $\{file.Amount\}$ is equal to 200 or $\{file.Amount\}$ is equal to 401, etc. »,

NO

« where $\{file.Amount\}$ is equal to 400 ».

$\{file.Day\} <> \text{"Thursday"}$ is:

YES

« when $\{file.Day\} = \text{"Friday"}$ »,

NO

« when $\{file.Day\} = \text{"Thursday"}$ ».

$\{file.OnHand\} <> 0$ is:

YES

« where the value of $\{file.OnHand\}$ is 10 or -5 »,

NO

« where the value of $\{file.OnHand\}$ is zero ».

$\{file.Available\} - \{file.Used\} <> 10$ is:

YES

« where the value of the $\{file.Available\}$ field less the value of the $\{file.Used\}$ field gives a result other than 10 »,

NO

« where it gives a value of 10 ».

Comments

This operator is often used in expressions with the if--then--else operator. For example:

If $\{file.Sex\} <> M$ then

"FEMALE"

else

"MALE"

« which prints the word "FEMALE" if the value in the $\{file.Sex\}$ field is not equal to M, and which prints

the word "MALE" in all other situations ».

Expanded example(s) using this operator

Formula 5

Formula 11

Formula 15

Less Than Operator

Operator (Symbol/Word)

<

Usage

$x < y$

« x is less than y »

The *less than* operator tells Crystal Reports to evaluate an expression ($x < y$) and return a YES (if x is less than y) or NO (if x is equal to or greater than y).

Example(s)

$\{file.Weight\} < 200$ is:

TRUE

« where $\{file.Weight\} = 150$, or $\{file.Weight\} = 199$ »,

FALSE

« where $\{file.Weight\} = 200$ or $\{file.Weight\} = 400$ ».

$\{file.Cost\} < \{file.Price\}$ is:

TRUE

« where $\{file.Cost\} = 350$, $\{file.Price\} = 400$ »,

FALSE

« where $\{file.Cost\} = 350$ and $\{file.Price\} = 350$, or where $\{file.Cost\} = 350$ and $\{file.Price\} = 325$ ».

Expanded example(s) using this operator

[Formula 2](#)

[Formula 5](#)

[Formula 8](#)

[Formula 16](#)

Greater Than Operator

Operator (Symbol/Word)

>

Usage

$x > y$

« x is greater than y »

Example(s)

$\{file.Weight\} > 200$ is:

FALSE

« where $\{file.Weight\} = 150$, $\{file.Weight\} = 199$, or $\{file.Weight\} = 200$ »,

TRUE

« where $\{file.Weight\} = 400$ or $\{file.Weight\} = 201$ ».

$\{file.Cost\} > \{file.Price\}$ is:

FALSE

« where $\{file.Cost\} = 350$, $\{file.Price\} = 400$, or where $\{file.Cost\} = 350$ and $\{file.Price\} = 350$ »,

TRUE

« where $\{file.Cost\} = 350$ and $\{file.Price\} = 325$ ».

Expanded example(s) using this operator

[Formula 4](#)

[Formula 6](#)

[Formula 7](#)

[Formula 12](#)

Greater Than Or Equal Operator

Operator (Symbol/Word)

>=

Usage

$x \geq y$

« x is greater than or equal to y »

Example(s)

$\{file.Weight\} \geq 200$ is

FALSE

« where $\{file.Weight\} = 150$ or $\{file.Weight\} = 199$ »,

TRUE

« where $\{file.Weight\} = 400$, $\{file.Weight\} = 200$, or $\{file.Weight\} = 201$ ».

$\{file.Cost\} \geq \{file.Price\}$ is:

FALSE

« where $\{file.Cost\} = 350$, $\{file.Price\} = 400$ »,

TRUE

«where $\{file.Cost\} = 350$ and $\{file.Price\} = 325$, or where $\{file.Cost\} = 350$ and $\{file.Price\} = 350$ ».

Expanded example(s) using this operator

[Formula 4](#)

[Formula 6](#)

Less Than Or Equal Operator

Operator (Symbol/Word)

<=

Usage

$x \leq y$

« x is less than or equal to y »

Example(s)

$\{file.Weight\} \leq 200$ is:

TRUE

« where $\{file.Weight\} = 150$, $\{file.Weight\} = 200$, or $\{file.Weight\} = 199$ »,

FALSE

« where $\{file.Weight\} = 400$ ».

$\{file.Cost\} \leq \{file.Price\}$ is:

TRUE

« where $\{file.Cost\} = 350$, $\{file.Price\} = 400$, or where $\{file.Cost\} = 350$ and $\{file.Price\} = 350$ »,

FALSE

« where $\{file.Cost\} = 350$ and $\{file.Price\} = 325$ »

Expanded example(s) using this operator

Formula 14

Concatenate Operator

Operator (Symbol/Word)

+

Usage

$x + y$

« connect string x to string y »

Concatenate joins multiple text strings to make one contiguous string.

Example(s)

"Bread" + " and " + "butter" = "Bread and butter"

"Your customer number is " + (*file.Customer Number*) + " and your company contact person is " + (*file.Contact*) + "." = "Your customer number is 12345 and your company contact person is Bob."

« where *file.Customer Number* = 12345 and *file.Contact*= Bob ».

Comments

You can only use this operator if all the elements you are connecting are text strings. If you want to include a value from a numeric field (for example, an account balance) , you must first convert that value to a text string using the ToText function

"Your account balance is " + ToText(*file.Balance*) + "."

Expanded example(s) using this operator

[Formula 2](#)

[Formula 5](#)

[Formula 13](#)

[Formula 15](#)

Subscript Operator (string)

Operator (Symbol/Word)

[]

Usage

x[y]

« Extract the y element from string x » or

x[y to z]

« Extract the y to z range of elements from string x ».

NOTE: The subscript ranges are 1 origin: they start at 1 rather than 0.

Subscript is used to extract one or more characters from a text string (an array of characters). For example:

{file.Item number} [4]

« extracts the 4th element of the item number ».

{file.Item number} [4 to 5]

« extracts the 4th and 5th elements of the item number ».

NOTE: The correct expression for specifying a range of elements in a text string (array) is x to y

Example(s)

{file.LNAME} [1] = "S"

« where {file.LNAME} = Smith ».

{file.Postal} [6] = "V"

« where {file.Postal} = T5A 9V2 (the space between A and 9 counts as an element) ».

{file.Postal} [5 to 7] = 9V2

« where {file.Postal} = T5A 9V2 ».

{file.ItemNumber} [4 to 5] = 40

« where {file.ItemNumber} is A1/4020/B10 ».

Comments

Don't confuse Subscript with In String. While Subscript tests a target string for the presence of an element and extracts the element (if found) from the string. In String simply tests the target string for the presence of the element.

Expanded example(s) using this operator

Formula 2

Formula 3

Formula 9

Formula 11

In String Operator

Operator (Symbol/Word)

in

Usage

x in y

« Test for the presence of string x in string y »

Example(s)

"Elm" in {file.Address} =

TRUE

« where {file.Address} is "1335 Elm Street" ».

"Elm" in {file.Address} =

TRUE

« where {file.Address} is "1335 Elmer Street" ».

"elm" in {file.Motto} =

FALSE

« where {file.Motto} = "Feel more energy" ».

(The "el" ending "feel" and the "m" beginning the word "more" are separated by a space which itself counts as an element.)

"el m" in {file.Motto} =

TRUE

« where {file.Motto} = "Feel more energy" ».

(The search string "el m" this time contains the space between the "l" and the "m" which allows for a perfect match.)

"bread and butter" in "bread " + "and " + "butter" =

TRUE

(Crystal Reports first concatenates the string and then tests it for the presence of the string "bread and butter".)

NOTE: "In" can also be used to test for the presence of text in a text range, i.e., "V5B" in "V0A" to "V9Z". Such a range can be created using the Make Range operator.

Make Range Operator

Operator (Symbol/Word)

to

Usage

x to y

« Create the range x to y »

Example(s)

100.00 to 250.00

« the range of consecutive numeric values beginning with 100.00 and ending with 250.00, including the end values ».

Date (1990, 09, 01) to Date (1990, 09, 20)

« the range of consecutive dates beginning with September 1, 1990 and ending with September 20, 1990. Both September 1 and September 20 are included in the range ».

"Aaron" to "Lusk"

« the range of consecutive text values beginning with "Aaron" and ending with "Lusk", including the end values ».

Comments

You cannot create a formula that has a range as a result. Thus, Make Range is *always* used in conjunction with other operators such as the In Range operator. The combination of Make Range and In Range produces a formula that gives a single TRUE or FALSE value, not a range.

Crystal Reports comes with a number of date ranges such as YearToDate, preset for your convenience.

Expanded example(s) using this operator

Formula 2

Formula 3

Formula 9

Formula 10

In Range Operator

Operator (Symbol/Word)

in

Usage

x in y

« Tests a range of values (y) to see if a value (x) falls within the range specified ».

Example(s)

10 in (5 to 15) = TRUE

Today in Date(1990, 09, 01) to Date(1990, 09, 20) =

TRUE

« if Today = September 15, 1990 »,

FALSE

« if Today = September 21, 1990 ».

{file.Qty} in *{file.OnHand}* to (*{file.Backorder}* + *{file.OnOrder}*) =

TRUE

« where *{file.Qty}* = 20, *{file.OnHand}* = 10, *{file.Backorder}* = 5, *{file.OnOrder}* = 25 (is 20 in the range that begins with 10 and ends with the sum of 5 and 25) »,

FALSE

« where *{file.Qty}* = 31, *{file.OnHand}* = 10, *{file.Backorder}* = 5, *{file.OnOrder}* = 25 (is 31 in the range that begins with 10 and ends with the sum of 5 and 25) »

Comments

The combination of Make Range and In Range operators is often used with the if--then--else operator. For example,

if (*{file.Amount}* in (100.00 to 250.00)) then

 (.10 * *{file.Amount}*)

else

 0

means "See if the value of *{file.Amount}* falls within the range 100.00 to 250.00. If it does, multiply .10 times *{file.Amount}*. If it does not, return zero."

Expanded example(s) using this operator

Formula 9

Formula 10

Make Array Operator

Operator (Symbol/Word)

[.]

Usage

[*x,y,z,...n*]

« build an array containing the elements *x, y, z,...n* ».

Examples

[100,200,300,400]

[*{file.QtyA}*, *{file.QtyB}*, *{file.QtyC}*]

[(*{file.Amt1}* * .5),(*{file.Amt2}* * .5), (*{file.Amt3}* * .25)]

[500, (*{file.Qty}* / 3)]

Subscript Operator

Operator (Symbol/Word)

[]

Usage

$x[y]$

« extract the y element of an array x »

Example(s)

$(100, 233, 466, 998)[3] = 466$

In Array Operator

Operator (Symbol/Word)

in

Usage

x in [y]

« is x in the array y »

Example(s)

{file.State} in ["CA", "HI", "AK"]

« Is the value of the *{file.State}* field in the array of state abbreviations listed in the brackets? »

{file.Color} in ["Red", "White", "Blue"]

« Is the value of the *{file.Color}* field in the array of colors listed in the brackets? »

DayofWeek(*{file.Date}*) in [2, 4, 6]

« Is the value of the *{file.Date}* field, converted to a number that represents the day of the week, in the array of numbers listed in the brackets? (Sunday = 1, Saturday = 7) »

And Operator

Operator (Symbol/Word)

and

Usage

x and y

False *and* False = False

False *and* True = False

True *and* False = False

True *and* True = True

Example(s)

```
if {file.Credit Limit} = 5000 and
   {file.Salesman} = "SP" then
    {file.Amount}
```

else

0

« means that if the credit limit is 5000 and the salesman is SP (*both conditions true*), then return the value in the *{file.Amount}* field, otherwise return zero ».

$A > B$ and $B > C =$

TRUE

« where $A = 10$, $B = 6$, and $C = 3$ (*both conditions true*) »,

FALSE

« where $A=10$, $B=6$, and $C=7$ (*only one of the two conditions true*) ».

$(A>B)$ and $(A * C -- D > E)$ and $(E / D <= B) =$

TRUE

« where $A = 7$, $B = 5$, $C = 3$, $D = 2$, $E = 10$ (*all three of the conditions are true.*) ».

Expanded example(s) using this operator

Formula 6

Formula 15

Or Operator

Operator (Symbol/Word)

or

Usage

x or y

« either x or y or both is true »

False or False = False

False or True = True

True or False = True

True or True = True

Example(s)

```
if {file.Credit Limit} = 5000 or
   {file.Salesman} = "SP" then
    {file.Amount}
```

else

0

« This means that if the credit limit is 5000, or, if the salesman is SP, (either of the conditions are true), then return the value in the `{file.Amount}` field, otherwise return zero ».

$A > B$ or $B > C =$

TRUE

« where $A = 10$, $B = 6$, and $C = 3$ (*both conditions true*) »,

TRUE

« where $A=10$, $B=6$, and $C=7$ (*either one of the two conditions true*) » and

FALSE

« where $A=5$, $B=6$, and $C=7$ (*neither of the two conditions true*) ».

$(A > B)$ or $(A * C -- D > E)$ or $(E / D <= B) =$

TRUE

« where $A = 5$, $B = 5$, $C = 3$, $D = 2$, $E = 12$ » (At least one of the three conditions is true. In this case only $(A * C -- D > E)$ is true.)

Expanded example(s) using this operator

Formula 6

Not Operator

Operator (Symbol/Word)

not

Usage

not (x)

« reverses the True or False value of x »

not (True) = False

not (False) = True

not (not(False)) = False

not (not(True)) = True

Example(s)

not ($A > B$ and $B > C$)

« If $A=5$, $B = 4$, $C = 3$, the expression ($A > B$ and $B > C$) is TRUE. Both conditions tied together by the logical operator And are TRUE, thus the entire statement has a value of TRUE. The Not operator thus changes the value of the expression to FALSE ».

not ($A > B$ and $B > C$)

« If $A=3$, $B = 4$, $C = 3$, the expression ($A > B$ and $B > C$) is FALSE. One of the two conditions tied together by the logical operator And is FALSE, thus the entire statement has a value of FALSE. The Not operator thus changes the value of the expression to TRUE ».

not ($\{file.OnHand\} - \{file.Order\} > 0$) =

TRUE

« if $\{file.OnHand\} = 10$ and $\{file.Order\} = 11$ »,

FALSE

« if $\{file.OnHand\} = 10$ and $\{file.Order\} = 9$ ».

Expanded example(s) using this operator

Formula 10

Assignment Operator

Operator (Symbol/Word)

:=

Usage

x := *n*

« assigns the value *n* to the variable *x* »

Examples

Amount := 0

« initializes (zero's out) the variable named *Amount*. »

Amount := 100

« assigns the value 100 to the variable named *Amount*. »

Amount := *Amount* + {*detail.QTY*}

« assigns the result of a calculation to the variable named *Amount*. The calculation adds the value of the quantity field {*detail.QTY*} to the current value of the *Amount* variable. This type of expression is useful in running total situations where each running total consists of the current amount plus an additional value. »

Amount := {*detail.QTY1*} + {*detail.QTY2*} + {*detail.QTY3*}

« totals the three quantity fields and assigns the total to the variable named *Amount*. »

Customer := *Westside Motors*

« assigns the string *Westside Motors* to the variable named *Customer*. »

Customer := {*file.FNAME*} + {*file.LNAME*}

« concatenates two fields and assigns the concatenated value of both fields to the variable named *Customer*.»

Customer := *TrimRight*{*file.FNAME*} + {*file.LNAME*}

« trims the trailing blanks from the first name field ({*file.FNAME*}), concatenates that field to the last name field ({*file.LNAME*}), and assigns the concatenated value of both fields to the variable named *Customer*. »

Customer := *Mr.* + {*file.LNAME*}

« concatenates the string *Mr.* with the value of the last name field {*file.LNAME*}, and assigns the concatenated value to the variable named *Customer*.

Amount := 100; *Customer* := *Westside Motors*

« Assigns the constant 100 to the number variable named *Amount*, and assigns the string *Westside Motors* to the string variable named *Customer*. You can assign values to multiple variables by separating the assignment statements with semicolons.

Parentheses Operator

Operator (Symbol/Word)

()

Usage

$(x + y) * z$

« perform the calculations inside the parentheses first »

Parentheses are used to control the order in which Crystal Reports calculates a formula.

Example(s)

$8 + 6 * 3 -- 6 / 2 = 23$

$(8 + 6) * 3 -- 6 / 2 = 39$

$(8 + 6) * (3 -- 6 / 2) = 0$

$(8 + 6 * 3 -- 6) / 2 = 10$

$\{file.Sales\} -- \{file.COGS\} -- \{file.T\&E\} * .8 = 11,800$

« where $\{file.Sales\} = 25,000$, $\{file.COGS\} = 12,000$, and $\{file.T\&E\} = 1500$ »

$\{file.Sales\} -- ((\{file.COGS\} -- \{file.T\&E\}) * .8) = 16,600$

« values the same as previous example »

$(\{file.Sales\} -- \{file.COGS\} -- \{file.T\&E\}) * .8 = 9200$

« values the same as first Sales example »

Expanded example(s) using this operator

Most formula examples use this operator. Select the formula of interest from the [Formulas in Action index](#).

See Also

[Order of Precedence](#)

If--Then--Else Operator

Operator (Symbol/Word)

if then else

Usage

if x then y else z

« If x is true then do y. If x is not true (else), do z. »

Example(s)

If *{file.Zip}* <= "49999" then

 "Blue Label"

else

 "Ground"

« Assigns method of shipping based on distance from ship point. »

If ToNumber(*{file.Item}*) >= 2500 and

ToNumber(*{file.Item}*) < 2600 then

 "Seasonal"

else

 ""

« If statement includes an And operator. »

If *{file.Count}* >= 25 then

{file.Distributor} * *{file.Count}*

else

{file.Dealer} * *{file.Count}*

« Quantity ordered determines price list used. »

If *{file.OnHand}* > 10 then

{file.Ordered}

else

 if *{file.Ordered}* < 5 then

{file.Ordered}

 else

 2

« Allocation based on quantity ordered using nested if--then--else. »

If PageNumber = 1 then

 PrintDate

else

 Date(0,0,0)

« prints the print date (from the PrintDate function) on the first page, and prints nothing [as designated

by the empty date Date(0,0,0)] on the remaining pages. »

Comments

The *if* part of the expression can include text, numbers, Boolean expressions (Cust#<"10000"), and formulas ({@Formula}), where @Formula is Boolean. The *then* and the *else* parts, however, must both be of the same type: (*then* text, *else* text; *then* number, *else* number). Mixing text and number actions will result in an error message.

Expanded example(s) using this operator

Most formula examples use this operator. Select the formula of interest from the [Formulas in Action index](#).

Statement Separator

Operator (Symbol/Word)

;

Usage

1+1;"abc"

« 1+1 and abc are two different formula statements in a multiple statement formula. The semicolon between the statements specifies where one statement ends and the next one begins. Without the semicolon the statements would be treated together as an individual statement ».

See also

[Semicolons in formulas](#)

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MENU COMMANDS INDEX (BY MENU)

Menu commands are the tools you use to create, customize, print, and save your reports. Each Crystal Reports menu contains commands that are related by function. Select the command of interest from the following list:

File Menu

New Report

New Mailing Labels Report

Open Report

Save

Save As

Close

Print To Printer

Options

Exit

Edit Menu

Cut

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Paste

Clear

Formula

Text Field

Summary Operation

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FILE MENU COMMANDS INDEX

The File menu includes commands you can use to open, close, and save files, to save files under a different file name, print the file to a printer, and create new report files. It also includes a command you can use to exit Crystal Reports and a command for making Mailing Labels. Additionally it contains a command that allows you to configure Crystal Reports to your specifications. Select the command of interest from the following list:

New Report

New Mailing Labels Report

Open Report

Save

Save As

Close

Print To Printer

Options

Exit

EDIT MENU COMMANDS INDEX

The Edit menu allows you to modify aspects of your report. The menu includes commands you can use to edit formulas, text fields, and summary operations, to review field data, to change the position of items in a stack, to change the report title, or to delete group sections. It also contains commands for cutting, copying, and pasting text, and clearing (deleting) report elements, and toggling the display of field names on and off.

Select the command of interest from the following list:

Cut

Copy

Paste

Clear

Formula

Text Field

Summary Operation

Browse Field Data

Send Behind Others

Group Section

Delete Section

Show Field Names

Report Title

INSERT MENU COMMANDS INDEX

The Insert menu is the central menu you use for creating reports. The menu includes commands you can use to insert database, text, and formula fields; subtotals, grand totals, summaries (counts, averages, etc.), and group sections; print date, page number, record number and group number fields; and graphics, lines, and boxes.

Select the command of interest from the following list:

Database Field

Text Field

Formula Field

Subtotal

Grand Total

Summary

Group Section

Print Date Field

Page Number Field

Record Number Field

Group Number Field

Graphic

Line

Box

FORMAT MENU COMMANDS INDEX

The Format menu includes commands for changing the look of the elements in your report. It includes commands for changing fonts, adding borders and colors and formatting fields, graphics, lines, and boxes. It also includes a command for formatting report sections.

Select the command of interest from the following list:

Font

Field

Border and Colors

Graphic

Line

Box

Section

DATABASE MENU COMMANDS INDEX

The Database menu is used to select and delete databases for use with your reports, to change the alias you use to identify the database, and to link and unlink databases. It also has a command, File Location, for directing Crystal Reports to look for database files in new locations. Additionally, the menu contains commands that adapt your reports to changed database structures.

Select the command of interest from the following list:

[File Links](#)

[Add File to Report](#)

[Remove File from Report](#)

[File Location](#)

[File Alias](#)

[Verify Database](#)

[Verify on Every Print](#)

[Log On Database Server](#)

[Log Off Database Server](#)

PRINT MENU COMMANDS INDEX

The Print menu includes commands that let you print your report to a print window, to a file, or to a printer, print the report definition (a report describing your report), select the records or groups to be included in your report, select printers, set up printer margins, and select the order in which report data is to be sorted (by record or by group).

Select the command of interest from the following list:

[Print To Window](#)

[Print To Printer](#)

[Print To File](#)

[Print Report Definition](#)

[Select Printer](#)

[Set Printer Margins](#)

[Select Records](#)

[Edit Record Selection Formula](#)

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[Record Sort Order](#)

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WINDOW MENU COMMANDS INDEX

The Window menu includes commands that let you rearrange icons and windows. It also lists the report windows that are open and includes a command that lets you close all report windows at once, if desired.

Select the command of interest from the following list:

Tile

Cascade

Arrange Icons

Close All

HELP MENU COMMANDS INDEX

The Help menu includes a command that takes you to Crystal Reports' main help index, and a command that will give you information about the Crystal Reports version you are using. Additionally it contains commands for registering Crystal Reports, for getting system information, and for preparing a technical support request..

Select the command of interest from the following list:

[Index](#)

[Print Registration](#)

[System Information](#)

[Technical Support Request](#)

[About Crystal Reports](#)

New Report command (File menu)

Use **File|New Report** to create a new report.

When you use the **New Report** command while using another report, Crystal Reports creates a new report window and opens the new report in that window. The report you were working on remains unchanged in its own Report window.

To use File|New Report

1. Select File|New Report, the Choose Database File dialog box appears.

Dialog box options

File Name edit box

This box displays the current database specification.

- If you know the name of the database you want to activate, type the name in this edit box. Include the path if different than the path currently displayed in the Directories heading.
- If you don't know the name of the database you want to activate, but you do know the kind of database it is (.mdb, .db, .dbf, etc.), type in the new specification or select the database type from the List Files of Type scroll box. This will change the current database specification to the database type of your choice.
- If you want to display all files, type in *.*.

File Name scroll box

This scroll box displays a list of those files in the selected directory that match the specification in the File Name edit box.

- If you haven't typed a database name in the File Name edit box, or if you are uncertain of the file name, select the database you want from the list of database files that Crystal Reports displays in this scroll box.

.mdb files

To activate an Access table, you can select any .mdb file. Crystal Reports activates all of the tables in the selected file. If you want to activate more than one of the tables in the .mdb file, it will be necessary for you to specify linking fields via the File Links dialog box.

Btrieve files

To activate a Btrieve file, you can select any .ddf file. Crystal Reports draws in all of the relevant files in the active directory so no linking is necessary.

NOTE: .ddf files are data dictionary files created by Novell's Xtrieve utility. You will need to create .ddf files using this utility before you can use Btrieve files with Crystal Reports.

.db files

To activate a Paradox .db file, select the file. If you select additional files using the Database|Add File to Report command, it will be necessary for you to specify linking fields via the File Links dialog box.

Crystal Reports works with Paradox 3.5 and 4.0 files and indexes (including secondary indexes).

.dbf files

To activate a dBASE .dbf file, select the file. If you select additional files using the Database|Add File to Report command, it will be necessary for you to specify linking fields via the File Links dialog box.

Crystal Reports works with the following indexes:

- .ndx dBASE III+
- .mdx dBASE IV
- .ntx Clipper
- .idx FoxPro
- .cdx FoxPro 2

List Files of Type scroll box

The List Files of Type scroll box enables you to specify the kind of files you want to appear on the list in the File Name scroll box. When you Click the scroll arrow on the List Files of Type scroll box, the following options appear:

User default

Enters the specification *.db* in the File Name edit box. This causes all files in the selected directory to appear in the File Name scroll box. You can edit this specification to fit your needs. You can list multiple specifications, if you wish, separating them by semicolons (*.db;*.dbf;etc.)

Access Files (*.mdb)

Enters the specification for Access file (*.mdb) in the File Name edit box. This causes only those files with the extension .mdb to appear in the File Name scroll box.

xBase Files (*.dbf)

Enters the specification for dBASE files (*.dbf) in the File Name edit box. This causes only those files with the extension .dbf to appear in the File Name scroll box.

Paradox Files(*.db)

Enters the specification for Paradox files (*.db) in the File Name edit box. This causes only those files with the extension .db to appear in the File Name scroll box.

Btrieve Dictionaries (*.ddf)

Enters the specification for Btrieve dictionary files (*.ddf) in the File Name edit box. This causes only those files with the extension .ddf to appear in the File Name scroll box.

All Files

Enters a full wildcard specification (*.*) in the File Name edit box. This causes all files in the selected directory to appear in the File Name scroll box.

- Select the option of interest. Crystal Reports places your specification in the File Name edit box and displays those files in the File Name scroll box that match your specification.

2. Select OK when finished and the Report Editor appears. The Report Editor is a template that is ready for you to enter fields and formulas. The program assigns the template the name *Untitled Report #N*.

NOTE: If you have inactivated the Use Default Alias option via the File|Options command, the Database File/Alias dialog box will appear before the Report Editor appears. For instructions on using this dialog box, see Database File/Alias dialog box. Also see aliases.

NOTE: *New Report* is also available as the first button on the Button Bar . Clicking the button takes you directly to the Choose Database File dialog box. Once there, follow the remaining steps described above.

New Mailing Labels Report command (File menu)

Use the New Mailing Labels Report command to create mailing labels. When you use the New Mailing Labels Report command while using another report, Crystal Reports creates a new report window and opens the new report in that window. The report you were working on remains unchanged in its own window.

To use File|New Mailing Labels Report

1. Select File|New Mailing Labels Report. The Choose Database File dialog box appears.
2. Select the database from which you want to create mailing labels, and Click OK when finished. The Mailing Labels dialog box appears.

NOTE: If you have inactivated the Use Default Alias option via the File/Options command, the Database File/Alias dialog box will appear before the Mailing Labels dialog box. For more information, refer to Database File/Alias dialog box or the discussion of aliases.

The Mailing Labels dialog box is a powerful control panel. The dialog box enables you to print your data on virtually any labels that are commercially available for line printers (dot matrix) or page printers (laser, ink jet). Using the dialog box settings and Crystal Reports formatting commands, you can fine tune your printing so your labels come out just the way you want them.

The Mailing Labels dialog box offers two ways to set up labels:

1. automatically, by Avery label number, and
2. manually.

Automatically, by Avery label number

To make your work easier, Crystal Reports has come with preset templates for the most popular Avery labels. Those labels are listed, by number, in the Choose Mailing Label Type scroll box.

To set up Avery labels automatically

- Click the scroll arrow on the Choose Mailing Label Type scroll box and scroll down to see if the Avery Label you're using is listed.
- If it is, select the number and Crystal Reports will automatically set up the specifications for that label.
- Click OK and the program takes you directly to the Label Editor.

Manually

If your label isn't on the Choose Mailing Label Type scroll list, you will need to set up the label manually using the various settings in the Mailing Labels dialog box. Select User Defined Label and then change the remaining dialog box settings to conform to the label you're going to use.

Dialog box options

Besides the Choose Mailing Label Type box, the Mailing Labels dialog box contains five smaller boxes:

Printing direction

The Printing direction box enables you to specify the path Crystal Reports follows when printing the data on your labels.

-- Across then Down

- Prints data left to right across the first row of labels, then across the second row, etc..
- Down then across
- Prints data down the first column of labels, then down the second column, etc.

Numbers of Labels

The Number of Labels box displays the maximum number of labels that can print across the page and the maximum number that can print down the page based on your settings in the Page Margins, Label Size, and Gap Between Labels boxes.

NOTE: The program displays only the number of complete labels it can print. For example, if it determines that there is space available to print 2.75 labels across the page, it displays 2 as the Across Page setting and prints only two labels across the page.

NOTE: If you want to print fewer labels across than the number calculated (fewer columns), increase the size of the right margin until the calculation changes to the number across that you want.

Page Margins box

The Page Margins box enables you to set the top, bottom, left, and right margins of your page.

- Measure the margins and enter the values in the respective edit boxes.

NOTE: All margins are figured from the edge of the paper. For example, a setting of .5 inches sets a half-inch margin.

NOTE: The margin settings that appear when you first open the dialog box represent the non-printing region defined for the default printer. While you can set margins that fall inside the non-printing areas, parts of your report may be clipped off if you do.

NOTE: You cannot use page margin settings to set the paper size; you must set the paper size via the Paper Size scroll box in the Print Setup dialog box. You can call up that dialog box by selecting Print>Select Printer or via the Printers icon in the Windows control panel. To specify a new, user-defined paper size, use the Printers facility in the Windows Control Panel.

Label Size

The Label Size box enables you to specify the dimensions (height and width) of one label. This information can usually be found on the box or folder the labels come in.

- Enter the height and width values in the respective edit boxes.

Gap Between Labels

The Gap Between Labels box enables you to specify the empty area (gap, gutter, etc.) between labels. Horizontal = the gaps between labels going across the page, Vertical = the gaps between labels going down the page. One-up (one across) labels don't have any horizontal gaps.

- Measure the gaps and then enter the horizontal and vertical values in the respective edit boxes.

NOTE: Alternately, on labels that come two, three, or more across the page you can:

- **measure the distance from the left edge of one label to the left edge of the next (including any intervening gap) , enter your measurement as the width setting in the label size box, and leave the horizontal gap setting at 0, and**
- **measure the distance from the top of one label to the top of the next (including any intervening gap), enter your measurement as the height setting in the label size box, and leave the vertical gap setting at 0.**

This procedure shouldn't cause you any problems unless there are large gaps between the labels.

NOTE: The unit of measurement used in the dialog box (inches or centimeters) is based on the Measurement setting in the International section of the Windows Control Panel (English = inches, Metric = Centimeters).

NOTE: For more information, see instructions for setting up labels with borders and setting up round labels.

3. When you have completed setting up your labels, Click OK. Crystal Reports takes you to the Label Editor which displays only the Details section of your report, adapted to your label specifications, and the Insert Database Field dialog box. (Since headers and footers aren't used with labels, the Page Header and Page Footer sections don't appear.)

The Details section has been expanded sufficiently to display an outline of your label. Using the outline as a guide, enter the fields you want to include on your labels. (See the dialog box options for the Insert Database Field command for instructions on entering fields using the Insert Database Field dialog box.)

NOTE: Place fields only on the first (left) label. Crystal Reports uses that one label as an example of how you want your labels printed and it prints your data on all the labels following that example. If you enter fields on more than one label, you will get overprinting and other unsatisfactory results.

NOTE: Keep all fields within the label outline. If a field extends beyond a label outline, you may find the program printing in gaps or extending the printing of a single field onto an adjacent label. If a field is too big to fit, resize the field or use a smaller font. (For information on resizing fields, see the discussion under Spacing Fields. For information on changing font size, see the Format|Font command.

NOTE: The label displayed contains as many usable lines as your label specifications allow, based on the default font for the Details section. Place your fields only in usable areas of the label.

NOTE: If you need to adjust the page margins, use the Print|Set Printer Margins command and reset the margins to your new specifications..

NOTE: If you need to adjust the label dimensions, the gaps, the number of labels across or down the page, or the printing direction, select Format|Section, select the Details section from the Format Section/Sections dialog box, and Click the Label Layout button in the Format Section/Formatting dialog box. This returns you to the Mailing Labels dialog box where you can make the changes you want.

4. Print your labels when finished.

NOTE: When printing your labels to the printer, you may find it helpful to print two pages of labels to test printer/field alignment. To do so:

- ***select Pages in the Print Range section of the Print dialog box,***
- ***enter 1 as the From value and 2 as the To value in that dialog box. With these settings, Crystal Reports will print the first two pages of labels and stop when finished.***
- ***make the necessary printer or field adjustments and print two pages again, if you wish, to test your results.***
- ***print all your labels when you're getting the results you seek.***

Removing excess spaces between label fields

If you put the City, State, and Zip fields on the same line when creating address labels, you can easily end up with unwanted spaces between the City and State values when you print. While state abbreviations

and ZIP Codes (or Canadian Postal Codes) are standardized, each with a fixed length, city names can be very short (Ely) or very long (Truth or Consequences). When you allot enough space in your database CITY field to hold the long names, you can end up with a lot of unnecessary spaces following the name of a short city when you use the CITY field in an address label. For example:

```
Ely NV 99999
Truth or Consequences NM 99999
```

The TrimRight function was designed for this kind of situation. Instead of inserting the City, State, and ZIP fields individually on your mailing label, use a formula similar to this for your City/State/ZIP line:

```
TrimRight({file.CITY}), +{file.STATE}+ +{file.ZIP}
```

This formula:

- trims any unnecessary trailing spaces from the City field,
- puts a comma and a space (,) between the CITY and STATE fields, and
- puts a single space () between the STATE and ZIP fields.

Using this formula, your City/State/Zip lines comes out looking like this:

```
Ely, NV 99999
Truth or Consequences, NM 99999
```

NOTE: If you are spelling out the state instead of using an abbreviation, you can use the TrimRight function a second time to trim trailing spaces off the STATE field as well. For example:

```
TrimRight({file.CITY})+", + TrimRight({file.STATE})+ +{file.ZIP}
```

produces this result:

Ely, Nevada 89301

Truth or Consequences, New Mexico 87901

Open Report command (File menu)

Use **Open Report** to open an existing report. When you select **File|Open Report**, the **File Open** dialog box appears. Use this dialog box to select the report file you wish to open.

File Open dialog box options

File Name edit box

This box displays the current report specification. By default, Crystal Reports uses a wild card character in place of the name, and .rpt as the extension (*.rpt):

- If you know the name of the report you want to open, type the name in this edit box. Include the path if different than the path currently displayed in the **Directories** heading.

File Name scroll box

This scroll box displays a list of those files in the selected directory that match the specification in the File Name edit box.

- If you don't choose to type a report name in the File Name edit box, or if you are uncertain of the report name, select the report you want from the list of .rpt files that Crystal Reports displays in this scroll box.

List Files of Type scroll box

The **List Files of Type** scroll box contains only a single entry, **CRW Reports (*.rpt)**. No choice is available in this scroll box because the program doesn't recognize any other type of report file.

Directories heading

This heading displays the current path.


Directories scroll box

This box displays a list of directories on the currently logged drive. If the report is saved in a different directory than the one displayed in the **Directories heading**, use this scroll box to select the correct directory.

Drives scroll box

This scroll box contains a list of your system drives. If the report is saved on a different drive than the one displayed in the **Directories heading**, use this scroll box to select the correct drive.

- Click OK when finished.

NOTE: *Open Report is also available as the second button on the Button Bar . Clicking the button takes you directly to the File Open dialog box. Once there, follow the remaining steps described above.*

Save command (File menu)

Use **Save** to save the active report to disk under its current name.

- All changes you have made while working on the report will be saved.
- The previous version of the report will be overwritten.

To use File|Save

Select File|Save. Crystal Reports saves the report under its current name and leaves the report displayed on screen.

If you are working with a new file that has not yet been assigned a name and saved, Crystal Reports displays the File Save As dialog box instead. Use the [File Save As instructions](#) for working with that box.

NOTE: *Save is also available as the third button on the Button Bar . Clicking the button does the same thing as selecting File|Save.*

Save As command (File menu)

Use **Save As** to save the active report to disk under a new name. All changes you have made while working on the report will be saved to the new file. Your original report file will remain unchanged.

To use File|Save As:

1. Select File|Save As; the File Save As dialog box appears.

Dialog box options

File Name edit box

This box displays the current report specification. By default, Crystal Reports uses a wild card character in place of the name, and .rpt as the extension (*.rpt):

- If you want to save the report under a new name, type the name in this edit box. Include the path if different than the path currently displayed in the **Directories heading**.

File Name scroll box

This scroll box displays a list of those files in the selected directory that match the specification in the File Name edit box.

- If you want to save the file under the name of an existing report (and you haven't typed a report name in the File Name edit box), select the report name you want to use from the list of .rpt files that Crystal Reports displays in this scroll box.

NOTE: Saving the report under the name of an existing report overwrites the contents of the existing report file.

List Files of Type scroll box

The **List Files of Type** scroll box contains only a single entry, **CRW Reports (*.rpt)**. No choice is available in this scroll box because the program doesn't recognize any other type of report file.

Directories heading

This heading displays the current path.

Directories scroll box

This box displays a list of directories on the currently logged drive. If you want to save the report in a different directory than the one displayed in the **Directories heading**, use this scroll box to select the correct directory.

Drives scroll box

This scroll box contains a list of your system drives. If you want to save the report on a different drive than the one displayed in the **Directories heading**, use this scroll box to select the correct drive.

2. Select OK when finished. Crystal Reports saves the report file using the name and path selected and changes the title for the active window.

Close command (File menu)

Use **Close** to close out a report while remaining in the Crystal Reports program or to close an active print window.

When you select **File|Close**:

- If you have already saved your work, Crystal Reports closes out the report.
- If you have not yet saved your work on the report, Crystal Reports asks you if you want to save your changes before closing.
 - If you choose *Yes* and you have already given your report a name, Crystal Reports saves your changes and closes out the report.
 - If you choose *Yes* and haven't already given your report a name, the **File Save As** dialog box appears. Assign a report name following the instructions for the File|Save As command. When finished, Crystal Reports saves your changes and closes out the report.
 - If you choose *No*, Crystal Reports closes out the report. All of your changes since you last saved the report are lost.
 - If you choose *Cancel*, Crystal Reports cancels the close request and returns you to the report.

Options command (File menu)

Use Options to change default settings for new reports. Using this command you can preselect the way Crystal Reports will display and print many of the elements in your report.

NOTE: *Crystal Reports stores your default options in the file CRW.INI, located in the Windows directory.*

To use File|Options

Select File|Options. Crystal Reports displays the Options dialog box.

Options dialog box

The dialog box contains a number of buttons and boxes.

Data Directory edit box

Database Selectors edit box

Index Selector edit box

Report Directory edit box

Field Formats box

Default Section Fonts button

Use Indexes For Speed checkbox

Use Default Alias checkbox

Translate DOS Memos checkbox

Display Button Bar checkbox

Display Status Bar checkbox

Use Short Section Names checkbox

Show Field Names checkbox

Insert Detail Field Titles checkbox

The Data Directory edit box

You use the Data Directory edit box to set the default directory that Crystal Reports should use in searching for and displaying database files. If you set the directory pointer in this box to the Samples directory, for example, Crystal Reports will display only files from that directory when it displays the Choose Database File dialog box and other boxes that offer you database selection options.

- If you know the name of the directory, you can type it into the Data Directory text box.
- If you don't know the name of the directory, Click the Set Location button and select the directory from the list that appears in the Set Directory dialog box.

The Report Directory edit box

You use the Report Directory edit box to set the default directory that Crystal Reports should use in searching for and displaying existing reports. This box (and the Set Location button) work the same way as the Data Directory box.

The Database Selectors edit box

You use the Database Selectors edit box to set the file specifications that Crystal Reports should use in searching for and displaying databases. If you set the specifications in the Selector text box, for example, to Paradox specifications (*.db), Crystal Reports will display only files with that specification in the Choose Database File dialog box and other boxes that offer you database options.

NOTE: If you want to set multiple specifications, separate them with semicolons (*.mdb; *.db; *.dbf; etc.)

The Index Selector edit box

You use the Index Selector edit box to set the file specifications that Crystal Reports should use in searching for and displaying indexes. If you set the specifications in the Selector text box, for example, to Paradox specifications (*.px), Crystal Reports will display only files with that specification in the Index file dialog box and other boxes that offer you index options. Indexes are of major importance in establishing links between multiple databases.

To change the selections already listed, type your new selection over the existing selection, and delete any old characters that remain.

Display Button Bar checkbox

The Display Button Bar checkbox is simply a toggle. When you toggle the check mark on, Crystal Reports displays the Button Bar. If the check is absent, Crystal Reports won't display the Button Bar. By default, the Display Button Bar checkbox is toggled to *on*.

Show Field Names checkbox

The Show Field Names checkbox is a toggle.

- When you toggle the check mark on, Crystal Reports displays the field name for each field on the report instead of characters that symbolize the data type of the field (XXXX, 5555, etc.). By default, the Show Field Names checkbox is unchecked (toggled to *off*).
- When the check mark is toggled off, Crystal Reports displays symbolic characters instead of the field name for each field.

NOTE: When you Click this toggle on, field names don't appear immediately. They do not appear until the next time you open Crystal Reports and the current report.

Use Default Alias checkbox

The Default Alias checkbox is simply a toggle.

- When you toggle the check mark on, Crystal Reports uses the default alias for each database you activate. The default alias is the name of the database in lower case and without the extension. For example, the default alias for the database *Employee.db* is *employee*. Use this option if you are usually satisfied with the default alias and don't want to have to accept or change the alias whenever you activate a database. By default, the Use Default Alias checkbox is toggled to *on*.
- When you toggle the check mark off, Crystal Reports displays the Alias dialog box whenever you activate a database. This dialog box gives you the option to accept the default alias or to type in a new one.

NOTE: This option does not prevent you from later changing the alias for any active database. If you want to change an alias, you can do so using the Database|File Alias command.

Default Section Fonts button

By default, any text, data field, or formula result entered anywhere on the report is displayed and printed in the Windows default font. The Default Section Fonts button allows you to change the default fonts for any and all sections of your report. It allows you:

- to specify different fonts for different sections of your report, and
- to specify a different font for text elements than is used for fields within a given section.
- For new reports, once the defaults are changed, Crystal Reports looks at the section in which each new text element is placed and formats it with the text font specified for that section. It also looks at the section in which each new data field or formula result element is placed and formats it with the field font specified for that section.
- For existing reports, the default font for text in a section stays the same. New reports will get the new default.

For example, you can specify one field font for all group values (subtotals, summary fields, etc.) and a completely different text font for the text labels you use to identify each of the group values. Crystal Reports automatically formats all group values with the default field font, and it formats any label you type in the group section with the default text font.

NOTE: *The Default Section Font button gives you the opportunity to customize the Crystal Reports Report Editor to best fit your needs. When you make changes via the button, Crystal Reports simply changes the defaults so the fonts used in each section appear in the format you typically want them in. These default changes don't in any way limit the fonts available for use in any section of your report, however. You still have the ability to reformat text or field elements individually if you wish.*

When you Click the Default Section Font button, the Default Fonts dialog box appears. This box contains two columns of buttons:

- the column on the left for changing the default fonts for fields, and
- the column on the right for changing the default fonts for text strings.

The buttons in each of the columns match sections of your report. Your options are:

Page Header

The Page Header Section, typically the part of your report that contains the report title, the date, and other identifying information.

Start of Group

The Group Header section. Of the two sections created each time you set up a group field (subtotal, summary field), this is the top section, the section that appears above the Details section.

Detail

The Details section, typically the body of your report.

End of Group

The Group section that displays or prints the group value. Of the two sections created each time you set up a group field (subtotal, summary field), this is the bottom section, the section that appears below the Details section.

Grand Total

The Grand Total section that typically appears at the end of the report.

Page Footer

The Page Footer section, typically the part of your report that contains the page number, words like (*continued*), and other identifying information.

To change the font for a specific section:

- determine first if you want to change the font for text or the font for fields and formulas. This tells you which list to use.
- determine the section for which you want to change the default.

- Click the button that matches the element and section for which you want to change defaults, and
- change the default font using the [Font dialog box](#).

Field Formats box

The Field Formats box (File|Options command) allows you to change the default formats Crystal Reports uses when displaying and printing data fields and formula results. Field format refers to the way field values are displayed or printed, apart from the font used.

The changes you make in this box apply only to elements that you insert after you make the changes. Elements that you entered before you changed the default retain their previous format.

Your options in this box correspond to the five Crystal Reports data types: string, number, currency, date, and boolean. All five data types allow you to:

- change the alignment of a text value within the space allotted for the field in the report,
- suppress the value so it doesn't print if it's identical to the value that preceded it, and
- cause the value to hide when printing.

NOTE: For detailed instructions on these activities, see Format|Field.

In addition, all data types other than text offer considerable additional formatting flexibility as described below:

String

String here refers to text strings drawn directly from a database, or formulas that result in text strings. It does *not* refer to text strings typed directly into the Report Editor.

Number

Number refers to number fields drawn directly from a database, and formulas that, as an end result, return a number. For number fields you can:

- suppress its value if it is a zero,
- round the value,
- insert or exclude a zero before the decimal point in a fractional number,
- specify the number of decimal places, and the character used to separate decimals from whole numbers,
- insert or exclude thousands separators, and specify the character used as that separator,
- specify the way negative numbers should be displayed,
- select the currency symbol,
- specify whether the symbol appears in a fixed position or floats with the length of the value,
- specify whether the symbol appears before or after the value, and
- cause the currency symbol to print only once per page if you so wish.

For detailed information on number formatting options, see the Format Number button under Format|Field.

Currency

Currency refers to currency fields and formulas that, as an end result, return a dollar amount. For currency fields you can do everything that you can do with a number field. Also see the Format Number button under Format|Field.

Date

Date refers to date fields drawn directly from a database, formulas that result in dates, and dates placed via the Insert|Print Date Field command. For date fields you can:

- set the order of the date elements (month--day--year, military date order, etc.),
- specify the separators (commas, hyphens, etc.), if any, between the elements, and
- set the style of the date elements (month as a number, month spelled out, abbreviated year, etc.).

Boolean

Boolean refers to boolean (Yes/No) fields drawn directly from a database and formulas that return a boolean value. For boolean fields you can:

- specify the display of field values as True or False, T or F, Yes or No, etc.

To change the default field format, Click the button that represents the field data type you want to change. Crystal Reports takes you to the Field Format dialog box, customized for the type of field you have selected.

NOTE: The Field Formats box gives you the opportunity to customize the Crystal Reports Report Editor to best fit your needs. When you make changes using this box, Crystal Reports simply changes the defaults so that each new data type appears in the format you typically want it in. These default changes don't in any way limit the formats available for use in your report, however. You still have the ability to reformat elements individually if you wish.

See also:

[Format Number](#)

[Format Currency](#)

[Format Date](#)

[Format Boolean](#)

[Format String](#)

Use Indexes For Speed checkbox

The Use Indexes For Speed option is a toggle.

- When you toggle the check mark on, Crystal Reports uses available indexes to speed the record selection process.
- When you toggle the check mark off, Crystal Reports selects records without the use of indexes (a much slower process). By default, the Use Indexes For Speed checkbox is toggled off.

Translate DOS Memos checkbox

When you insert special characters in dBASE memo fields, you use the upper ASCII character set (those characters with decimal values between 128 and 255). When you insert special characters into Windows programs, you use ANSI codes to do so. If you include upper ASCII characters in dBASE memo fields and then use those fields to create a report in Crystal Reports for Windows, the program would read the codes and assume they were ANSI codes were it not for the Translate DOS Memos option.

- When Translate DOS Memos is activated (a check in the checkbox), the program assumes that any character code it finds is an ASCII code and it translates that code to a corresponding ANSI value so the same character that appears in dBASE appears in your report.
- When the option is not checked, the program assumes that any character code it finds is already an ANSI code and it does no further translation.

NOTE: If this checkbox is toggled OFF and you have used upper ASCII characters in your dBASE memo fields, the special characters will not be the same in your report as they are in the dBASE memo field.

By default, the Translate DOS Memos checkbox is toggled *On*.

Display Status Bar checkbox

The display Status Bar checkbox is also a toggle. When you toggle the check mark on, Crystal Reports displays the Status Bar. If you toggle the check mark off, the program won't display the Status Bar. By default, the Display Status Bar checkbox is toggled *on*.

Use Short Section Names checkbox

The Use Short Section Names checkbox is also a toggle. When you toggle the check mark on, Crystal Reports abbreviates the section names that appear in the gray area on the left side of the Report Editor and narrows the gray area at the same time. This adds extra width to the white working area, and it allows you to work with more of your report on screen at one time. When you toggle the check mark off, Crystal Reports displays full section names and a narrower working area. By default, the Short Section Names checkbox is toggled *on*.

Insert Detail Field Titles checkbox

Insert Detail Field Titles is a toggle.

- When you toggle the check mark on, Crystal Reports automatically enters a default field title in the Page Header section whenever you insert a field in the Details section of the Report Editor. The default title is the name of the field, underlined.
- When you toggle the check mark off, field titles no longer appear automatically.
By default, the Insert Detail Field Titles checkbox is toggled on.

Exit command (File menu)

Use **Exit** to end your Crystal Reports session and return to the Windows environment.

When you select **File|Exit**:

- If you have already saved your active file(s), Crystal Reports closes itself down and returns you to Windows.
- If you haven't already saved your active file(s), Crystal Reports asks you if you want to save before closing. Refer to File|Close for your options at this point.

Cut command (Edit menu)

Use the Cut command any time you wish to cut or delete selected text temporarily and hold it in the clipboard for later use.

To use Edit|Cut

1. Select the text you wish to cut by dragging the I--beam cursor over it to highlight it.
2. Select Edit|Cut. Crystal Reports cuts the text and holds it in the clipboard for later use or until it is overwritten when you cut or copy additional text. Cut text is deleted from your report.

NOTE: *Cut is also available as the fourth button on the Button Bar . Clicking the button has the same effect as selecting Edit|Cut.*


NOTE: *The Cut command can be used in the Report Editor (for text) and in the Formula Editor (for any formula element) via the Windows keyboard command Shift--Delete.*

Copy command (Edit menu)

Use the Copy command any time you wish to send a copy of text to the clipboard for later use without disturbing the text as it appears currently in the report.

To use Edit|Copy

1. Select the text you wish to copy by dragging the I--beam cursor over it to highlight it.
2. Select Edit|Copy. Crystal Reports makes a copy of the selected text and sends it to the clipboard for later use or until it is overwritten when you cut or copy additional text. The text you selected in the report remains in place, unchanged.

NOTE: Copy is also available as the fifth button on the Button Bar . Clicking the button has the same effect as selecting Edit|Copy.

NOTE: The Copy command can be used in the Report Editor (for text) and in the Formula Editor (for any formula element) via the Windows keyboard command Ctrl--Ins.

Paste command (Edit menu)

Use the Paste command any time you want to paste (insert) text from the clipboard into your report. You can use the Paste command:

- with the Cut command to move text, or
- with the Copy command to complete the copying process.

To use Edit|Paste

1. Position the I-beam cursor where you want the text to appear and Click the left mouse button to set the text cursor.
2. Select Edit|Paste. Crystal Reports pastes the text at the text cursor.

NOTE: *Paste is also available as the sixth button on the Button Bar . Clicking the button has the same effect as selecting Edit|Paste.*

NOTE: *The Paste command can be used in the Report Editor (for text) and in the Formula Editor (for any formula element) via the Windows keyboard command Shift-Ins.*

Clear command (Edit menu)

Use the Clear command to delete text and report markers (and thus the report elements they represent) permanently from your report. The Clear command has the same effect as the Delete key.

To use Edit|Clear

- Select the element you want to clear (delete).
 - To select text, drag the I-beam cursor across the text to highlight it.
 - To select element markers, Click on the marker using the left mouse button.
- Select Edit|Clear. Crystal Reports deletes the item selected.

NOTE: You can also delete text and markers using the right mouse button menus. Select the text or marker you want to delete and Click the right mouse button. If you are deleting text, select the Clear option. If you are deleting a marker, select the Delete Field option.

Formula command (Edit menu)

Use Edit Formula to edit a formula once it has been entered in a Crystal Reports report.

To use Edit|Formula

1. Select the formula you want to edit.
2. Select Edit|Formula. The Edit Formula dialog box appears with the formula displayed in the formula edit box.

Three boxes appear at the top of this dialog box:

Fields

Fields displays a list of those database fields that are available for use in the report.

Fields are listed in the following format:

```
{file.fieldname}
```

When you select a field from the list, Crystal Reports inserts it in the formula at the insertion point.

NOTE: For large Btrieve .ddf files (.ddf files that contain four or more database files), Crystal Reports displays the names of the files in the .ddf file, not the individual field names. To review the field names in individual files:

- **Double--Click the file name to select the file of interest. The Formula Editor Select button changes to an Open button.**
- **Click the Open button and the program lists all of the fields in the selected database file.**
- **Select the field(s) of interest as you would from any other kind of database (.dbf, .db, etc.)**
- **For additional information, see Large Btrieve files.**

Functions

Functions displays a list of Crystal Reports functions available for use in the formula.

When you select a function from the list, Crystal Reports inserts it in the formula at the insertion point. The function is inserted complete with its required syntax items (parentheses, commas, quotation marks, etc.) to make your work easier.

Operators

Operators displays a list of Crystal Reports operators available for use in the formula.

When you select an operator from the list, Crystal Reports inserts it in the formula at the insertion point.

In addition to the boxes, some buttons appear in the Editor.

Accept

Accept tests the syntax of your formula, and if correct, enters the formula in the report, replacing the earlier version of the formula. If the syntax is incorrect, Crystal Reports gives you the opportunity to correct the error(s) prior to entering the formula in the report.

Check

Check tests the syntax of your formula and identifies syntax errors if they are found.

Select

Select inserts an item once you have highlighted it in the Fields, Functions, or Operators box.

Browse Field Data

Browse Field Data enables you to review values for the selected field and to paste individual values directly into your formula if you wish. When you Click the Browse Field Data button, a dialog box appears with a scroll list of those values.

- The name of the field selected is at the top of the dialog box.
- The data type of the field (number, string, etc.) is listed immediately below the field name.
- The length of the field is listed below the Type.
- Field values are listed in the scroll box.

To paste a field value directly into your formula, highlight the value of interest and Click the Paste Data button (or Double Click the value of interest). Crystal Reports pastes the value at the insertion point in the formula.

Cancel

Cancel cancels the editing process and leaves the original formula unchanged.

Help

Help calls up help information for using the dialog box.

3. Make whatever changes in the formula you want to make.
4. Select Accept when finished to enter the edited formula in your report.

See Also

[Formulas -- an overview](#)

[Index To Formula Topics](#)

Text Field command (Edit menu)

Use Edit Text Field to change the content of text fields that you entered via the Insert|Text Field command. You can add text, delete text, rearrange text, or change the spelling of text in any text field in your report.

NOTE: The Windows Cut, Copy, and Paste commands are active in the Enter Text edit box.

To use Edit|Text Field

1. Select the text field you wish to edit and select Edit|Text Field (or Click the right mouse button and then select Edit Text Field from the popup menu that appears). The Edit Text Field dialog box appears.
2. Change the text in the Enter Text edit box to suit your needs.
3. Click OK when finished, and Crystal Reports makes the specified changes to your text field.

Summary Operation command (Edit menu)

Edit|Summary Operation allows you to change the operation for the selected summary. This option, for example, can change a summing operation to one that determines the maximum (highest) value in the group.

To use Edit|Summary Operation

1. Select the summary of interest.
2. Select Edit|Summary Operation. The Summary Field dialog box appears.
 - For complete details on using this dialog box, see [Insert|Summary](#).
3. Select the new operation you want for the summary. When you Click OK, Crystal Reports changes the summary to conform to your new selection.

Browse Field Data command (Edit menu)

Use Browse Field Data any time you want to take a look at the values in a report field.

NOTE: This command is active only when you have selected a field on your report.

To use Edit|Browse Field Data

1. Select a report field.
2. Select Edit|Browse Field Data. A field data dialog box appears.
 - The source of the field (alias) and the field name appear as the title for the dialog box.
 - The data type for the field (string, number, etc.) appears just below the title.
 - A list of field values appears in the scroll box.
3. When you're finished reviewing the field data, Click the Done button.

NOTE: A Browse Field Data button also appears in the Select Records dialog box. A Browse Field Data option also appears on the right mouse button pop--up menu whenever you select a report field, in the Insert Database Field dialog box, in the Formula Editor, and in other dialog boxes in which reviewing field data might be useful.

Send Behind Others command (Edit menu)

Whenever you're working with stacked fields, boxes, lines, or graphics, use Send Behind Others to send the selected item to the bottom of the stack. This command gives you the ability to work with items that are buried in a stack without having to first move aside the items on top.

NOTE: An advanced reporting practice involves stacking multiple alternative formulas. This is the type of situation for which this command was designed.

To use Send Behind Others

1. Select an item in a stack of items.
2. Select Edit|Send Behind Others. Crystal Reports sends the selected item to the bottom of the stack.

NOTE: To bring the bottom item to the top of the stack again, select the top item and send it to the back. Repeat the process until the item of interest is again on top.

Group Section command (Edit menu)

Use Edit|Group Section to change the sorting and grouping specifications (sort and group by field, sort direction, etc.) for any of the groups on your report.

To use Edit|Group Section

1. Select Edit|Group Section. The Edit Group Section (sections) dialog box appears.
2. Select the group section that you want to edit and Click OK when finished. The Edit Group Section (edit) dialog box appears.
 - The top scroll box displays the name of the current sort and group by field (the field that triggers a grouping whenever its value changes).
 - The next scroll box displays the current sort direction.
 - The scroll box at the bottom of the dialog box displays the grouping condition. This scroll box appears only if your sort and group by field is a date or Boolean field.
 - The Browse Field Data button displays a list of field values in the selected sort and group by field.
3. Change the specification(s) you want to change by clicking the scroll arrow of the scroll box of interest and selecting your new specification from the list that appears.
4. Click OK when finished to return to the Report Editor.

NOTE: For a more thorough explanation of sorting and grouping, the sort and group by field, the sort direction, and grouping conditions, see Insert|Subtotal.

Delete Section command (Edit menu)

Use Delete Section to remove group sections from your report. This command is active only if your report contains a group section.

To use Edit|Delete Section

1. Select Edit|Delete Section. The Delete Section dialog box appears listing all the sections in the report.
2. Select the section you want to delete. Crystal Reports deletes the entire section and all the elements it contains.

Show Field Names command (Edit menu)

Use Show Field Names to toggle the display of field names in the Report Editor on and off. When this command is activated, each field displays its field name; when the command is inactive, each field displays default characters that indicate its data type, font size, etc.

To use Edit|Show Field Names

1. Click the command to activate it;
2. Click it again to deactivate it.

Report Title command (Edit menu)

Use Edit|Report Title to:

- change the title that appears on the title bar of your report, and
- to enter and/or edit non--printing comments that you want to accompany the report.

Changing the title

By default, Crystal Reports titles a report in one of two ways:

- If the report has not been saved, it assigns to the report the title *Untitled Report #n* (the first report created since opening the Crystal Reports session becomes Untitled Report #1, the second report is Untitled Report #2, etc.)
- If the report has been saved, it assigns as the title the path and name under which the report was saved.

In many circumstances, these names may not be satisfactory for your purposes (when you're using the report as part of a presentation, when you're sending a copy of the report to a customer or colleague, etc.) Using Edit|Report Title you can quickly change the report title to fit your needs.

Entering/editing comments

There may be times when you want to include non--printing comments with your report (a personal note to the report recipient, a note to explain more thoroughly the data on which the report is based, a comment about some particular data on the report, etc.) The Edit|Report Title command provides a facility for including anything from a short note to hundreds of lines of text with your report. The comments don't print with the report; they remain in the Comments edit box where they can be reviewed on demand.

To use Edit|Report Title

1. Select Edit|Report Title. The Edit Report Title dialog box appears.

- If you want to change the report title, enter the title in the Title edit box. If you enter a title that is too long to fit in the report title bar, the program will truncate all remaining characters once the title bar is full.
- If you want to include a comment with your report, enter your comment in the Comments edit box. Word wrap is active in the edit box. Thus, on multi--line comments, Crystal Reports automatically breaks the lines so they fit within the margins of the edit box.
- If you want to add to existing comments, position the I--beam cursor where you want the new text to begin. Click the left mouse button to place the insertion point, and enter your new text.
- If you want to delete existing comments, place the insertion point and delete a character at a time using the Backspace or Del key. To delete blocks of text, select the text you want to remove by dragging the I--beam cursor over it. With the text selected, press the Del key.

NOTE: The Windows' Cut, Copy, and Paste commands are active in the Comments facility.

2. Click the Accept button when finished. The program displays your new title (if you entered one) and retains the comments for later review and/or editing.

Database Field command (Insert menu)

Use Insert|Database Field to place data fields from an active database on your report.

To use Insert|Database Field

1. Select Insert|Database Field. The Insert Database Field dialog box appears listing all of the fields in the active database(s).

NOTE: If you're working with Btrieve and using a .ddf file that contains more than four database files, Crystal Reports displays only the file names, not the field names. See Large Btrieve files, below, for additional information.

NOTE: To speed the report building process, this dialog box is set to remain on screen until you Click the Done button. The dialog box can be moved anywhere on screen that is convenient.

Dialog box overview

You use this dialog box to select the fields you want to include in your report.

- The name of the current report appears at the top of the dialog box, just below the title bar.
- The available fields are listed in the scroll box. Fields are grouped by database in the scroll box list, and each group is headed by the alias selected for the database from which the fields come. You use the scroll box list to select (highlight) the field you want to insert in your report.

There are three buttons at the bottom of the dialog box:

Insert

Use the Insert button to insert the highlighted field. You can bypass the insert button by simply double clicking the field you want to insert.

Done

Use done to close out the dialog box when you are finished entering fields.

NOTE: If you Double--Click a file name in the scroll box, the list of fields from that file disappears and the Insert button changes to an Open button. If you highlight the file name and Click the Open button, the list of fields in that file reappears.

Browse Field Data

Use the Browse Field Data button to preview the data type, length, or content of any field on the list.

With the field of interest highlighted, Click the Browse Field Data button. A dialog box appears that has as its title the field you selected. The following field information is available in this dialog box:

Type

Type indicates the data type of the selected field (CHAR = character field, NUMBER = number field, DATE = Date field, MEMO = memo field.) Also see Crystal Reports data types.

Length

Length indicates the number of spaces allotted for the field in the originating database.

NOTE: Length does not appear with all data types.

Scroll box

The scroll box displays the values in the field selected.

Done button

The Done button returns you to the Insert Database Field dialog box when you are done previewing the field.

2. Select the field of interest. Crystal Reports displays the insertion cursor.
3. Move the cursor to the desired insertion point and Click the left mouse button to enter the field at that point.
4. Repeat Steps 2 and 3 until you have inserted all the fields you want to insert.

5. Click on Done when finished, and the dialog box disappears.

NOTE: For your convenience in setting up a report, the rectangular insertion cursor is sized to approximate the true field width of the field selected. If the automatic field heading is longer than the field name (for example, the heading State over a two character state abbreviation), the cursor is sized for the width of the heading, not the field itself.

NOTE: Insert Database Field is also available as the seventh button on the Button Bar. Clicking the button takes you directly to the Insert Database Field dialog box. Once there, follow the remaining steps described above.

Large Btrieve files

Btrieve .ddf files are different than other files used with Crystal Reports in that each .ddf file may contain multiple database files. Large Btrieve files may contain, ten, twenty, or more database files. If the Insert Database Field dialog box were to list all fields in all files as they do with other database files (.dbf, .db), you could end up with hard-to-manage scroll lists in each of these dialog boxes, each listing hundreds and hundreds of fields. Because of this, Crystal Reports initially lists only the file names not the individual field names for any .ddf file that includes more than four database files. From the list of files you select and open the files of interest. The program then lists the fields for the selected files only, giving you an abbreviated scroll list that includes only those fields that you might want to include in your report.

To use the dialog box with large Btrieve files.

1. Click the file of interest and Click the Open button (or Double Click the file of interest). Crystal Reports opens and lists the fields in the selected database.
2. Repeat the process for each additional database you want to open from the .ddf file.
3. Select and place fields from the open database(s) as you would from any other database.

NOTE: To close an open database, Click the database you want to close and Click the Close button. (When you Click a closed database, the left button changes to Open. When you Click an open database, the left button changes to Close.)

Text Field command (Insert menu)

A text field is simply a field that holds text. It can hold a single character, a single word, entire sentences, or full paragraphs.

Use the Insert|Text Field command to insert text anywhere on your report. This is a useful command for adding labels, titles, footnotes, disclaimers, explanatory statements, seasonal comments, or any other kind of text you need.

NOTE: While the effective limit on text field size is 32K (including carriage return and line feed characters), it is recommended that text fields be used only for more manageable sized blocks of text.

Text Field considerations

A text field is treated just like any other field. That is, you can

- move it,
- delete it,
- suppress it if duplicated,
- hide it when printing,
- align the text within the field, or
- change the font, font style, font size or font effects.

Like any string field, you can also specify the number of lines on which the field is to print using the Format String dialog box.

A text field is different than freeform text entered directly on your report:

- it uses the same grid that other fields use (making it easy to align titles perfectly with columns of data),
- it prints starting at an absolute location on the report while freeform text always prints relative to the left edge of the report and can move around depending on what spaces and tabs are ahead of the fields,
- it can be moved using a mouse (while freeform text must be moved using keyboard commands), and
- it can be formatted (suppressed, hidden, aligned) while freeform text cannot.

NOTE: You cannot copy text fields via the Windows Copy command, but you can copy freeform text using that command. That is about the only thing that you cannot do with text fields that you can do with freeform text.

Word wrap and return characters

Crystal Reports will word wrap within the space allotted if you have activated the *Print on multiple lines* option in the Format String dialog box. If you expand or narrow the field, word wrap will adjust to the available space (where possible), again, if the Print on multiple lines option is activated.

NOTE: If your text field includes return characters, Crystal Reports interprets them to provide the line breaks you specify in the text field (where possible).

How to insert text fields

To insert a text field:

1. Select Insert|Text Field. The Edit Text Field dialog box appears.
2. Enter your text in the Enter Text edit box, and Click OK when finished. A rectangular placement cursor

appears.

3. Position the cursor where you want the text field to appear and Click the left mouse button to place it.

NOTE: Insert Text Field is also available as the eighth button on the Button Bar. Clicking the button takes you directly to the Edit Text Field dialog box. Once there, follow the remaining steps described above.

See also

[Aligning text with fields](#)

[Centering text, fields](#)

[Inserting text \(titles, labels, etc.\)](#)

Formula Field command (Insert menu)

Use Insert Formula Field to insert a [formula](#) to create a [calculated data field](#).

To use Insert|Formula Field

1. Select Insert|Formula Field. The [Insert Formula dialog box](#) appears.

Dialog box options

- To insert a new formula, type in the name you want for the formula. The name can contain any combination of numbers, letters, symbols, and spaces. Click OK when finished.
- To select an existing formula for inclusion, Click the name of the formula of interest, then Click OK to select it, or Double Click the name of the formula to select it.
- To delete an existing formula, Click the name of the formula of interest, Click Delete to delete it, and then Click Done to close out the dialog box.

NOTE: You must delete all uses of the formula in the report before you can use the delete command. For additional information, see [deleting formulas](#).

2. If you have entered the name for a new formula and clicked OK, the Formula Editor appears.

For a complete discussion of the elements in this dialog box, see [Edit|Formula](#).

3. Enter your formula in the Edit Formula edit box.

- If your formula is to include text strings, type those strings wherever they are to appear in the formula. Each such string must be surrounded by quotation marks.
- If your formula is to include functions and/or operators, you may either type them in or select them from the lists that appear when you Click the Function and Operator buttons. When you select functions and operators from the list, Crystal Reports automatically supplies any syntax items (parentheses, brackets, comma, etc.) required by the function or operator selected.
- If your formula is to include field names, you can type them in or select the names from the list that appears when you Click the Field button. If you choose to type them in, you must enter them in the format:

```
{alias.fieldname}
```

- You can use the Check option to check the syntax of your formula at any time while you build it.
4. When you have completed your formula, select Accept to enter the completed formula in your report. Crystal Reports checks the syntax and, if it is correct, displays the insertion cursor. (If the syntax is not correct, you will need to make the necessary syntax changes first. Then, when you select Accept, the pointer will appear.)

NOTE: Insert|Formula Field is also available as the ninth button on the Button Bar. Clicking the button takes you directly to the Insert Formula dialog box. Once there, follow the remaining steps described above.

5. Move the cursor to the place you want to insert the formula and Click your left mouse button to insert it.

See Also

[Formulas -- an overview](#)

[Index To Formula Topics](#)

Group Section command (Insert menu)

Use Insert|Group Section to sort your data and break it into groups *without* creating a group value. This is a useful command, for example, for dividing a customer list into state or ZIP code groups. Crystal Reports allows you to set the conditions under which your data is grouped.

To use Insert|Group

1. Select the field that you want to group.
2. Select Insert|Group Section. The Insert Group Section dialog box appears.
3. You use this dialog box to set the conditions under which data is to be grouped.

Dialog box options

4. The top scroll box contains a list of the fields and formulas being used in the report. Click the scroll arrow to reveal the list, and select from that list the field that you want the program to use for triggering groups.
 - The program will first sort report data based on this field.
 - Then it will go down the report and group the data whenever the value in the field changes. If you select a date or Boolean field, the program gives you the ability to further narrow your selection. See *Date and Boolean* conditions below.
5. The next scroll box lists the two sort direction options, in Ascending order(1 to 9, A to Z) and in Descending order (9 to 1, Z to A). The default option is *in ascending order*. If you want to change the sort direction, Click the scroll arrow to reveal both options and make your selection from the list.

Date and Boolean conditions

When you group based on changes in a Date or Boolean field, Crystal Reports displays another scroll box at the bottom of the dialog box. This scroll box enables you to further define your grouping specification.

Date conditions

This new scroll box contains a list of date ranges that define typical grouping periods. When you select a date condition, Crystal Reports sorts your data by date and breaks it into groups whenever the condition you select is met. Click the scroll arrow to reveal those conditions and select the condition you want. For further information, see the discussion of [Date field conditions](#).

Boolean conditions

When you break data into groups based on changes in a Boolean field, Crystal Reports gives you a selection of Boolean conditions that can trigger a grouping. The program sorts your data and breaks it into groups whenever the condition you select is met. Click the scroll arrow to reveal those conditions and select the condition you want.

For further information, see the discussion of [Boolean field conditions](#).

6. Select OK when finished. Crystal Reports creates a group section in the Report Editor for this group, and groups your data according to the conditions you have specified.

Subtotal command (Insert menu)

Use **Insert Subtotal** to insert a subtotal in your report. Crystal Reports allows you to set the conditions under which a subtotal will print.

To Use Insert|Subtotal

1. Select the field that you want to subtotal
2. Select Insert|Subtotal. The Insert Subtotal dialog box appears.
3. You use this dialog box to set the conditions that trigger the printing of a subtotal.

Dialog box options

The top scroll box

The top scroll box contains a list of the fields and formulas being used in the report. Click the scroll arrow to reveal the list, and select from that list the field that you want the program to use for triggering subtotals.

- The program will first sort report data based on this field.
- Then it will go down the report and group and subtotal the data whenever the value in the field changes.

If you select a date or Boolean field, the program gives you the ability to further narrow your selection. See Date and Boolean conditions below.

The sort order scroll box

The next scroll box lists the two sort direction options, in Ascending order (1 to 9, A to Z) and in Descending order (9 to 1, Z to A). The default option is *in ascending order*. If you want to change the sort direction, Click the scroll arrow to reveal both options and make your selection from the list.

Date and Boolean conditions

When you subtotal based on changes in a Date or Boolean field, Crystal Reports displays another scroll box at the bottom of the dialog box. This scroll box enables you to further define your subtotal specification.

Date Conditions

This new scroll box contains a list of date ranges that define typical subtotalling periods. When you select a date condition, Crystal Reports first sorts your data by date. Then it breaks the data into groups and prints a subtotal whenever the date condition that you select is met.

Click the scroll arrow to reveal the list of date conditions. Your options are:

for each day

Prints a subtotal whenever the date changes

weekly

Prints a subtotal at the change from one week to the next (a week runs from Sunday through Saturday).

for each two weeks

Prints a subtotal every two weeks (weeks run from Sunday through Saturday).

for each half month

Prints a subtotal twice a month

for each month

Prints a subtotal at the end of each month.

for each quarter

Prints a subtotal at the end of each calendar quarter.

for each half year

Prints a subtotal at the end of each calendar half year.

for each year

Prints a subtotal at the end of each year.

Boolean Conditions

When you subtotal based on changes in a Boolean field, Crystal Reports gives you a selection of Boolean conditions that can trigger a a subtotal. The program first sorts your data. Then it breaks the data into groups and prints a subtotal whenever the condition you select is met. Click the scroll arrow to reveal the list of Boolean conditions.

NOTE: *In the following conditions, Yes means Yes, True, or 1 (depending on the Boolean format you have selected for the field) and No means No, False, or 0).*

Your options are:

on change to yes or no

Prints a subtotal whenever the value changes from Yes to No or from No to Yes.

Subtotal calculation with on change to yes or no condition

Yes

Yes

Subtotal

No

Subtotal

Yes

Subtotal

No

No

Subtotal

on change to Yes

Prints a subtotal whenever the value changes from No to Yes.

Subtotal calculation with on change to Yes condition

Yes

Yes

No

Subtotal

Yes

No

No

Subtotal

on change to No

Prints a subtotal whenever the value changes from Yes to No.

Subtotal calculation with on change to No condition

Yes

Yes

Subtotal

No

Yes

Subtotal

No

No

Subtotal

on every Yes

Prints a subtotal every time the value is *Yes*.

Subtotal calculation with *on every Yes* condition.

Yes

Subtotal

Yes

Subtotal

No

Yes

Subtotal

No

No

Subtotal

on every No

Prints a subtotal every time the value is *No*.

Subtotal calculation with *on every No* condition.

Yes

Yes

No

Subtotal

Yes

No

Subtotal

No

Subtotal

on next is Yes

Prints a subtotal whenever the next value is a *Yes*.

Subtotal calculation with *on next is Yes* condition.

Yes

Subtotal

Yes

No

Subtotal

Yes

No

No

Subtotal

on next is No

Prints a subtotal whenever the next value is a *No*.

Subtotal calculation with *on next is No* condition.

Yes

Yes

Subtotal

No

Yes

Subtotal

No

Subtotal

No

Subtotal

4. Select OK when finished. Crystal Reports automatically inserts the subtotal in the group section of your report. If you have already set up other subtotals on the same field, Crystal Reports creates a new section for the new subtotal.

Grand Total command (Insert menu)

Use Insert Grand Total to print a report total (or a report average, a report count, etc.) at the end of the report.

To use Insert|Grand Total

1. Select the field you want totaled (or averaged, counted, etc.)
2. Select Insert|Grand Total. The Insert Grand Total dialog box appears.
3. Click the scroll arrow on the scroll box to reveal a list of possible grand total operations.
4. Select the operation you want and Click OK to return to the Report Editor.

Crystal Reports calculates the grand total value, creates a Grand Total section for the report, and places the Grand Total value in that section.

Summary command (Insert menu)

Use Insert|Summary to summarize data and print the summary in your report. You can use summaries:

- to count the number of values in a group,
- to calculate the sum, average, standard deviation, or variance value in a group, and
- to identify the minimum or maximum value in a group.

This command is active only after you have selected a field to summarize.

To use Insert|Summary:

1. Select the field that you want to summarize.
2. Select Insert|Summary. The Insert Summary dialog box appears.

The top scroll box contains a list of the available summary operations. Click the scroll arrow to reveal the list

You have nine options in the scroll box:

Sum

Sum totals the values in the group. This is the same as a subtotal.

Average

Average calculates the average (mean) value in the group.

Maximum

Maximum identifies the highest value in the group.

Minimum

Minimum identifies the lowest value in the group.

Count

Count counts the number of values in the group.

Sample Variance

Sample Variance determines the variance of all values in a set of values that is typically a subset of an entire population. This can be used for projecting the variance for an entire population based on just a sample of that population. It uses $(N-1)$ in its calculations.

Sample Standard Deviation

Sample Standard Deviation determines the standard deviation of all values in a set of values that is typically a subset of an entire population. This can be used for projecting the standard deviation for an entire population based on just a sample of that population. It uses $(N-1)$ in its calculations.

Population Variance

Population Variance determines the variance of all values in an entire population. It uses (N) in its calculations.

Population Standard Deviation

Population Standard Deviation determines the standard deviation of all values in an entire population. It uses (N) in its calculations.

NOTE: *You can't sum or average a text, boolean, or date field.*

3. Select the option of interest.
4. The second scroll box contains a list of the fields and formulas being used in the report. Click the scroll arrow to reveal the list, and select from that list the field that you want the program to use for triggering summaries.
 - The program will first sort report data based on this field.
 - Then it will go down the report and group and summarize the data whenever the value in the sort and group by field (the trigger field) changes.
 - If you select a date or Boolean field, the program gives you the ability to further narrow your selection.

See *Date and Boolean* conditions below.

5. The next scroll box lists the two sort direction options, in Ascending order (1 to 9, A to Z) and in Descending order (9 to 1, Z to A). The default option is *in ascending order*. If you want to change the sort direction, Click the scroll arrow to reveal both options and make your selection from the list.

Date and Boolean conditions

When you summarize based on changes in a Date or Boolean field, Crystal Reports displays another scroll box at the bottom of the dialog box. This scroll box enables you to further define your summary specification.

Date conditions

This scroll box contains a list of date ranges that define typical summarizing periods. When you select a date condition, Crystal Reports first sorts your data by date. Then it breaks the data into groups and prints a summary whenever the date condition you select is met. Click the scroll arrow to reveal the list of date conditions and select the condition you want. For further information, see the discussion of [Date field conditions](#).

Boolean conditions

When you subtotal based on changes in a Boolean field, Crystal Reports gives you a selection of Boolean conditions that can trigger a subtotal. The program sorts your data. Then it groups the data and prints a subtotal whenever the condition you select is met. Click the scroll arrow to reveal those conditions and select the condition you want.

For further information, see the discussion of [Boolean field conditions](#).

6. Select OK when finished. Crystal Reports sorts, groups, and summarizes your data and inserts the summary in the group section of your report. You can then move it into position, wherever you want it to print in that section.

NOTE: *Insert|Summary is also available as the tenth button on the Button Bar. Clicking the button takes you directly to the Summary Field dialog box. Once there, follow the remaining steps described above.*

Print Date Field command (Insert menu)

Use Insert|Print Date Field to insert a field that prints whatever is the current date when the report prints.

To use Insert|Print Date Field

1. Select Insert|Print Date Field. Crystal Reports displays the insertion cursor.
2. Move the cursor to the place in the report you want the date to appear, and Click the mouse to enter the field at that point.

You can insert a date field in any section of your report, and you can insert as many date fields as you wish.

Page Number Field command (Insert menu)

Use Insert|Page Number Field to insert a field that prints the current page number.

To use Insert|Page Number Field

1. Select Insert|Page Number Field. Crystal Reports displays the insertion cursor.
2. Move the cursor to the place in the report you want the page number to appear, and Click the left mouse button to enter the field at that point.

NOTE: *You can insert as many page number fields as you wish. Page numbers may appear in any section of the report.*

NOTE: *The Format|Section command allows you to reset the page number for invoices, statements, etc.*

Record Number Field command (Insert menu)

Use Insert|Record Number Field to have Crystal Reports number each record printed in the Details section of your report.

To use Insert|Record Number Field

1. Select Insert|Record Number Field. Crystal Reports displays the insertion cursor.
2. Move the cursor to the position you want each record number to appear, and Click the left mouse button to enter the field at that point. Crystal Reports numbers each record that it prints in the Details section of the report.

NOTE: *Crystal Reports assigns a number to each record that prints in the Details section as it processes the records for printing. The number assigned represents the number of the record as it is printed in the Details section. The records A, B, and C, for example, if sorted in ascending order (A to Z), will have the following record numbers: Record A = 1, Record B = 2, and Record C = 3. The same records, if sorted in descending order (Z to A), will have the following record numbers: Record C = 1, Record B = 2, and Record A = 3. The term record number thus refers to the record position in the report, not to the record position in the database from which it came; if a record changes its position in a report relative to other records, its record number changes as well.*

Group Number Field command (Insert menu)

Use Insert|Group Number Field to have Crystal Reports number each group in your report. (A group is any grouping of data that occurs when you insert a subtotal or summary. For example, in an inventory report that subtotals inventory value by manufacturer, each group would contain data for a single manufacturer.)

To use Insert|Group Number Field

1. Select Insert|Group Number Field. Crystal Reports displays the insertion cursor.
2. Move the cursor to the position in which you want the group number to appear, and Click the left mouse button to enter the field at that point. Crystal Reports enters the group number as it prints the report.

NOTE: *Crystal Reports assigns a number to each group as it processes the records for printing. The number assigned represents the number of the group as it is printed. The groups A, B, and C, for example, if sorted in ascending order (A to Z), will have the following group numbers: Group A = 1, Group B = 2, Group C = 3. The same groups, if sorted in descending order (Z to A), will have the following group numbers: Group C = 1, Group B = 2, Group A = 3. The term group number thus refers to the position of the group in the report, not to the data in the group; if a group of data changes its position in a report relative to other groups, its group number changes as well.*

NOTE: *Only the innermost groups are numbered. For example, if the records are grouped first by city and then by state, a group field will refer only to the current city group number, not to the current state group number.*

Graphic command (Insert menu)

Use Insert|Graphic to insert bit-mapped artwork (pictures, logos, etc.) in your report. Crystal Reports enables you to enhance the visual impact of your report using artwork in the following popular formats:

.bmp

The Windows bitmap format. Windows .bmp graphics can be generated by a number of popular programs, and they are available through commercial and public domain sources as well. Since this file format offers a great deal of compatibility between programs, it is suggested that, given a choice, you use graphics in this format.

.gif

The CompuServe format. Many free or inexpensive graphics can be downloaded in this format from CompuServe.

.pcx

The PC Paintbrush format. You can create your own graphics in PC Paintbrush for use in your reports, or you can use other graphics in compatible .pcx format.

.tif

The TIFF format. This is a popular format for scanned graphics. You can scan your logo or other graphic into this format for use in your report, or you can make use of the wide variety of .tif graphics available commercially and in the public domain.

.tga

The TARGA format. This is a popular format used with many scanners and with video capture devices.

To use Insert|Graphic

1. Select Insert|Graphic. The Choose Graphic File dialog box appears.

Dialog box options

File Name edit box

This box displays the current graphic file specification. By default, Crystal Reports uses a wild card character in place of the name, and .bmp as the extension (*.bmp):

- If you know the name of the graphics file you want to select, type the name in this edit box. Include the path if different than the path currently displayed in the Directories heading.
- If you don't know the name of the graphics file you want to activate, but you do know the kind of file it is (.bmp, .gif, etc.), type in the new specification or select the file type from the List Files of Type scroll box. This will change the current file specification to the file type of your choice.
- If you want to display all files, type in *.*.

File Name scroll box

This scroll box displays a list of those files in the selected directory that match the specification in the File Name edit box.

If you haven't typed a file name in the File Name edit box, or if you are uncertain of the file name, select the file you want from the list of graphics files that Crystal Reports displays in this scroll box.

List Files of Type scroll box

The List Files of Type scroll box enables you to specify the kind of files you want to appear on the list in the File Name scroll box. When you Click the scroll arrow on the List Files of Type scroll box, the following options appear:

Windows (*.bmp)

Enters the specification for Windows bitmap files (*.bmp) in the File Name edit box. This causes only those files with the extension .bmp to appear in the File Name scroll box.

CompuServe (*.gif)

Enters the specification for CompuServe graphics files (*.gif) in the File Name edit box. This causes only those files with the extension .gif to appear in the File Name scroll box.

PC Paintbrush (*.pcx)

Enters the specification for PC Paintbrush files (*.pcx) in the File Name edit box. This causes only those files with the extension .pcx to appear in the File Name scroll box.

TIFF (*.tif)

Enters the specification for TIFF files (*.tif) in the File Name edit box. This causes only those files with the extension .tif to appear in the File Name scroll box.

TARGA (*.tga)

Enters the specification for TARGA files (*.tga) in the File Name edit box. This causes only those files with the extension .tga to appear in the File Name scroll box.

Select the option of interest. Crystal Reports places your specification in the File Name edit box and displays those files in the File Name scroll box that match your specification.

Directories heading

This heading displays the current path.

Directories scroll box

This box displays a list of directories on the currently logged drive. If the report is saved in a different directory than the one displayed in the Directories heading, use this scroll box to select the correct directory.

Drives scroll box

This scroll box contains a list of your system drives. If the report is saved on a different drive than the one displayed in the Directories heading, use this scroll box to select the correct drive.

2. Select OK when finished. An outline the size of your graphic appears. Position the outline where you want the graphic to appear and Click the left mouse button to place it.

NOTE: *The position of the upper left hand corner of the graphic determines the section the graphic prints in, even if the outline appears to extend over two or more report sections. Crystal Reports automatically expands the selected section to accommodate the size of the graphic.*

NOTE: *For complete instructions on sizing, scaling, cropping, and fine tuning the placement of the graphic, see [Format\Graphic](#).*

NOTE: *Insert\Graphic is also available as the 11th button on the Button Bar. Clicking the button takes you directly to the Choose Graphic File dialog box. Once there, follow the remaining steps described above.*

Line command (Insert menu)

Use Insert|Line to draw horizontal and vertical lines anywhere on your report. You can use these lines to enclose field data or to create other graphic effects.

While you can create lines via the Format Border and Colors command, the lines you draw via the Insert|Line command differ in several important ways:

- border lines cannot stand alone (they are always attached to a field or a graphic) whereas graphic lines can,
- a border line can be as high as the line, as high as the data, as wide as the field or as wide as the data while a graphic line can be any length or height you wish, and
- graphic lines don't increase the height of a text line (making for fewer lines per inch) whereas lines created as borders do, and
- a border (field border) cannot span multiple sections whereas a graphic line can.

To draw a line in Crystal Reports

1. Click Insert|Line. A pencil cursor appears.
2. Set the tip of the cursor (the pointed end) where you want the line to begin and drag the cursor horizontally or vertically with the left mouse button depressed. The line appears as you drag the cursor.
3. Release the mouse button when the line is the length you want it.

NOTE: To format the line (set line style, width, and line color), you use the Format|Line command.

NOTE: Insert|Line is also available as the 12th button on the Button Bar. Clicking the button activates the pencil cursor. Once that cursor appears, follow the remaining steps described above.

Box command (Insert menu)

Use Insert|Box to draw freeform boxes anywhere on your report. You can use these boxes to enclose field data or to create other graphic effects.

Boxes differ from borders in several important ways:

- borders come in fixed sizes and shapes whereas boxes can be created in any size or shape you need,
- a border can be used to enclose individual field values whereas a box, if it is placed around a field, encloses all the values in the field,
- borders cannot stand alone (they must surround a field or a graphic) whereas boxes can,
- boxes don't increase the height of a text line (making for fewer lines per inch) whereas borders do, and
- a border (field border) cannot span multiple sections whereas a box can.

For further information on borders, see the [Format Border and Colors command](#).

To draw a box in Crystal Reports

1. Click Insert|Box. A pencil cursor appears.
2. Set the tip of the cursor (the pointed end) where you want to anchor one corner of the box and drag the cursor towards the opposite corner with the left mouse button depressed. The box appears as you drag the cursor.
3. Release the mouse button when the box is the size you want it.

NOTE: To format the box (set line style and width, line color, etc.), you use the [Format|Box command](#).

NOTE: Insert|Box is also available as the 13th button on the Button Bar. Clicking the button activates the pencil cursor. Once that cursor appears, follow the remaining steps described above.

Font command (Format menu)

Use Font to change the font, font size, style, effects, and/or color for selected elements on your report.

To use Format|Font

1. After selecting the element for which you want to change the font, select Format|Font. The Font dialog box appears.

Font dialog box options

There are six boxes in the dialog box.

Font

The Font box lists all the fonts that are available for the printer you have selected. When the box first appears, the font already in use for the selected element is highlighted. Click the font you wish to use (if different from the highlighted font).

Font Style

The Font Style box lists the styles that you can assign to the font selected. Your choices will include some or all of the following:

Regular

The standard, unmodified style

Bold

Changes the font to boldface

Italic

Changes the font to italic

Bold Italic

Changes the font to Bold Italic

Click the style you wish to activate. Click another style if you wish to deactivate a style once you have selected it.

Size

The Size box lists common point sizes for the highlighted font. When the box first appears, the point size for the font already in use for the selected element is highlighted, and the highlighted point size appears in the small white box at the top. Click the point size you want (if different from the highlighted size). You can select directly from the list or type the new point size in the small box at the top (if you know that you have additional sizes installed for the currently selected printer).

Effects

The Effects box lists two additional options that you can use for highlighting the selected font.

Strikeout

Prints the strikeout character across the font

Underline

Underlines the font

You may select as many of the Effects as you wish.

Click the check box(es) next to the effects you wish to activate. Click a box a second time if you wish to deactivate a style once you have selected it.

Color

The Color box enables you to assign any of the 16 standard Windows colors to your font.

Click the color of interest. Click a different color if you decide to change it.

Samples

The Samples box displays a sample of the font you have selected. The sample shows the font, style,

size, effects, and color you have specified. You can use this box to preview the results as you experiment with different formatting options.

2. Select OK to apply the font changes to the selected report element, or select Cancel to cancel all font changes and leave the report unchanged.

Field command (Format menu)

Use Format|Field:

- to suppress printing of duplicate data,
- to hide/unhide a field when printing,
- to set fields to conform to Windows' default format
- to change field alignment, and
- to specify number, currency, boolean, date, string, and memo field formatting.

To use Format|Field

After highlighting the field you want to format, select Format|Field. The Field Format dialog box appears. Your options in the dialog box are as follow:

Suppress if Duplicated

When activated, nothing is printed in a column of data if it duplicates data on the previous line; the data only prints once. For example, to print the customer number only once for each customer, activate the option for the customer number field. The value will print again on a new page.

Hide when printing

When activated, the selected field will not print. This is useful if, for example, you want to put a field on the report to be used in calculations or sorting, but do not want the field to print.

Use Windows Default Format

Uses the default date, number, and currency formats from the International dialog box in the Windows' Control Panel.

NOTE: When the Use Windows Default Format switch is activated, your options for formatting fields on the fly are limited. Several of the options for each data type are not selectable in the Format Number (Format Date, etc.) dialog boxes when the switch is toggled on. If you want to format on the fly and the options you need are not selectable, first toggle the Use Windows Default Format switch off, and then select the formatting options you need.

NOTE: When the Use Windows Default Format switch is toggled Off, Crystal Reports uses the format defaults as specified in the Options dialog box. You can override these defaults, however, to format individual fields on the fly via the Format|Field command.

Alignment

Alignment refers to the placement of the field value within the space allotted for the field on the report. You have the following choices:

Default

Default restores the default alignment for the field values: text, dates, and boolean fields are left aligned, and number and dollar fields are right aligned.

Left

Left places all field values flush left in the space allotted. The first character in the value is flush against the left margin of the field box. Thus, when you select Left, the first character in each value is aligned.

Centered

Centered centers the field value within the space allotted by the field box.

Right

Right places all field values flush right in the space allotted. The last character in the value is flush against the right margin of the column. Thus, when you select Right, the last character in each value is aligned.

Format Number button

The Format Number button appears in the dialog box only if you are formatting a number field. You

use the Format Number option to specify the way you want the numbers in the selected field to appear on your report. When you Click the Format Number button, the Format Number dialog box appears. The dialog box contains a variety of options for formatting numbers as numbers, and additional options for formatting numbers as currency.

NOTE: The currency provision is included in this dialog box to make it easier for you to work with fields from dBASE databases since dBASE doesn't offer a currency data type.

The dialog box contains the following options:

Suppress if Zero

When activated, Suppress if Zero prevents a field from printing on your report if it contains a zero amount.

Rounding

Rounding allows you to round values that appear in your report to a specific number of decimal places. Your options are:

None

No rounding

0.1

Rounds to the nearest tenth. 5,555,555.55 rounds to 5,555,555.60

1

Rounds to the nearest one. 5,555,555.55 rounds to 5,555,556.00

10

Rounds to the nearest ten. 5,555,555.55 rounds to 5,555,560.00

100

Rounds to the nearest hundred. 5,555,555.55 rounds to 5,555,600.00

1,000

Rounds to the nearest thousand. 5,555,555.55 rounds to 5,556,000.00

10,000

Rounds to the nearest ten thousand. 5,555,555.55 rounds to 5,560,000.00

100,000

Rounds to the nearest hundred thousand. 5,555,555.55 rounds to 5,600,000.00

1,000,000

Rounds to the nearest million. 5,555,555.55 rounds to 6,000,000.00

NOTE: You can also round a number by putting the number in a formula and using the Round(x, # of decimal places) function.

Leading Zero

Leading Zero allows you to include a zero, if you wish, before the decimal point in decimal amounts less than one. You have two choices:

0.17

This option includes a zero before the decimal point whenever you have a decimal amount less than one (0.001, 0.99999, 0.755)

.17

This option prints decimal amounts less than one without a leading zero (.001, .99999, .755).

Decimals

Decimals allows you to specify the number of decimal places you want to print for numeric values. Your options are:

1.

This option prints 5.55555 as 5.

1.0

This option prints 5.55555 as 5.5

1.00

This option prints 5.55555 as 5.55

1.000

This option prints 5.55555 as 5.555

1.0000

This option prints 5.55555 as 5.5555

1.00000

This option prints 5.55555 as 5.55555

NOTE: This option does not round values. It simply truncates (cuts off) unwanted decimal places when it prints numeric values.

Decimal Separator

Decimal separator allows you to type in a character to be used as a decimal separator. The default is a decimal point (.).

Thousands Separator

Thousands Separator allows you to choose the way you want numbers over 999 to appear on your reports. Thousands Separator gives you two choices:

1,000.00

This choice activates the thousands separator character. It inserts a comma (or another separator of your choice) as a thousands separator character for amounts over 999. When you select this option, your numbers are printed like this: 1,000.00, 10,000.00, 999,000.00.

1000.00.

This choice deactivates the thousands separator character. When you select this option, your numbers are printed like this: 1000.00, 10000.00, 999000.00.

NOTE: Thousands separator allows you additionally to type in a character to be used as a thousands separator. The default is a decimal point (.).

Negatives

Negatives allows you to choose the way you want negative values to appear on your reports. Negatives gives you three options:

(1.23)

This option encloses negative values in parentheses: (100.00), (225.73), (1,000,000)

--1.23

This option identifies negative values with a leading minus sign: --100.00, --225.73, --1,000,000.

1.23--

This option identifies negative values with a trailing minus sign: 100.00--, 225.73--, 1,000,000.00--

Currency Symbol

Currency Symbol allows you to specify if the dollar sign (or other currency symbol) is to be displayed and whether it is to appear in a fixed position or float with the length of the data. Your options are:

None

This option prevents the display of the currency symbol.

Fixed

Fixed puts the currency symbol in the first (far left) position in the field and fills the area between the symbol and the amount with spaces.

For example:

\$ 325.00

\$ 401,325.00

Float

Float aligns the currency symbol with the amount so there are never any extra spaces between the symbol and the amount.

For example:

\$401,325.00

\$325.00

Once Per Page

Once Per Page displays/prints a currency symbol with the first number/currency value that appears on the page and displays no currency symbol with any of the other values on the page.

Changing the currency symbol

The currency symbol in use appears in the edit box to the right of the float option. If you wish to change the symbol, delete the symbol in the box and type the new symbol in its place. Crystal Reports will accept up to four characters as a currency symbol.

Currency Position

Currency Position allows you to specify where you want the currency symbol to appear in relation to the dollar amount and negatives indicator.

Format Currency button

The Format Currency button appears in the dialog box only if you are formatting a dollar value field. You use the Format Currency option to specify the way you want the dollar values in the selected field to appear on your report. When you Click the Format Currency button, the **Format Currency dialog box** appears.

The dialog box is identical to the Format Number dialog box. Please see the Format Number button for a complete discussion of all the options.

Format Boolean button

The Format Boolean button appears in the dialog box only if you are formatting a boolean (YES/NO) field. You use the Format Boolean option to specify the way you want boolean values to appear in the field.

When you Click the Format Boolean button, the Format Boolean dialog box appears.

Click the scroll arrow in the box to reveal the following choices:

True or False

Spells out the words True and False

T or F

Uses the abbreviations T and F in place of the words True and False.

Yes or No

Spells out the words Yes and No.

Y or N

Uses the abbreviations Y and N in place of the words Yes and No.

1 or 0

Uses the digit 1 to represent Yes (True) and 0 to represent No (false).

Format Date button

The Format Date button appears in the dialog box only if you are formatting a date value field. You use the Format Date option to specify the way you want the selected date value to appear on your report.

When you Click the Format Date button, the Format Date dialog box appears.

The dialog box contains three smaller boxes.

- The top box allows you to set the *order* in which the elements of the date (Month, Day, and Year) are to appear.
- The center box allows you to set the *style* (numbers, abbreviated numbers, text, etc.) for each of the elements.
- The bottom box shows you the results of your formatting selections.

Order options

In this box, select the order in which you want the elements of the date to appear. Your options are:

MDY

MDY prints the date in the order Month, Day, Year.

DMY

DMY prints the date in the order Day, Month, Year.

YMD

YMD prints the date in the order Year, Month, Day.

Style options

In this box, select the style you want Crystal Reports to use for each of the elements.

Click the Month scroll arrow to reveal the following options:

3

3 prints a month as a number. If the month number is only a single digit, it prints the number without a leading zero.

03

03 prints the month as a number. If the month number is only a single digit, it prints the number with a leading zero.

Mar

Mar prints a three letter abbreviation for the month.

March

March spells out the full name of the month.

Click the Day scroll arrow to reveal the following options:

1

1 prints the day as a number. If the day number is only a single digit, it prints the number without a leading zero.

01

01 prints the day as a number. If the day number is only a single digit, it prints the number with a leading zero.

Click the Year scroll arrow to reveal the following options:

99

99 prints the year in its short, two digit format.

1999

1999 prints the year in its long, four digit format.

NOTE: You use the edit boxes between the Month, Day, and Year scroll boxes to set the separator(s) you wish to use to separate the date elements. You can type in any character you choose for a separator, or use a blank space as a separator by leaving the box empty. For example, if you are using the format January 1, 1992, you will use a blank space as the separator between the Month and the Day, and a comma between the Day and the Year.

NOTE: The blank line below the last selection in each of the month, day, and year scroll boxes is a selection itself that means leave this part of the date blank. If you want your date to print as

March--1999, for example, choose the blank space below the 01 option in the Day scroll box.

Format String button

The Format String button appears in the dialog box only if you are formatting a string field. You use the Format String option to specify the way you want the selected string field value to appear on your report.

When you Click the Format String button, the Format String dialog box appears.

The following options are available for formatting strings:

Print on multiple lines

When activated, allows the string to print on multiple lines if necessary. When this option is checked, word wrap is activated. If a field is then resized, word wrap is adjusted accordingly.

Maximum number of lines

If print on multiple lines is checked, this option becomes active. Specify the maximum number of lines on which you want your string to print (use 0 if you want the program to use as many lines as are necessary). If the string field requires more lines than you have specified, the string will end when it runs out of allotted space.

NOTE: The number of lines required to print the entire string is dependent on the field size you establish.

Format Memo button

The Format Memo button appears in the dialog box only if you are formatting a memo field. You use the Format Memo option to specify the way you want the selected memo field value to appear on your report.

When you Click the Format Memo button, the Format memo dialog box appears.

The following options are available for formatting memo fields:

Print on multiple lines

When activated, allows the memo field to print on multiple lines if necessary. When this option is checked, word wrap is activated. If a field is then resized, word wrap is adjusted accordingly.

Maximum number of lines

If print on multiple lines is checked, this option becomes active. Specify the maximum number of lines on which you want your memo field to print (use 0 if you want the program to use as many lines as are necessary). If the memo field requires more lines than you have specified, the memo will end when it runs out of allotted space.

NOTE: The number of lines required to print the entire memo is dependent on the field size you establish.

See also memo fields.

Border and Colors command (Format menu)

You can use Border and Colors to set up borders, background fill, and drop shadows for fields on your report. You can also use it to customize the border for a selected field. For example:

- you can enclose the field in a box,
- you can highlight the field with any portion of a box you want (only the top, only the left side, the top and bottom together with no sides, etc.),
- you can add drop shadows that print below and to the right of the field value,
- you can change the color of the border, text, and/or add a background fill color to a field, and
- you can specify the border width (the full width allotted for the field or the width of the data only), and the border height (the full height allotted for the field or the height of the data only).

Using the border options, you can create a variety of striking effects that can enhance the look of your report and highlight important data.

To use Format|Border and Colors

1. Select the field you want to format.

NOTE: The arrow cursor must be active before you can select a field.

2. Select Format|Border and Colors (or Click the right mouse button and select Change Border and Colors from the pop-up menu that appears). The Format Border and Colors dialog box appears:

Format Border and Colors dialog box options

The dialog box contains a variety of buttons and switches for formatting field text, the field fill (background), the field border, for adding drop shadows, and for controlling the size of the border box that encloses the selected field.

Text Color buttons

Use the Text Color buttons to specify the color you want for the text that appears in the selected field. You can choose from any of the 16 standard Windows colors.

When you Click a Text Color button:

- a black box appears around the button as a highlight (a white box appears around the color *black*), and
- the program displays the name of the highlighted color to the right of the Text Color buttons.

NOTE: You can also change text color via the Format|Font command.

Fill Color buttons and checkbox

The Fill Color checkbox and the Fill Color buttons have somewhat different functions.

The Fill Color checkbox

Fill is the color (if any) that you want the program to use to fill the selected field. Use this checkbox to toggle fill on and off.

- A check mark in the box means that fill is turned on.
- No check mark means that fill is turned off.

You simply Click the checkbox to toggle fill *on*, and Click it again to toggle fill *off*. By

default fill is toggled *Off*.

NOTE: Whenever you Click a Fill Color button, the program automatically toggles the Fill Color checkbox on (puts a check mark in the box). It assumes that if you want to specify the color, you want your box to be filled.

NOTE: When you toggle the Fill Color checkbox Off (no check mark), you turn fill off and the description None appears to the right of the Fill Color buttons. It is important that you specify a border when you turn the fill off. Otherwise there is no border or fill color to define your box and the box disappears.

Fill Color buttons

Use the Color buttons to specify the color you want to fill the selected field. You can choose from any of the 16 standard Windows colors.

When you Click a Fill Color button:

- a black box appears around the button as a highlight (a white box appears around the color *black*), and
- the program displays the name of the highlighted color to the right of the Fill Color buttons.

Border Color buttons and checkbox

The Border Color checkbox and the Border Color buttons have somewhat different functions.

The Border Color checkbox

Use this checkbox to toggle the border on and off.

- A check mark in the box means the border is turned on.
- No check mark means the border is turned off.

You simply Click the checkbox to toggle the border *on*, and Click it again to toggle the border *off*. By default the border is toggled *Off*.

NOTE: Whenever you Click a border Color or Style button (or a Sides checkbox), the program automatically toggles the Border Color checkbox on (puts a check mark in the box). It assumes that if you want to specify the color, style, or side, then you must want a border to appear.

NOTE: When you toggle the Border Color checkbox Off (no check mark), you turn the border off and the description None appears to the right of the Border Color buttons. It is important that you specify a fill color when you turn the border off, otherwise there is no border or color to define your box and the box disappears.

Border Color buttons

Use the Border Color buttons to specify the color for the border of the selected field. You can choose from any of the 16 standard Windows colors.

When you Click a Border Color button:

- a black box appears around the button as a highlight (a white box appears around the color *black*), and
- the program displays the name of the highlighted color to the right of the style buttons.

Style buttons

Use the Style buttons to specify the line style you want the program to use as a border for the selected field. When you Click a Style button:

- a black box appears around the button as a highlight, and

-- the program displays a text description of the highlighted style to the right of the style buttons.

Your choices are:

Single line

Prints a single solid line.

Double line

Prints a double solid line

Dashed line

Prints a single dashed line.

Dotted line

Prints a single dotted line.

Sides checkboxes

Use the sides checkboxes to specify (put a check mark by) the sides of the field on which you want the border to appear (if you want a border but don't want it to fully enclose the field).

For example,

- if you want a border (line) to appear only below a field, you check the *Bottom* check box and leave the other checkboxes empty,
- if you want vertical lines to appear to the right and left of the field (with no lines above or below), you check the Left and Right checkboxes and leave the other checkboxes empty, or

Your choices are:

Left

Puts a border on the left side of the field.

Top

Puts a border on the top side of the field.

Right

Puts a border on the right side of the field.

Bottom

Puts a border on the bottom side of the field.

NOTE: When you check the Border checkbox, Crystal Reports automatically puts a check mark in each of the four Sides checkboxes. If you want to eliminate the border for one or more sides of the box, Click the Sides checkboxes for the sides that you want to deactivate and the check marks will disappear.

Drop Shadow checkbox

Put a check mark in this checkbox if you want to print a drop shadow below and to the right of the field value. When the checkbox is not active (no check mark), the program prints no drop shadow.

NOTE: The drop shadow will not print unless you have specified a border on at least one side of the field.

Width buttons

Use the width buttons to specify the width of the box (or horizontal border if an entire box isn't specified). You have two options:

Width of Field

This option prints a box with a size based on the number of characters allotted for the field in the database. For example, if a database allots ten characters for a field but the current field value is only five characters long, Crystal Reports still prints a box (or horizontal border) large enough to accommodate the full ten characters when this option is selected. Field boxes are all the same size, regardless of the size of the value they contain. Crystal Reports uses Width of Field as the default.

Width of Data

The option adjusts the size of the box to the actual size of the value in the field. For example, if a database allots ten characters for a field but the current field value is only five characters long, Crystal Reports prints a custom box (or horizontal border) just large enough to accommodate the five characters when this option is selected. Field boxes are different sizes to accommodate different sized field values.

Height buttons

When multiple fields appear in a given row on a report, Crystal Reports adjusts line spacing (the spacing between rows of data) to accommodate the largest font size used in that row. For example, if one field is formatted with a 12 point font and another field in the same row is formatted with a 36 point font, Crystal Reports expands the height allotted for the row to accommodate the 36 point font.

Use the Height buttons to set the size of boxes to the absolute height allotted for the row or to the actual height of the field data.

You have two options:

Height of Line

The Height of Line option prints a box based on the height allotted for the row, regardless of how big the data field data is. With this option, all boxes (and vertical borders) are the same height; box height is identical for fields formatted with small fonts and for fields formatted with large fonts. Crystal Reports uses Height of Line as the default.

Height of Font

This option bases the height of the box (or vertical border) on the font size of the value in the field. A field formatted with a large font will get a taller box while a field formatted with a small font will get a shorter box.

3. Set up the text color, fill, border, and box sizes you want and Click OK when finished. Crystal Reports highlights the selected field to your specifications.

NOTE: All colors are fixed; they cannot be edited.

Graphic command (Format menu)

Use Format|Graphic to size, scale, crop, and fine tune the placement of a graphic.

To use Format|Graphic:

1. Click (select) the graphic you want to format. Handles appear on the sides and corners of the graphic to indicate that it has been selected.
2. Select Format|Graphic. The Graphic Format dialog box appears.

Dialog box options

The dialog box contains a number of smaller boxes, buttons, and checkboxes:

Cropping of original

Cropping refers to cutting away those portions of your graphic that you don't want to print (although you can use cropping to add white space between the graphic and the frame that surrounds it as well). Using the cropping box, specify the size of the piece you want to cut off the top, bottom, left, and/or right side of your graphic.

NOTE: All cropping activities begin at the outer edge of the graphic.

- **Positive numbers cut into the graphic the amount specified.**
- **Negative numbers add the specified amount of white space between the outer edge of the graphic and the frame.**

For an examination of the cropping process and a discussion about adding white space around a graphic, see [Cropping graphics](#).

Scaling

Scaling refers to the length and width of a graphic as a percentage of the original length and width. For example, if the original graphic is one inch wide, that width is automatically assigned a width scaling value of 100% by the program. To double the width of the graphic using the Scaling options, you would change Scaling Width to 200% (twice the size of the original). Likewise, to reduce the width of the graphic to one-half inch (half the size of the original), you would change Scaling Width to 50%. Scaling Height works in the same way.

If you want to resize the graphic as a percentage of the original height and width, enter the new scaling percentages. For more information on these topics, see [Sizing and scaling graphics](#).

NOTE: Crystal Reports stores a copy of each graphic in its original size. All scaling settings refer back to that original size. For example, if you have a graphic that was originally a four inch square and you have resized it to a two inch square, the Scaling box will show settings of Width = 50% and Height = 50%. Those percentages refer back to the original. If you want to resize the graphic again to a one inch square, you will have to enter scaling values that again refer back to the original Width and Height, not the current values. Entering values of Width = 25% and Length = 25% will reduce the original four inch square to a one inch square.

Size

Size refers to the absolute (measured) length and width of a graphic. For example, if a graphic is originally a one inch square, each of the Size settings will initially be set at one inch. To double the length and width of the graphic (to make a two inch square), reset the Size settings to two inches each. To reduce the size of the graphic to a half inch square, reset the Size settings to a half inch each.

NOTE: When you change the Size settings, Crystal Reports automatically recalculates the

Scaling settings, and when you change the Scaling settings, Crystal Reports automatically recalculates the Size settings. The recalculated settings appear when you next open the Graphic Format dialog box.

Original Size

The Original Size box displays the original dimensions of the graphic (its dimensions when first inserted into the report). Sizing, scaling, and cropping don't affect this figure nor can you change it directly; it is simply provided as a reference.

Hide when printing checkbox

Graphics contain masses of data that take time for computers and printers to process. It follows, then, that when you have graphics in your report, the report pages print more slowly than they would without graphics. While slower printing shouldn't be a problem on your final printing, it may be a bit of an annoyance when doing multiple test prints (to window or printer) while developing your report. This checkbox was provided to eliminate that annoyance.

When you Click the checkbox to activate it, Crystal Reports ignores all graphics when it prints. With the checkbox inactive, the program prints the graphics it finds.

A typical way to use the Hide when printing option is this:

- Leave it inactive while you are placing, sizing, and cropping your graphic.
- Once you have the graphic the way you want it, Click the checkbox so no graphics print when you make test prints.
- When you're ready to print your final report, Click the checkbox off and print the report, graphics and all.

Position button

Use the Position button any time you want to reposition a graphic by specifying its absolute position within a section.

When you Click the Position button, the Graphic Position dialog box appears. The dialog box has two settings:

Top

- Use Top to set the position of the top of the graphic relative to the top of the section.

Left

- Use Left to set the position of the left side of the graphic relative to the left edge of the section.

NOTE: All settings are in either inches or centimeters, based on your settings in the International section of the Windows' Control Panel.

Insert your new settings and Click OK when finished to return to the Graphic Format dialog box.

NOTE: The numeric position of a graphic (as shown in the Graphic Position dialog box) is relative to the page margins you have set. For example, if you have set a left page margin of 1.00 inches and you place your graphic, numerically, with a Left setting of 0.5 inches, the graphic will print 1.5 inches in from the left edge of the paper, 0.5 inches in from the left margin.

NOTE: The settings displayed when you first call up this dialog box indicate the current position of the graphic in the section.

NOTE: A setting of Top = 0.00, Left = 0.00 positions the graphic flush in the upper left hand corner of the section.

NOTE: You can also reposition a graphic using a mouse if you want to determine its final position visually rather than by the numbers. For complete instructions on repositioning a graphic with a mouse, see [Inserting, moving, and deleting graphics](#).

3. Enter the formatting instructions for your graphic. When you Click OK, Crystal Reports changes the graphic to conform to your new specifications.

Line command (Format menu)

Use Format|Line to change the style, width, and color of a graphic line.

To use Format|Line

1. Select the line you want to format.

NOTE: The arrow cursor must be active before you can select a line. With extremely short lines, you may have to move the I-beam cursor slowly around the line with the mouse to find the point that activates the arrow cursor.

2. Select Format|Line (or Double Click the line or Click the right mouse button and select Change Format from the pop-up menu that appears). The Line Format dialog box appears:

Dialog box options

The dialog box contains three sets of formatting buttons and the standard OK, Cancel, and Help buttons.

Color buttons

Use the Color buttons to specify the color of the selected line. You can choose from any of the 16 standard Windows colors. When you Click a color button,

- a black box appears around the button as a highlight (a white box appears around the color *black*), and
- the program displays the name of the highlighted color to the right of the style buttons.

Width buttons

Use the Width buttons to specify the width (thickness) of the selected line. When you Click a width button,

- a black box appears around the button as a highlight, and
- the program displays a text description of the highlighted width to the right of the style buttons.

Your choices include hairline and a number of point sizes from 0.50 points to 3.50 points.

NOTE: A hairline is one pixel wide, based on the output device in use. For example, if your video output shows 70 pixels to the inch, a hairline will display as 1/70th of an inch wide. The same hairline, when printing on a 300 dpi laser printer will print as 1/300th of an inch wide.

NOTE: The program uses a black single line of hairline width as a default.

Style buttons

Use the Style buttons to specify the line style you want the program to use when displaying or printing the selected line. When you Click a Style button:

- a black box appears around the button as a highlight, and
- the program displays a text description of the highlighted style to the right of the style buttons.

Your choices are:

single line

- Prints a single solid line.

dashed line

-- Prints a single dashed line.

dotted line

-- Prints a single dotted line.

3. Select the line attributes you want and Click OK when finished to return to the Report Editor.

Box command (Format menu)

Use Format|Box to change the border and fill attributes for a box. Using this command, you can specify the fill color (if any) for the box, and the style, width, and color of the box border as well (if you want a border on the box).

NOTE: You can create an empty box with a border, a filled box with a border, or a filled box with no border. The border and fill colors are set independently so they can be different from one another.

To use Format|Box

1. Select the box you want to format.

NOTE: The arrow cursor must be active before you can select a box. With extremely small boxes, you may have to move the I-beam cursor slowly around the box with the mouse to find the point that activates the arrow cursor.

2. Select Format|Box (or Double Click the box or Click the right mouse button and select Change Format from the pop-up menu that appears). The Box Format dialog box appears:

Dialog box options

The dialog box contains four rows of formatting buttons in addition to the standard OK, Cancel, and Help buttons.

Fill Color buttons and checkbox

The Fill Color checkbox and the Fill Color buttons have somewhat different functions.

The Fill Color checkbox

Fill is the color (if any) that you want the program to use to fill up the selected box. Use this checkbox to toggle fill on and off.

-- A check mark in the box means that Fill is turned on.

-- No check mark means that Fill is turned off.

You simply Click the checkbox to toggle Fill *on*, and Click it again to toggle Fill *off*. By default Fill is toggled *Off*.

NOTE: Whenever you Click a Fill Color button, the program automatically toggles the Fill Color checkbox on (puts a check mark in the box). It assumes that if you want to specify the color, you want your box to be filled.

NOTE: When you toggle the Fill Color checkbox Off (no check mark), you turn fill off and the description None appears to the right of the Fill Color buttons. It is important that you specify a border when you turn the fill off. Otherwise there is no border or fill color to define your box and the box disappears.

Fill Color buttons

Use the Color buttons to specify the color you want to fill the selected box. You can choose from any of the 16 standard Windows colors.

When you Click a Fill Color button:

-- a black box appears around the button as a highlight (a white box appears around the color *black*), and

-- the program displays the name of the highlighted color to the right of the Fill Color buttons.

Border Color buttons and checkbox

The Border Color checkbox and the Border Color buttons have somewhat different functions.

The Border Color checkbox

Use this checkbox to toggle the border on and off.

- A check mark in the box means the border is turned on.
- No check mark means the border is turned off.

You simply Click the checkbox to toggle the border *off*, and Click it again to toggle the border *on*. By default the border is toggled On.

NOTE: Whenever you Click a border Color, Width, or Style button, the program automatically toggles the Border Color checkbox on (puts a check mark in the box). It assumes that if you want to specify the color, width, or style, you want a border to appear.

NOTE: When you toggle the Border Color checkbox Off (no check mark), you turn the border off and the description None appears to the right of the Border Color buttons. It is important that you specify a fill color when you turn the border off, otherwise there is no border or color to define your box and the box disappears.

Border Color buttons

Use the Border Color buttons to specify the color for the border of the selected box. You can choose from any of the 16 standard Windows colors.

When you Click a Border Color button:

- a black box appears around the button as a highlight (a white box appears around the color *black*), and
- the program displays the name of the highlighted color to the right of the style buttons.

Width buttons

Use the Width buttons to specify the width (thickness) for the border of the selected box. When you Click a width button,

- a black box appears around the button as a highlight, and
- the program displays a text description of the highlighted width to the right of the style buttons.

Your choices include hairline and a number of point sizes from 0.50 points to 3.50 points.

NOTE: A hairline is one pixel wide, based on the output device in use. For example, if your video output shows 70 pixels to the inch, a hairline will display as 1/70th of an inch wide. The same hairline, when printing on a 300 dpi laser printer will print as 1/300th of an inch wide.

Style buttons

Use the Style buttons to specify the line style you want the program to use as a border for the selected box. When you Click a Style button:

- a black box appears around the button as a highlight, and
- the program displays a text description of the highlighted style to the right of the style buttons.

Your choices are:

single line

- Prints a single solid line.

dashed line

- Prints a single dashed line.

dotted line

- Prints a single dotted line.

NOTE: All colors are fixed; they cannot be edited.

NOTE: While a box with a white fill looks no different than a box with no fill when

the two boxes are standing alone, there is a major difference between them. The fill color white is a solid color and thus it can block out parts of boxes it overlaps. If you want a transparent box, toggle the Fill Color checkbox off (None).

NOTE: The program uses a transparent box (no fill) with a black single line border of hairline width as a default.

NOTE: Text always prints over the top of boxes, as if the boxes were on a separate, lower layer.

3. Select the color, width, style, and/or fill color you want and Click OK when finished to return to the Report Editor.

Section command (Format menu)

Format|Section allows you to perform a number of functions that affect the formatting of an entire section of your report. This option allows you to:

- hide a section (keep it from printing),
- print subtotals or group values only at the bottom of the page,
- insert a page break before the section is printed,
- insert a page break after the section is printed,
- reset the page number to one (1) after a group value prints,
- prevent page breaks from spreading data from a single record over two pages, and
- prevent blank lines from printing, and
- set up multi-column, "telephone book" style reports.

To use Format|Section

1. Select Format|Section. The Format Section (sections) dialog box appears.

The Sections list in the dialog box lists all of the sections in the current report.

- By default the Sections list contains three listings:
 - the Page header section,
 - the Details section, and
 - the Page footer section.
- If you have added groups or subtotals, Crystal Reports creates a group header section (Group header #n) and a group footer section (Group footer #n) for each unique group.
- If you have added summaries, Crystal Reports creates a group header section (Group header #n) and a group footer section (Group footer #n) for each summary.

NOTE: Group sections are numbered consecutively in the order created, and they appear on the list in the format: Group header #n:file.triggerfieldname or Group footer #n:file.triggerfieldname

- If you have added a grand total (sum, average, count, etc.), the program creates a Grand Total section to hold the value. Only one Grand Total section will appear on the list.

2. Select the section you want to format. The Format Section (formatting) dialog box appears.

NOTE: You can also call up this dialog box directly by positioning the cursor in the section of interest in the gray area on the left side of the Report Editor, clicking the right mouse button, and selecting Format from the pop-up menu.

The dialog box contains a series of check box options.

Your options are:

Hide Section

When you select Hide Section, Crystal Reports does not print the section.

Print at Bottom of Page

Print at Bottom of Page causes each group value to print only at the bottom of a page. (Details continue to print in their normal positions.) The command is useful for printing invoices and other reports where you want a single group (i.e. line items grouped by order number) to appear on a page and the value for that group (subtotal, summary, etc.) to print only at the bottom of the page.

New Page Before

New Page Before is an available format option for Group (header and footer), Grand Total, and Details sections. When you select this option, Crystal Reports inserts a page break before it prints the section. The page break thus comes before:

- the group (if you use the option with a Group footer section), or
- each report record (if you use the option with a Details section).

The Page Header and Page Footer appear on each page.

If you have a subtotal or summary field in a Group footer section, you can use the New Page Before option to put these values on pages following the value being totaled.

Use New Page Before in the Details section to print each report record on a separate page.

NOTE: If you want to get all of the details in a group, plus the Group header and the Group footer sections, to start on a new page, there are two techniques you can use to accomplish this.

Use New Page Before in the Group header section, or use New Page After in the Group footer section. Both techniques produce the same output except at the end of the report.

- **With the first method (Group header section), the Grand Total section prints on the same page as the last group.**
- **With the second method (Group footer section), the Grand Total Section prints on a separate page.**

New Page After

When you select New Page After, Crystal Reports inserts a page break after it prints the section.

- The Page Header and Page Footer appear on each page.
- Use New Page After in the Group footer section to print each group on a separate page.

Reset Page Number After

Reset Page Number After resets the page number to one (1) for the following page, after it prints a group total. When this option is used in conjunction with Print at Bottom of Page, Crystal Reports prints a single group on a page, prints the group value at the bottom of the page, and resets the page number to 1 for the next page. This option is useful whenever you are printing multiple reports from a single file (i.e. invoices), and you want each report to be numbered beginning with Page 1.

Keep Section Together

When you select Keep Section Together, Crystal Reports keeps all the lines of the section together, either on the current page (if there is room) or on the next (if not).

In a customer list, for example, data on a single customer (from a single record or linked records) may extend over several lines. If the standard page break falls within the data for a customer, the data will be split, part on one page, part on the next. But with Keep Section Together, Crystal Reports inserts the page break before the record begins so that all the data will be printed together, on the following page.

Suppress Blank Lines

When you select Suppress Blank Lines, Crystal Reports eliminates lines from your report that are blank due to fields being suppressed (zeros, duplicates, and hidden fields).

Format with Multiple Columns

When you select Format with Multiple Columns, Crystal Reports activates the Multi--Column Layout button. Clicking this button takes you to the Multi--Column Layout dialog box which enables you to set up your report in a multi--column format. That is, instead of having the data print straight down the page, you can set up multiple columns and have the data flow from column to column. You can also have your data print across then down the page, printing one record in each column, then printing a second record in each column, then a third, etc.

NOTE: Format with Multiple Columns is only available for the Details section of your report.

To use Format with Multiple Columns

- Select Format with Multiple Columns from the Format Section (Formatting) dialog box. Crystal Reports activates the Multi--Column Layout button.
- Click the Multi--Column Layout button. The Multi--Column Layout dialog box appears.

Dialog box options

The Multi--Column Layout dialog box is divided into four smaller boxes.

Detail Size

The Detail Size box enables you to specify the dimensions (height and width) of one detail.

Determine how wide you want each detail to be (based on number of characters, font size, etc.)

and enter that value in the Width edit box.

Determine how high you want each detail to be (based on number of lines in the detail, font size, etc.) and enter that value in the Height edit box.

Gap Between Details

The Gap Between Details box enables you to specify the empty area (gap, gutter, etc.) you want to allow between details. Horizontal = the gaps between details going across the page, Vertical = the gaps between details going down the page.

Determine the gaps you want to allow. Enter the horizontal gap in the Horizontal edit box and enter the vertical gap in the Vertical edit box.

Printing Direction

The Printing direction box enables you to specify the path Crystal Reports follows when printing the details on a report page.

Across then Down

Prints details across the columns, one detail in the first column, one in the next, one in the next, etc. Then, when all the columns have a detail, the program moves down the page and prints a second detail in the first column, then in the second, etc.

Down then across

Prints details down the first column, then down the second column, etc.

Number of Details

The Number of Details box displays the number of details that can print across the page and the number that can print down the page based on your settings in the Detail Size and Gap Between Details boxes and in the [Printer Margins dialog box](#).

NOTE: The program displays only the number of complete details it can print. For example, if it determines that there is space available to print 2.75 details across the page, it displays 2 as the Across Page setting and prints only two details across the page.

3. Select the option(s) of interest, and Click OK to finish formatting the section.

NOTE: Not all options are available for formatting all sections. For example, New Page Before and New Page After are not available options when you are formatting the Page Header section: Crystal Reports already generates a page break before each Page Header section, and, since a header cannot stand alone on a page, there is no need for the Page Break After option.

NOTE: For maximum efficiency in formatting sections, do the following:

- Click the section of interest in the gray area at the left of the Report Editor and Click the right mouse button.
- Select Format from the pop--up menu that appears and the program takes you directly to the Format Section (formatting) dialog box.
- Make your formatting selections as described above.

Add File to Report command (Database menu)

Use Add File to Report to select an additional database for use in your report. (When creating a new report, you select the first database you want to use in your report from the Choose Database File dialog box that appears when you select New Report from the File menu.)

To use Database|Add File to Report

1. Select Database|Add File to Report. The Choose Database File dialog box appears.
2. Using the Directories, Drives, and File Name boxes, select the new database that you want to use in the report and Click OK when finished. The Define Link dialog box appears.

Define Link dialog box

You use the Define Link dialog box to establish links between active database files whenever you have more than one database active in a report.

A link is a field that is common to two or more databases. Crystal Reports uses the link to match up records from one database with those from the other(s). For example, if the databases each contain a customer number field (even though the fields might have different names), Crystal Reports can use those fields to electronically connect all records in one database with corresponding records in the other(s). When you create a single report based on multiple databases, the link assures that all the data in each row on that report refers to the same customer (transaction, invoice, etc.)

Several scroll boxes and a description box appear in the Define Link dialog box:

Link from File scroll box

The Link from File scroll box enables you to select the first database to be linked.

NOTE: The database aliases, not the database names are listed in this scroll box.

Using field(s) scroll box

The Using field(s) scroll box enables you to select the field(s) in the first database that will serve as your linking field(s).

To File scroll box

The To File scroll box enables you to select the second database to be linked.

Using index scroll box

The Using index scroll box enables you to select the indexed field(s) in the second database that will serve as your linking field(s). If you are using a dBASE database, the scroll list also gives you the option of activating additional, non-listed indexes if you have created any.

Description

The Description box displays the results of your selections, in sentence form.

NOTE: When you are activating an additional database via the Database|Add File to Report command, the program:

- **automatically enters database names in the Link from File and To File boxes, and**
- **it automatically displays the names of linking fields in the Link Fields box if it can identify them.**

How to define a file link

1. Using the Link from File scroll box, select the first of the two databases you are linking (if different than the default). Click the scroll arrow to display a list of your choices. The scroll list contains the aliases of all databases that have been activated using the Choose Database File dialog box.

2. Using the To File scroll box, select the second of the two databases you are linking (if different than the default). Again, the scroll list contains the aliases of all databases that have been activated using the Choose Database File dialog box.

Based on your Link from File and To File selections, Crystal Reports attempts to locate linking fields. If there is a field in the first database that has the same name as an indexed field in the second database, the program assumes a link and displays the field names in the Link Fields boxes.

- If you are satisfied with the default selection, Click OK to exit the dialog box.
- If you want to establish a different link, continue with the following steps:

The first database

3. Using the Using Field(s) scroll box, select the field in the selected database that will serve as your linking field.
 - Click the scroll arrow to display a list of your choices, and
 - Click the field you want to select from the scroll list.The program enters your selection in the left Link Fields box.

NOTE: If you decide to use a different field, if you have inadvertently selected too many fields, or if there is already a field in the Link Fields box that you want to remove, Double Click the field(s) you want to remove from the list in the Link Fields box.

4. If you are using multiple fields as link fields (if, for example, you are linking with an index that indexes on multiple fields), repeat Step 2 as many times as needed.

The second database

5. Using the To File scroll box, select the second of the two databases you are linking (if different than the default).
 - Click the scroll arrow to display a list of your choices. The scroll list contains the names of all databases that have been activated using the Choose Database File dialog box.
 - Click the database you want to select from the scroll list and the program displays your selection in the To File scroll box.
6. Using the Using Index scroll box, select the indexed field in the second database that matches the linking field in the first database.
 - Click the scroll arrow to reveal your choices.
 - Click the field you want to select from the scroll list.
7. The selected field appears in the right Link Fields box.

NOTE: Under certain circumstances, some of your indexed field options will not appear on the list in the Using Index box. A New Index option appears instead. See The New Index Option below for further information.

NOTE: If you are using an index that indexes on two or more fields, all of those fields will appear in the Link Fields box. It will be necessary for you to add all of the corresponding link fields from your first database using the steps described in the Link from File box.

NOTE: Each time you add or remove a field or index, the linking instructions in the bottom box change to conform to your selection.

8. Select OK when finished. If you have specified valid links, Crystal Reports links the databases and displays the File Links dialog box.

NOTE: If you have specified invalid links, Crystal Reports displays a message detailing the problem.

The File Links dialog box displays the links you have created, and it enables you to delete or update existing links, create new links, or specify lookup options for certain kinds of

links. For a complete discussion, see [File Links dialog box](#).

9. If the links are all in order, Click OK to return to the Report Editor.

From this point on, when you call up a field list, fields from all linked databases will be listed.

The New Index option

Crystal Reports automatically identifies all of the index files for Paradox and Btrieve databases, and it identifies all dBASE index files that have the same filename as the database (for example, for company.dbf it will identify the index file company.mdx or company.ndx, whichever exists). When you select a file in the To File scroll box, the program reads its corresponding index file(s) and lists all of the indexes it finds in those files in the Using Index scroll box (using the index tags [the key field(s) for each index] and the names of the associated index files as identifiers in the scroll list.).

If you are using:

- dBASE III or III+ and have multiple .ndx files for the link--to file database, or
- dBASE IV and have changed the default name of the primary .mdx file or created one or more additional .mdx files for the link--to file database,

the Using Index scroll list will not include all of your index options. It will include only those indexes found in the index files that have the same root name as the link--to file database.

The *New Index* option in the Using index scroll box enables you to make Crystal Reports aware of dBASE index files that it didn't identify automatically (and thus to add the indexes in those files to the Using index scroll list).

To use the New Index option

1. Click the scroll arrow on the *Using index* scroll box. A list of indexes will appear along with the *New Index* option.
2. Click the *New Index* option. The Choose New Index dialog box appears.

Choose New Index dialog box options

File Name edit box

This box displays the current index specification. By default, Crystal Reports uses a wild card character for both the name and the extension of the index (*.*):

-- If you know the name of the index you want to select, type the name in this edit box. Include the path if different than the path currently displayed in the Directories heading.

NOTE: *When working with dBASE files, you must pick an index that resides in the same directory as its corresponding .DBF file.*

File Name scroll box

This scroll box displays a list of those files in the selected directory that match the specification in the File Name edit box.

-- If you don't type an index in the File Name edit box, or if you are uncertain of the report name, select the index you want from the list of files that Crystal Reports displays in this scroll box.

List Files of Type scroll box

The List Files of Type scroll box enables you to specify the kind of files you want to appear on the list in the File Name scroll box. When you Click the scroll arrow on the List Files of Type scroll box, the following options appear:

User default

-- Enters the specification *.* in the File Name edit box. This causes all files in the selected

directory to appear

dBase Indexes

-- Enters the specification for dBase index files (*.ndx;*.mdx) in the File Name edit box. This causes only those files with the extensions .ndx or .mdx to appear in the File Name scroll box.

Clipper Indexes

-- Enters the specification for Clipper index files (*.ntx) in the File Name edit box. This causes only those files with the extensions .ntx to appear in the File Name scroll box.

All Files

-- Enters the wild card specification *.* in the File Name edit box. This causes all files in the selected directory to appear in the File Name scroll box.

Directories heading

This heading displays the current path.

Directories scroll box

This box displays a list of directories on the currently logged drive. If the index is saved in a different directory than the one displayed in the Directories heading, use this scroll box to select the correct directory.

Drives scroll box

This scroll box contains a list of your system drives. If the index is saved on a different drive than the one displayed in the Directories heading, use this scroll box to select the correct drive.

3. Click OK when you have finished selecting your index. Crystal Reports returns you to the Define Link dialog box with the index tag(s) from the selected index file appearing in the Using Index scroll list. (You may have to Click the scroll arrow on the Using Index scroll box to reveal the new listing(s).)

Remove File from Report command (Database menu)

Use Remove File from Report to delete databases from the active list so they can no longer be used in your report.

To use Database|Remove File from Report

1. Select Database|Remove File from Report. The Remove File from Report dialog box appears. A list of active databases appears in the Files box. As you highlight a file on the list, Crystal Reports displays the location (path) of that file in the Location box at the bottom of the dialog box.
2. Highlight the file you wish to delete and Click the Remove File button to delete it.
 - If there are no fields from this database in the report, Crystal Reports removes the database from the report.
 - If there are fields from the database in the report, Crystal Reports prompts you to remove the fields from your report before it removes the database from the active list.

NOTE: The fields that need to be deleted can be in the report itself, in the selection formula, in the sort order, or in a formula field. Check all possibilities. For more information, see Finding fields Remove File from Report says to remove.

File Location command (Database menu)

Use File Location to change the location of a database that is active in a report. This option is convenient if you need to change the directory or disk location of a database to avoid file name conflicts, better utilize disk space, etc. It is also a handy option to use if someone sends you a report based on databases that were located in different disk/directory locations on their system than they are on yours.

NOTE: *This option does not physically move the database(s). It simply directs Crystal Reports to look for the database(s) in a different location than you originally specified when setting up the report.*

To use Database|File Location

1. Select Database|File Location. The **File Location dialog box** appears. A list of active databases appears in the **Files** box (the large box on the left).
2. Select the database file for which you want to change the location. As you highlight a file on the list, Crystal Reports displays the location (path) of that file in the **Location** box at the bottom of the dialog box.
3. Set the new location for the database:
 - If you want to set the database location to the same location as the active report, Click the **Same As Report** button. Crystal Reports will now look for the database in the directory in which you have saved the report.

NOTE: *You cannot use the Same As Report button until you have saved the report.*
 - If you want to set the database location to a location different than that of the active report, click the **Set Location** button. The Choose Database File dialog box appears.
 - If you wish to choose a database with a different name, type the new name in the Database File Name box at the top.
 - If you wish to change the directory or disk location of the file, set the new location using the Directories box. When you make a change in this box, Crystal Reports displays the new location in the Directory box.
 - If you wish to change both the name and location, you can type in the new name and include the new path in the Database File Name box or, you can type in the new name in the Database File Name box and select the new location using the Directories box.
4. Click the OK button. Crystal Reports changes the report to reflect the new name/location you have chosen.

File Alias command (Database menu)

In Crystal Reports, an alias is an alternative name assigned to a database file. If a database is called customer.db, you could assign the alias *customer*, *cust*, *company*, *DB1*, or any other name that suits your needs. Aliases make it easier for you to use a report created with a database whose name and/or location has changed since the report was created.

Use File Alias to change the alias you are using for one or more of your active databases.

To use Database|File Alias

1. With a report in the active window, select Database|File Alias. The File Alias dialog box appears. The Files box contains a list of aliases used in the current report, and the first alias on the list is highlighted. The Location box at the bottom of the dialog box displays the name and path of the database using the highlighted alias.
2. Highlight the alias of interest and Click the Set Alias button. The Database File dialog box appears with the highlighted alias displayed in the Alias Name box.
3. Type your new alias in the Alias name box and press OK when finished. Crystal Reports returns you to the File Alias box. The new alias has replaced the old alias in the Files box but the location remains the same.
4. Click OK when finished. Crystal Reports replaces the old alias with the new. Fields already placed in the report using the old alias are now identified using the new alias (*{old.fieldname}* is now *{new.fieldname}*).

NOTE: *Database|File Alias does not affect the aliases already used in formulas. When you change an alias, you must make certain that you change any formula references to the old alias as well. For example, if you change the company alias to customer, you must make certain that you change any formula references from {company.fieldname} to {customer.fieldname}. If you don't make such a change, Crystal Reports will be unable to locate the referenced field and return an error message. Formula references include both formulas used in the report and selection formulas as well.*

NOTE: *Database|File Alias changes the alias only, not the database location. If you want to change the location of a database (i.e., tell Crystal Reports to find the database in a new location), use Database|File Location.*

See Also

[Selecting an alias](#)

[File Location command](#)

Verify Database command (Database menu)

Use Verify Database to make certain your report prints with the current version of the active database.

When you first create a report, the report draws its fields from the database as it exists at that time. It uses the structure of the database (number of fields, field position, data type, etc.) to identify and select those fields you want to appear on the report. If you change the structure of the database (by adding or deleting fields) after you create the report, the program needs to adapt the report to the new structure.

The Verify Database command is the tool you use for adapting the report to the new database structure.

- If the current version of the database has more fields than it had when the report was first created, Crystal Reports attempts to identify and use the correct fields from the new database. The aim is to print an unchanged version of the report even though the underlying database has changed.
- If the current version of the database has fewer fields than it had when the report was first created, it uses those fields that are still available when it prints the report and ignores those that are no longer available.

To use Database|Verify Database

With the report of interest active in the Report Editor, select Database|Verify Database.

- If the underlying database is unchanged, you will get the following message:

```
Database is up to date.
```

-- Click OK to return to the Report Editor.

- If the underlying database has changed, you will get the following message:

```
The database file (filename) has changed. Proceed to fix up the report?
```

-- If you select *Yes*, Crystal Reports adapts the database to the current version of the database.

-- If you select *No*, Crystal Reports attempts to print the report without first adapting it to the current version of the database.

Verify on Every Print command (Database menu)

The Database|Verify on Every Print command is a lock that triggers the Verify Database command every time you print.

If there is a check mark beside the command on the Database menu, the command is active (it will trigger the Verify Database command every time you print).

- If there is no check mark beside it, the command is inactive.
- By default the command is inactive.

How to use Verify on Every Print

- To toggle the command on (activate it), Click it.
- To toggle the command off (deactivate it), Click it again.

File Links command (Database menu)

Use File Links:

- to display the links that have been set up among active databases,
- to create new links between active databases,
- to update (modify) existing links,
- to delete existing links, and
- to select the lookup parameters for multiple files linked to a single file.

NOTE: To activate and link additional databases, use Add File to Report.

NOTE: For a discussion of file links, see Linking the databases.

To use Database|File Links

1. Select Database|File Links. The **File Links dialog box** appears.

There are two boxes inside the dialog box:

File Links

The File Links box shows the file--to--file links, if any, that currently exist in your report.

Description

The Description box displays, as text, the specifics of the link including the name of the database files linked and the names of the linking field(s) and index.

Four buttons (besides the OK, Cancel, and Help buttons) appear on the right side of the box.

New

The New button allows you to set up a new file link. When you Click the New button, the Define Link dialog box appears. Set up your new link using the options available in this box and Click OK when finished. For complete instructions on using this dialog box, see Database|Add File to Report.

Update

Update allows you to redefine the highlighted field and index link between databases. When you Click the Update button, the **Define Link dialog box** appears. The dialog box displays the details of the link you have highlighted in the **File Links** box. Make whatever changes are needed, and Click the OK button when you're finished. For complete instructions on using this dialog box, see Database|Add File to Report.

Delete

Delete allows you to delete a file link. When you Click the **Delete** button, Crystal Reports deletes the link you have highlighted in the **File Links** box.

Options

The Options button is available only when you have a single database (we'll call it database A) linked to two other databases (database B and database C). This button enables you to specify the method you want Crystal Reports to use when looking in B and C for records that match records in A.

When you Click the Options button, the File Link Options dialog box appears. The dialog box displays three different options for looking up records:

- Look up both files at the same time.
- Look up all of one file, then all of the other.
- Look up all combinations of the two files.

Sample Data

Examples of the three different options for looking up records will be based on the following data:

Database A -- Customers

CustNum	Name
----------------	-------------

1	Jones
2	Smith
3	Miller

Database B -- Orders

OrderNum	CustNum	Amt1
11	1	10.00
22	1	20.00
33	2	30.00
44	2	40.00
55	3	30.00
66	3	30.00

Database C -- Credits

CreditNum	CustNum	Amt2
C1	1	10.00
C2	2	30.00
C3	2	40.00
C4	3	30.00

Lookup option 1 -- Look up both files at the same time.

For each record in A, this option looks for a matching record in B and a matching record in C, then it looks for the next matching record in B and the next matching record in C, etc. Once it finds all the matching records, it repeats the process with the next record in A, then the next, etc.

Using the example databases, Crystal Reports presents the data in this manner using this function:

CustNum	OrderNum	Amt1	CreditNum	Amt2
1	11	10.00	C1	10.00
1	22	20.00	C1	10.00
2	33	30.00	C2	30.00
2	44	40.00	C3	40.00
3	55	30.00	C4	30.00
3	66	30.00	C4	30.00

Lookup option 2 -- Look up all of one file, then all of the other.

For each record in A, this option looks for all the matching records in B and then all the matching records in C, then it repeats the process with the next record in A, then the next, etc.

Using the example databases, Crystal Reports presents the data in this manner using this function:

CustNum	OrderNum	Amt1	CreditNum	Amt2
1	11	10.00		
1	22	20.00		
1			C1	10.00
2	33	30.00		
2	44	40.00		
2			C2	30.00
2			C3	40.00
3	55	30.00		

3	66	30.00		
3			C4	30.00

NOTE: If you want the C data to appear in your report before the B data, you will need to change your links so the A to C link comes first, then the A to B link. You do this via the File Links dialog box. To change the order of the links, delete the existing links and set up new links in the order you want.

NOTE: For a step--by--step discussion of building a report using Option 2, see [A to B, A to C reports.](#)

Lookup option 3 -- Look up all combinations of the two files.

For each record in A, this option looks for a matching record in B, then it finds all the matching records in C. Once it finds all the matching records in C, it repeats the process with the next record in B, then the next, etc. When it finds matching C records for all the B records that match the first A record, it moves to the next A record and repeats the process.

Using the example databases, Crystal Reports presents the data in this manner using this function:

CustNum	OrderNum	Amt1	CreditNum	Amt2
1	11	10.00	C1	10.00
1	22	20.00	C1	10.00
2	33	30.00	C2	30.00
2	33	30.00	C3	40.00
2	44	40.00	C2	30.00
2	44	40.00	C3	40.00
3	55	30.00	C4	30.00
3	66	30.00	C4	30.00

2. Define, update, or delete links, or modify lookup parameters using these buttons and the dialog boxes that they activate.

NOTE: If you want the program to look up the first matching record in the C database, then find all matching records in the B database (the reverse of the current process), you will need to change your links so the A to C link comes first, then the A to B link. You do this via the File Links dialog box. To change the order of the links, delete the existing links and set up new links in the order you want.

Log On Database Server command (Database menu)

Use Database|Log On Database Server to log onto a SQL database server.

To use Database|Log On Database Server

1. Select Database|Log On Database Server. The Log On To Server dialog box appears.
2. In that dialog box, the SQL Types box lists the various SQL server types that are available to your system. Select the server type that you want to log on to and Click OK when finished.
3. A dialog box appears requesting server--specific login information. You use this dialog box to identify yourself and to specify the database you want to activate.

NOTE: If you want to activate multiple databases from the same server, you will need to log on to the server each time you want to activate a database.

Some of the following items will be in the dialog box (depending on the server type requested).

SQL Server

Enter the name of the SQL server you want to log on to.

Database

Enter the name of the database you want to activate in the specified SQL server.

User ID

Enter the name you use to log on to the specified server.

Password

Enter the password you use to log on to the specified server.

Dict Path

When using Netware SQL, enter the path for the data dictionary (.ddf) files.

Data Path

When using Netware SQL, enter the path for the data files.

Enter the requested login information and Click OK when finished. Crystal Reports logs you onto the specified server and returns you to the Crystal Reports Window (or to the Report Editor if you were in the Report Editor when you chose the Database|Log On Database Server command).

Log Off Database Server command (Database menu)

Use the Log Off Database Server command to log off of an active SQL database.

To use Log Off Database Server

1. Select Database|Log Off Database Server. The Log Off SQL Server dialog box appears. The Opened SQL Servers box lists the SQL servers that are currently activated.
2. Select the server from which you want to log off and Click the Log Off button. The program logs you off the selected SQL server.
3. If you want to log off additional servers, repeat Step 2 as many times as necessary.
4. Click OK when finished and the program returns you to the Crystal Reports Window (or the Report Editor if you were in the Report Editor when you chose the Database|Log Off Database Server command).

Print To Window command (Print menu)

Use Print To Window to print your report on screen, in Crystal Reports' Print Window.

To use Print|Print To Window

Select Print|Print To Window. Crystal Reports displays the Print Window and prints your report in that window. As Crystal Reports is preparing your report, it displays a window that shows the number of records being read and sorted, and the percentage of the total that has already been processed. For a discussion of the various Record Counter values, see [Records Counter](#).

The arrow buttons at the top of the print window (similar in design to VCR buttons) enable you to move backwards and forwards in your report. The buttons are activated only if you have a multi--page report. The action of those buttons is as follows:



Moves you to the first page of your report



Moves you to the previous page



Moves you to the next page



Moves you to the last page of your report



Closes out the Print Window



Previews the page to be printed



Sends your report to the printer

NOTE: You can also use the keyboard to move around in the print window. *Ctrl+Home* moves you to the first page, *Pg Up* moves you to the previous page, *Pg Dn* moves you to the next page, *Ctrl--End* moves you to the last page, and *Esc* closes the print window.

NOTE: You can also use the scroll bars to move around individual pages of the report.

Print Preview


Crystal Reports enables you to preview your completed report before you print. The magnifying glass button is the print preview button. This button lets you see each page in its entirety, as it will print. This gives you the opportunity to evaluate the overall page look (balance, white space, highlights, etc.) When you Click this button, the program displays the page that's currently in the print window, reduced in size so the entire page fits in the print window at one time.

NOTE: The size of the preview page is directly proportional to the size of the print window. Thus, you can increase the size of the preview page by expanding the print window.

Once you are in the print preview mode, you can scroll through the report pages using the arrow buttons just as you can in the standard (non--preview) mode.

Printing to the printer

The printer button is always activated. You can use that button to send the report to the printer to print a hard copy. Using the Print To Window option and this button together, you can first review your report on screen, and, if it's the way you want it, print it out.

NOTE: *Print To Window is also available as the 14th button on the Button Bar . Clicking the button has the same effect as selecting Print\Print To Window. Once in the window, you can use the Print Window buttons as described above.*

Print To Printer command (File and Print menu)

Use Print|Print To Printer to print a hard copy of your report.

To use Print|Print To Printer

1. Select Print|Print To Printer. The Print dialog box appears.

Dialog box options

Print Range Options

All

Select All if you want Crystal Reports to print your entire report.

Pages

Select Pages if you want Crystal Reports to print a partial report.

When you select Pages the insertion point moves to the *From* edit box. Enter the first page you want to print in the *From* edit box and the last page you want to print in the *To* edit box. Crystal Reports prints the pages specified plus all the pages in between.

NOTE: To print a single page, enter the number of the page you want to print in both boxes.

Other Options

Copies

Specify the number of copies you want to print. The default is one (1) copy.

Collate copies

Leave this check box empty if you want to print multiple copies of a multiple page report in the following page order: 1,1,1,2,2,2,3,3,3, etc.

Activate this check box if you want to print multiple copies of a multiple page report in the following page order: 1,2,3...,1,2,3..., etc.

2. Make your dialog box selections and Click OK when finished. Crystal Reports sends your report to the selected printer following your specifications. As Crystal Reports is preparing your report, it displays a Records Counter window that shows the number of records being read and sorted, and the percentage of the total that has already been processed.

NOTE: Print|Print To Printer is also available as the last button on the Button Bar. Clicking the button has the same effect as selecting Print|Print To Printer.

Print To File command (Print menu)

You may want to use your report data in another program (spreadsheet, word processor, etc.). The Print To File command enables you to save your data in a variety of formats that can be used by many popular software products. In fact, many applications can use data stored in more than one of these formats. Consult the user manual for the application you want to use the report data with for instructions on the format you should use.

To use Print|Print To File:

1. Select Print|Print To File. The Print To File Options dialog box appears. Your options are:

Comma separated values (CSV)

Encloses alphanumeric field data in quotes and separates fields with commas.

Tab separated values

Presents data in tabular form. Encloses alphanumeric field data in quotes and separates fields with tabs.

Tab separated text style

Saves the data in ASCII text format with all values separated by tabs.

Character separated values

Encloses alphanumeric field data in quotes and separates fields with the character of your choice.

-- Separator

Specifies the character you want to use to separate the fields in the Character separated value format.

-- Quote

Specifies double or single quotation marks to enclose alphanumeric field data in the Character separated value format.

Data interchange format (DIF)

Saves the data in DIF (data interchange format) format. This format is often used for the transfer of data between different spreadsheet programs.

Record style (columns of values)

Doesn't use commas or separators. Outputs every record with a fixed field width.

Text style

Saves the data in ASCII text format with all values separated by spaces. This style looks most like the printed page.

Same number formats as in report

Saves the numbers in the same format (decimal places, negatives, etc.) that you have used in the report. If you don't select this option, the program saves the numbers in a format that has been optimized for the file format you have selected.

Same date formats as in report

Saves the dates in the same format (MDY, DMY, etc.) that you used in the report. If you don't select this option, the program saves the dates in a format that has been optimized for the file format you have selected.

2. Select the option(s) of interest.
3. Click OK when finished. The Choose Print To File Name dialog box appears.

Choose Print To File Name dialog box options

File Name edit box

This box displays the current file specification. By default, Crystal Reports uses a wild card character in place of the name, and .txt as the extension (*.txt):

-- If you want to specify a new file name, type the name in this edit box. Include the path if different than the path currently displayed in the Directories heading.

NOTE: The extension .txt is provided for all files. The program you want to use the data in, however, may look for specific extensions other than .txt. Consult the manual for the program you want to use the data in for instructions on the correct file extension to use, and change the extension accordingly.

File Name scroll box

This scroll box displays a list of those files in the selected directory that match the specification in the File Name edit box.

-- If you want to print to file using the name of an existing file, select the file name from the list of files that Crystal Reports displays in this scroll box.

NOTE: Printing to file under the name of an existing file overwrites the contents of the existing file.

List Files of Type scroll box

The List Files of Type scroll box contains only a single entry, Print to file (*.txt). No choice is available in this scroll box; the program uses the .txt extension as a default for all file formats.

NOTE: You can print to a file with a different extension if you wish, but you will have to specify the new extension via the File name edit box.

Directories heading

This heading displays the current path.

Directories scroll box

This box displays a list of directories on the currently logged drive. If you want to print to a file in a different directory than the one displayed in the Directories heading, use this scroll box to select the new directory.

Drives scroll box

This scroll box contains a list of your system drives. If you want to print to a file on a different drive than the one displayed in the Directories heading, use this scroll box to select the new drive.

4. When you have selected the file name, Click the OK button. Crystal Reports prints the report to file using the file name you have chosen.

NOTE: Print To File is also available as the 15th (next to last) button on the Button Bar. Clicking the button takes you directly to the Print To File Options dialog box. Once there, follow the remaining steps described above.

Print Report Definition command (Print menu)

A report definition is a report on a report; it identifies the components of the report, and it provides important information about each of the components. Print Report Definition prints a copy of the report definition for the active report. You have the option of printing the report definition to the print preview window or to the printer.

To print the report definition

1. Make sure the report for which you want to print the definition is active, that is, in the active window.
2. Select Print|Print Report Definition. The Print Report Definition dialog box appears. You have two choices in the dialog box:

Print to Window Prints the report definition to the Print Window for review.

Print to Printer Prints a hard copy of the report definition.

3. Select the option that suits your needs. Crystal Reports prints the report definition for the selected report.

Understanding the report definition

The report definition is divided into a number of sections, and some of those sections are further divided into subsections. Each section is numbered *N.0*, and each subsection includes both the number of the section and the number of the subsection: *N.1*, *N.2*, etc.

Report definition sections are as follow:

File Information

File Information contains report--wide information including the following:

Report file The name and path of the report

Last edited The day the report was last edited and saved

Version The version number of Crystal Reports used to create the report

Data file(s) The database(s) used to prepare the report

Record Sort Fields

Record Sort Fields identifies the record sort field(s) selected (if any) and the sort direction (A for Ascending, D for Descending) for each sort field.

Group Sort Fields

Group Sort Fields identifies the group sort field(s) selected (if any) and the sort direction (A for Ascending, D for Descending) for each sort field.

Formulas

This section identifies each of the formulas used in the report. The formulas are broken down into three categories:

Record Selection Formula

The formula used to select the records that appear in the report. The definition prints the formula itself.

Group Selection Formula

The formula used to select the groups that appear in the report. The definition prints the formula itself.

Other Formulas

Report formulas used for such things as manipulating text, calculating or comparing values, printing data when certain conditions are met, etc. For each formula, the definition prints the formula name (as entered in the Insert Formula Dialog Box) and the formula itself.

Sectional Information

Sectional information is information on the content and formatting of each of the report sections. Report sections are identified in the following manner:

Name in definition **Corresponding section in Report Editor**

Header Section	Page header section
Detail Section	Details section
Footer Section	Page footer section
Start group #n	Group header section for group #n
End group #n	Group footer section for group #n
Grand Total Section	Grand Total section

Section--wide settings

The first data appearing in each section identifies the settings in the Format Section dialog box for that section. These settings affect the section as a whole. Possible listings are:

Definition text **Corresponding Format Section setting**

visible/hidden	Hide section, unchecked = <i>visible</i> , checked = <i>hidden</i>
new page before	New Page Before (if checked)
new page after	New Page After (if checked)
keep together	Keep Section Together (if checked)
suppress blank lines	Suppress Blank Lines (if checked)
reset page number after	Reset Page Number After (if checked)
print at page bottom	Print at bottom of page (if checked)

Individual field settings

Following the section--wide settings, the report definition lists the name and field format settings for each of the fields and formula fields that appears in the section. Format settings correspond to the settings in the Field Format dialog box, and in the Format String, Format Number, Format Date, Format Memo, and Format Boolean dialog boxes (depending on the data type of the field).

For each of the fields, the following information is given:

Definition text **Corresponding Field Format dialog box setting**

suppress duplicate	Suppress if Duplicated (if checked)
hidden	Hide when Printing (if checked)

Data type

text	data type = text
numeric	data type = numeric
currency	data type = currency
date	data type = date
boolean	data type = boolean

Alignment

default align	Alignment = default
left align	Alignment = left
center align	Alignment = centered
right align	Alignment = right

Number/Currency settings

The following is a list of those report definition entries that are used with numeric/currency fields.

Definition text **Corresponding Format Number setting**

suppress zeros	Suppress if Zero (if checked)
----------------	-------------------------------

Rounding

no rounding	Rounding= none
round to .1	Rounding = 0.1
round to 1	Rounding = 1

round to 10	Rounding = 10
round to 100	Rounding = 100
round to 1,000	Rounding = 1,000
round to 10,000	Rounding = 10,000
round to 100,000	Rounding = 100,000
round to 1,000,000	Rounding = 1,000,000

Leading Zero

no text	Leading Zero = 0.17
no leading zero	Leading Zero = .17

Decimals

0 dec places	Decimals = 1.
1 dec places	Decimals = 1.0
2 dec places	Decimals = 1.00
3 dec places	Decimals = 1.000
4 dec places	Decimals = 1.0000
5 dec places	Decimals = 1.00000
decimal symbol:	= value in Decimal Separator text box

Thousands separator

no text	Thousands Separator = 1,000.00
no thousands separator	Thousands Separator = 1000.00
thousands symbol:	= value in Thousand's Separator text box

Negatives

bracketed	Negatives = (345.00)
leading minus	Negatives = --345.00
trailing minus	Negatives = 345.00--

Currency Symbol

no text	Currency Symbol = none
float symbol, 's'	Currency Symbol = float + value in Currency Symbol text box
fixed symbol, 's'	Currency Symbol = fixed + value in Currency Symbol text box

Currency position

currency on left	Currency Position = left
currency on right	Currency Position = right

Date settings

A representative date is printed, showing the format (order and style of date elements) as set in the Format Date dialog box.

Boolean settings

The following is a list of report definition entries that are used with Boolean fields:

true/false	Boolean Text = True or False
t/f	Boolean Text = T or F
yes/no	Boolean Text = Yes or No
y/n	Boolean Text = Y or N
1/0)	Boolean Text = 1 or 0

Select Printer command (Print menu)

Use Select Printer to select the printer you want to use to print the report. If you don't select a printer, Crystal Reports will print to the Windows default printer.

To select a printer:

1. Select Print|Select Printer. The Print Setup dialog box appears.
2. The dialog box is divided into three boxes:

Printer

-- Allows you to specify whether Crystal Reports is to use the Default Printer to print the active report or one of the other printers you have set up in windows.

Orientation

-- Allows you to specify whether the program is to print in Portrait or Landscape orientation.

Paper

-- Allows you to select the paper size and source (from among those available for the printer). The sizes and sources available depend on the printer you have selected and they change when you change printers.

3. Select the printer of interest from the Printer box, the orientation from the Orientation box, and the paper size and source from the Paper box.
4. If you want to review and/or use other options available for your printer, Click the Options button. This takes you to the Options dialog box. The Options dialog box is a Windows dialog box that changes with the printer selected. For a complete explanation of dialog box options, Click the Help button in the Options dialog box.

Set Printer Margins command (Print menu)

Use Set Printer Margins to set page margins for your report. Margins define the white space between your report and the edges of the page.

To set printer margins

1. Select Print|Set Printer Margins. The Printer Margins dialog box appears with the current margin settings displayed and the Use Default Margins checkbox checked.
2. Accept the default margins or enter your new margins.
 - To accept the default margins, Click OK and the program returns you to the Report Editor.
 - To change the margins, enter your new margins in the Top, Left, Bottom, and/or Right Margin edit boxes. When you change any of the default margins, the program turns the Use Default Margins checkbox *Off*.
 - To restore changed margins to their default settings, Click the Use Default Margins checkbox.
3. Click OK when finished. Crystal Reports returns you to the Report/Label Editor with your new margins in place.

For additional information on setting margins, see [Creating Margins](#).

NOTE: Crystal Reports uses the non--printing areas established for your printer as default printer margins. Those margin settings appear in the Printer Margins dialog box. While you can set margins that fall inside the non--printing areas, parts of your report may be clipped off if you do.

Select Records command (Print menu)

This command is a companion command to Edit Record Selection Formula. It enables you to select the records you want to include in your report (if you don't want them all included). For example, you may have a customer database that contains records for customers from every state and Canadian province but you want to do a report only on Texas customers. Select Records enables you to restrict your report so that only Texas customers are included.

The primary difference between Select Records and Edit Record Selection Formula is that Select Records enables you to enter selection criteria without the need to understand Crystal Reports formula language. When you use Select Records, Crystal Reports automatically generates a record selection formula based on your responses to dialog box questions.

NOTE: This command allows you to set up reasonably complex selection criteria, but it does not have the flexibility of Print|Edit Record Selection Formula.

To use Select Records

1. Select the first field you want Crystal Reports to use for identifying records to be included in your report.
2. Select Print|Select Records. The Select Records dialog box appears.

Dialog Box Options

The Select Records dialog box is a dynamic box. Different data types and selection criteria change your dialog box options.

All dialog boxes begin with the expression:

```
Select all records where:
```

followed by the name of the field you have selected and a selection criteria scroll box.

Using the scroll box, select the condition that best finishes this sentence:

```
"I want to select all records where the value in the field I have selected..."
```

You can select from any of the following conditions (depending on the data type of the field you have selected):

Primary conditions

These conditions appear whenever you use Select Records with number, currency, string, or memo fields.

is any value

Select records that have any value in the selected field. Use this option to include all records in the report; no records are excluded.

is equal to

Select records for which the value in the selected field is equal to another value to be specified.

```
Customer is equal to Acme
```

```
« Include all records that show Acme as the customer. »
```

```
OrderDate is equal to January 15, 1992
```

```
« Include all records that show an order date of January 15, 1992. »
```

is not equal to

Select records for which the value in the selected field is not equal to another value

to be specified.

Customer is not equal to Acme

« Include all records that show anyone but Acme as the customer. »

OrderDate is not equal to January 15, 1992

« Include all records that show anything but January 15, 1992 as the order date. »

is less than

Select records for which the value in the selected field is less than another value to be specified.

Quantity is less than 5

« Include all records that show a quantity smaller than five. »

Amount is less than 1000.00

« Include all records that show an amount smaller than 1000.00. »

is greater than

Select records for which the value in the selected field is greater than another value to be specified.

Quantity is greater than 5

« Include all records that show a quantity bigger than 5. »

Amount is greater than 1000.00

« Include all records that show an amount bigger than 1000.00. »

is less than or equal to

Select records for which the value in the selected field is less than or equal to another value to be specified.

Quantity is less than or equal to 5

« Include all records that show a quantity of 5 or smaller. »

Amount is less than or equal to 1000.00

« Include all records that show an amount of 1000.00 or smaller. »

is greater than or equal to

Select records for which the value in the selected field is greater than or equal to another value to be specified.

Quantity is greater than or equal to 5

« Include all records that show a quantity of 5 or more. »

Amount is greater than or equal to 1000.00

« Include all records that show an amount of 1000.00 or more. »

is between

Select records for which the value in the selected field falls between or matches one of two values to be specified.

OrderDate is between January 1, 1992 and March 31, 1992

« Include all records in which the order date falls between (or matches either) January 1, 1992 and March 31, 1992. »

ZIP is between 90000 and 99999

« Include all records in which the ZIP code falls between (or matches either) 90000 and 99999. »

is not between

Select records for which the value in the selected field does not fall between or

match one of two values to be specified.

`OrderDate is not between January 1, 1992 and March 31, 1992.`

« Include all records in which the order date does not fall between (or match either) January 1, 1992 and March 31, 1992. »

`ZIP is not between 85200 and 85300`

« Include all records in which the ZIP code does not fall between (or match either) 85200 and 85300. »

is one of

Select records for which the value in the selected field is one of two or more values to be specified.

`OrderDate is one of January 15, 1992, or January 16, 1992`

« Include all records in which the order date is either January 15, 1992, or January 16, 1992. »

`ZIP is one of 85201 or 85202 or 85203.`

« Include all records in which the ZIP code is either 85201, 85202, or 85203. »

is not one of

Select records for which the value in the selected field is not one of two or more values to be specified.

`OrderDate is not one of January 15, 1992, or January 16, 1992.`

« Include all records in which the order date is something other than January 15, 1992 or January 16, 1992. »

`ZIP is not one of 85201 or 85202 or 85203.`

« Include all records in which the ZIP code is something other than 85201, 85202, or 85203. »

satisfies the test below

Select records for which the value in the selected field satisfies the test in the Selection Test box below. When you make this selection, the program expands the dialog box and includes a selection text box at the bottom. The text box was designed to display selection conditions that were entered via the Print|Record Selection Formula command and that don't fit any of the standardized conditions in the Select Records scroll list.

When you have previously entered a formula via the Print|Edit Record Selection Formula command and the *satisfies the test below* option is highlighted, the section of formula code that doesn't meet the fixed selection criteria will be displayed in the Selection Text box.

NOTE: While you can use this text box to write in a custom selection condition using the Crystal Reports formula language if you wish, you will have access to more tools if you enter that condition via Print|Edit Record Selection Formula.

Date conditions

If you use Select Records on a date field, all of the primary condition options will appear plus the following two options:

is in the period

Select records for which the value in the selected field falls within the date range specified. When you select this condition, the dialog box displays a scroll list of all Crystal Reports date conditions. Select the condition you want from the list.

`header.DATE is in the period Calendar1stQtr`

« Include all records in which the date falls within the calendar first quarter of the year. Dates from January 1 to April 30 (including January 1 and April 30) will be included; all other dates will be excluded. »

is not in the period

Select records for which the value in the selected field does not fall within the date range specified. When you select this condition, the dialog box displays a scroll list of all Crystal Reports date conditions. Select the condition you want from the list.

```
header.DATE is not in the period Calendar1stQtr
```

« Include all records in which the date falls outside the calendar first quarter of the year. Dates from January 1 to April 30 (including January 1 and April 30) will be excluded, all other dates will be included. »

Boolean conditions

If you use Select Records on a Boolean field, your condition options will include only *is any value* and *satisfies the test below* from the primary condition list above plus the following two options:

is True

Select records for which the value in the selected field is true.

```
file.REGISTERED is True
```

« Include all records in which the value in the file.REGISTERED field is True. »

is False

Select records for which the value in the selected field is false.

```
file.REGISTERED is False
```

« Include all records in which the value in the file.REGISTERED field is false. »

Browse Field Data button

The Browse Field Data button has been included as an aid in selecting the values that define your selection formula. When you Click this button, the program displays a list of field values for the first 20 records in the database. If the value you want is on the list, highlight the value and Click the Paste Data button. The program enters the value selected in the active text box (the text box displaying the insertion point).

NOTE: If you need to select multiple values (for example, if you want to include records in which the field value is one of three values), the insertion point automatically moves to the next text box as soon as it finishes pasting data in the previous box.

3. Enter your selection criteria in the dialog box and Click OK when finished to return to the Report Editor.
4. Repeat Steps 1-- 3 for each additional field you want the program to use when selecting records.
Crystal Reports will generate a selection formula based on your specifications and limit the report to the records you have specified.

NOTE: To view or edit the selection formula generated by Crystal Reports, select Print|Edit Record Selection Formula. The formula will appear in the Formula Editor.

NOTE: Print|Select Records and Print|Edit Record Selection Formula are interactive. That is, record selection criteria you enter via Print|Select Records automatically generates a record selection formula that you can review and modify via Print|Edit Record Selection Formula. Likewise, record selection formulas and modifications to existing record selection formulas automatically update the Print|Select Records selection criteria.

Because of this interactivity, you can use the two commands together as a tutorial for learning the Crystal Reports formula language. To use the commands this way:

- ***Set up your selection criteria using Print|Select Records.***
- ***Open Print|Edit Record Selection Formula and review the formula the program generated based on your criteria.***
- ***Change your selection formula using Print|Select Records.***
- ***Review the updated formula using Print|Edit Record Selection Formula.***
- ***As you gain confidence, make formula changes using Print|Edit Record Selection Formula.***
- ***Review the results of those changes via Print|Select Records. Select each field used in the record selection formula and see how the program translates your formula into selection criteria. Note that selection formula components that don't fit any of the Select Records fixed criteria will not be translated; instead, the section of code that doesn't conform will be displayed in the Selection Test box.***

Edit Record Selection Formula command (Print menu)

Use Edit Record Selection Formula to select the records that you want included in your report (if you don't want them all included). When you create a record selection formula, Crystal Reports uses only those records that meet your specifications when it prints the report, and it excludes all others. You will find a variety of text, number, date, and mixed selection formula templates at the end of this topic. Substitute your own data for the template data and you're ready to go.

To use Print|Edit Record Selection Formula

1. Select Print|Edit Record Selection Formula. The **Edit Formula dialog box** appears.

You can use the full range of operators, functions, and data fields to create a formula which restricts the range of data to print. For example, if you want to extract only those records where the item number begins with AA, you can use the Subscript operator in the selection formula:

```
{file.Item number} [1 to 2] = AA
```

See [Edit Formula](#) for a discussion of how to work with the various elements of the Edit Formula dialog box.

2. Enter your formula.
3. Select Accept when finished. Crystal Reports limits the report to the records specified.

NOTE: No insertion cursor appears when you create a selection formula; the formula is simply stored in the Crystal Reports report.

NOTE: Your record selection formula must be Boolean, that is, it must result in a Yes or No answer.

NOTE: You can't use commas in numbers you enter in a formula. Enter only the number itself.

How to use the formula templates

The following are formulas that you can modify and use in your own reports. To use these formulas:

1. Find the formula of interest and write it down or copy it directly into the Formula Editor (see [Copying Formulas from Crystal Reports Help](#)).
2. Select [Print|Edit Record Selection Formula](#). The [Formula Editor](#) appears.
3. In the Formula Text box, type in the formula you just wrote down.
4. Replace the values (fields, text, etc.) in the formula with the values you want. For example, if the example formula is:

```
{file.fieldname} > 99999
```

and you want to limit your report to records that have a value in the *{order.Quantity}* field greater than 25, simply replace the existing values with the values you want so your selection formula reads

```
{order.Quantity} > 25
```

NOTE: You don't have to type in the old formula first and then modify it. If you are comfortable with doing so, you can modify the formula on paper or in your head and then enter the modified formula. If you do this, make sure to check your final formula against the example formula to make sure you haven't left anything out or added anything that shouldn't be there.

5. Select Accept when finished to accept the selection formula and return to the Report Editor.

Formula templates

For selecting records using character strings

```
"C" in {file.fieldname}[1]
```

« selects those records in which the value in the *{file.fieldname}* field begins with the character "C"

(includes values like Computer Palace and Computer Warehouse, excludes values like Bits and Bytes, and Data Pro's) »

not ("C" in *{file.fieldname}*)[1]

« selects those records in which the value in the *{file.fieldname}* field *does not begin* with the character "C" (includes values like Bits and Bytes, and Data Pro's, excludes values like Computer Palace and Computer Warehouse) »

"999" in *{file.fieldname}*[3 to 5]

« selects those records in which the 3rd through 5th digits of the *{file.fieldname}* field is equal to "999"(includes values like 10999,70999, and 00999, excludes values like 99901 and 19990) »

"Computer" in *{file.fieldname}*

« selects those records in which the value in the *{file.fieldname}* field contains the string "Computer" (includes values such as Computer Palace and Unique Computers, excludes values like Comp--U--City and CompuDynamics) »

For selecting records using numbers

Single values

{file.fieldname} > 99999

« selects those records that have a value in the *{file.fieldname}* field greater than 99999 »

{file.fieldname} < 99999

« selects those records that have a value in the *{file.fieldname}* field less than 99999 »

Range of values

{file.fieldname} > 11111 and *{file.fieldname}* < 99999

« selects those records that have a value in the *{file.fieldname}* field greater than 11111 but less than 99999 (neither 11111 or 99999 is included in the range of values) »

{file.fieldname} >= 11111 and *{file.fieldname}* <= 99999

« selects those records that have a value in the *{file.fieldname}* field greater than 11111 but less than 99999 (both 11111 and 99999 are included in the range of values) »

For selecting records using dates

Dates

The Month, Day, and Year functions can all be used in examples like the following:

Year *{file.Date}* < 1992

« selects those records where the year found in the *{file.DATE}* field is earlier than 1992 »

Year *{file.Date}* >1992 and Year *{file.Date}* < 1999

« selects those records where the year found in the *{file.DATE}* field falls between 1992 and 1999 (1992 and 1999 not included) »

Year *{file.Date}* >=1992 and Year *{file.Date}* <= 1999

« selects those records where the year found in the *{file.DATE}* field falls between 1992 and 1999

(1992 and 1999 are included) »

Month{*file.date*} in 1 to 4

« uses the Make Range/In Range operators to select those records in which the month found in the {*file.DATE*} field is one of the first four months of the year (includes January, February, March, and April) »

Month{*file.date*} in [1,3]

« uses the Make Array/In Array operators to select those records in which the month found in the {*file.DATE*} field is the first month *or* the fourth month of the year (includes January and April, excludes February and March) »

Selecting records using Crystal Reports' preset date ranges

You can use Crystal Reports preset date ranges to create selection formulas similar to these:

{*file.Date*} in LastFullMonth

« selects those records where the date found in the {*file.Date*} field falls within the last full month (If the month is May, this selects all records with an April date.)»

not({*file.Date*} in LastFullMonth)

« selects all records except those in which the date found in the {*file.Date*} field falls within the last full month (If the month is May, this selects all records *except those* with an April date.)»

{*file.Date*} < Today

« selects all records in which the date found in the {*file.Date*} field falls before today's date »

Selecting records using date/number/character combinations

These formulas simply "mix and match" formulas from the categories above.

"C" in {*file.fieldname*}[1] and Month{*file.date*} in [1, 4]

« selects those records in which the value in the {*file.fieldname*} field begins with "C" and the month is either January or April. For example, if you use this kind of formula with an order database, you could be asking for a report showing all customers whose names begin with "C" and who placed orders in January or in April.

"AOK" in {*file.History*}[3 to 5] and {*file.Opencred*} >= 5000

« selects those records in which the {*file.History*} field shows the characters "AOK" as the 3, 4, and 5 characters and the {*file.Opencred*} field (the amount of available credit) is at least 5000.

You can use these templates as is (with your own data), you can combine them to create complex formulas, or you can use the principles illustrated here -- plus the help topics for [functions](#) and [operators](#) -- to create powerful selection formulas for yourself.

Select Groups command (Print menu)

This command is a companion command to [Edit Group Selection Formula](#). It enables you to select the groups you want to include in your report (if you don't want them all included) without the need to understand Crystal Reports formula language. When you use Select Groups, Crystal Reports automatically generates a group selection formula based on your responses to dialog box questions.

NOTE: This command allows you to set up reasonably complex selection criteria, but it does not have the flexibility of Print|Edit Group Selection Formula.

To use Select Groups

1. Select the first group field you want Crystal Reports to use for identifying groups to be included in your report.
2. Select Print|Select Groups. The Select Groups dialog box appears.

Dialog Box Options

The Select Groups dialog box is a dynamic box. Different data types and selection criteria change your dialog box options.

All dialog boxes begin with the expression:

```
Select all groups where:
```

followed by the name of the group field you have selected and a selection criteria scroll box.

Using the scroll box, select the condition that best finishes this sentence:

```
"I want to select all groups where the value in the group field I have selected..."
```

You can select from any of the following conditions (depending on the data type of the group field you have selected):

Primary conditions

These conditions appear whenever you use Select Groups with number, currency, or string group fields.

NOTE: You cannot summarize memo fields.

is any value

Select groups that have any value in the selected group field. Use this option to include all groups in the report; no groups are excluded.

is equal to

Select groups for which the value in the selected group field is equal to another value to be specified.

```
Count of file.ORDERS is equal to 10
```

```
« Include all groups that show 10 as the group count. »
```

```
Min of file.Qty is equal to 5
```

```
« Include all groups that show 5 as a group minimum. »
```

is not equal to

Select groups for which the value in the selected group field is not equal to another value to be specified.

Count of file.ORDERS is not equal to 10

« Include all groups that show anything but 10 as the group count. »

Min of file.Qty is not equal to 5

« Include all groups that show anything but 5 as a group minimum. »

is less than

Select groups for which the value in the selected group field is less than another value to be specified.

Sum of file.Amount is less than 5000

« Include all groups that show a subtotal (sum of...) smaller than 5000 (5000 not included). »

Avg of file.Amount is less than 10500

« Include all groups that show a group average smaller than 10500 (10500 not included)

is greater than

Select groups for which the value in the selected group field is greater than another value to be specified.

Min of file.Amount is greater than 1000

« Include all groups that show a group minimum value greater than 1000 (1000 not included). »

StdDev of file.scores is greater than 8.5 (8.5 not included)

« Include all groups that show an group standard deviation of more than 8.5 (8.5 not included). »

is less than or equal to

Select groups for which the value in the selected group field is less than or equal to another value to be specified.

Min of file.Amount is less than or equal to 1000

« Include all groups that show a group minimum value that is 1000 or smaller (1000 included) »

Sum of file.Amount is less than or equal to 5000

« Include all groups that show a subtotal (sum of...) that is 5000 or smaller (5000 included). »

is greater than or equal to

Select groups for which the value in the selected group field is greater than or equal to another value to be specified.

Min of file.Amount is greater than or equal to 1000

« Include all groups that show a group minimum value greater than or equal to 1000 (1000 included). »

StdDev of file.scores is greater than or equal to 8.5

« Include all groups that show a group standard deviation of 8.5 or more (8.5 included). »

is between

Select groups for which the value in the selected group field falls between or matches one of two values to be specified.

Count of file.QTY is between 10 and 20

« Include all groups in which the group count falls between (or matches either) 10 and 20. »

StdDev of file.RESULTS is between 1.5 and 2.5

« Include all groups in which the group standard deviation falls between (or matches either) 1.5 and 2.5. »

is not between

Select groups for which the value in the selected group field does not fall between or match one of two values to be specified.

Count of file.QTY is not between 10 and 20.

« Include all groups in which the group count does not fall between (or match either) 10 and 20. »

StdDev of file.RESULTS is not between 1.5 and 2.5

« Include all groups in which the group standard deviation does not fall between (or match either) 1.5 and 2.5. »

is one of

Select groups for which the value in the selected group field is one of two or more values to be specified.

Count of file.Amount is one of 1000 or 5000 or 10000

« Include all groups in which the group count is either 1000, or 5000, or 10000. »

Min of file.QTY is one of 1 or 5.

« Include all groups in which the group minimum is either 1 or 5. »

is not one of

Select groups for which the value in the selected group field is not one of two or more values to be specified.

Count of file.Amount is not one of 1000 or 5000.

« Include all groups in which the group count is something other than 1 or 5. »

Min of file.QTY is not one of 1 or 5.

« Include all groups in which the group count is something other than 1 or 5. »

satisfies the test below

Select groups for which the value in the selected group field satisfies the test in the Selection Test box below. When you make this selection, the program expands the dialog box and includes a selection text box at the bottom. The text box was designed to display selection conditions that were entered via the Print|Group Selection Formula command and that don't fit any of the standardized conditions in the Select Groups scroll list.

When you have previously entered a formula via the Print|Edit Group Selection Formula command and the *satisfies the test below* option is highlighted, the section of formula code that doesn't meet the fixed selection criteria will be displayed in the Selection Text box.

NOTE: While you can use this text box to write in a custom selection condition using the Crystal Reports formula language if you wish, you will have access to more tools if you enter that condition via Print|Edit Group Selection Formula.

Date conditions

You have three options when summarizing a date field:

- you can count the values in the group,
- you can calculate the maximum value in the group, and

-- you can calculate the minimum value in the group.

- If you select a group field that counts the date values in the group, all of the options in the primary condition list above are available to you.
- If you select a group field that calculates the minimum or maximum date value in the group, all of the conditions in the primary condition list above are available to you plus the two following conditions:

is in the period

Select groups for which the value in the selected group field falls within the date range specified. When you select this condition, the dialog box displays a scroll list of all Crystal Reports date ranges. Select the range you want from the list.

`Max of file.DATE is in the period Calendar1stQtr`

« Include all groups in which the group maximum date falls within the calendar first quarter of the year. Dates from January 1 to April 30 (including January 1 and April 30) will be included; all other dates will be excluded. »

is not in the period

Select groups for which the value in the selected group field does not fall within the date range specified. When you select this condition, the dialog box displays a scroll list of all Crystal Reports date ranges. Select the range you want from the list.

`Min of file.DATE is not in the period Calendar1stQtr`

« Include all groups in which the group minimum date falls outside the calendar first quarter of the year. Dates from January 1 to April 30 (including January 1 and April 30) will be excluded, all other dates will be included. »

Boolean conditions

You have three options when summarizing a Boolean field:

- you can count the values in the group,
- you can calculate the maximum value in the group, and
- you can calculate the minimum value in the group.

- If you select a group field that counts the boolean values in the group, all of the options in the primary condition list above are available to you.
- If you select a group field that calculates the minimum or maximum boolean value in the group, all of the conditions in the primary condition list above are available to you plus the two following conditions:

is True

Select groups for which the value in the selected group field is true.

`file.REGISTERED is True`

« Include all records in which the value in the file.REGISTERED field is True. »

is False

Select groups for which the value in the selected group field is false.

`file.REGISTERED is False`

« Include all records in which the value in the file.REGISTERED field is false. »

Browse Field Data button

The Browse Field Data button has been included so you can review field data.

- Click the button and a dialog box appears listing the field values for the first 20 records in the database.
- Click the Done button when finished.

NOTE: The values listed in the Browse Field Data scroll list are field values, not group values.

NOTE: No Paste Data option is available with Select Groups.

3. Enter your selection criteria in the dialog box and Click OK when finished to return to the Report Editor.
4. Repeat Steps 1-- 3 for each additional group field you want the program to use when selecting groups. Crystal Reports will generate a selection formula based on your specifications and limit the report to the groups you have specified.

NOTE: To view or edit the selection formula generated by Crystal Reports, select Print|Edit Group Selection Formula. The formula will appear in the Formula Editor.

NOTE: Print|Select Groups and Print|Edit Group Selection Formula are interactive. That is, group selection criteria you enter via Print|Select Groups automatically generates a group selection formula that you can review and modify via Print|Edit Group Selection Formula. Likewise, group selection formulas and modifications to existing group selection formulas automatically update the Print|Select Groups selection criteria.

Because of this interactivity, you can use the two commands together as a tutorial for learning the Crystal Reports formula language. To use the commands this way:

- **Set up your selection criteria using Print|Select Records.**
- **Open Print|Edit Group Selection Formula and review the formula the program generated based on your criteria.**
- **Change your selection formula using Print|Select Groups.**
- **Review the updated formula using Print|Edit Group Selection Formula.**
- **As you gain confidence, make formula changes using Print|Edit Group Selection Formula.**
- **Review the results of those changes via Print|Select Groups. Select each group field used in the group selection formula and see how the program translates your formula into selection criteria.**

Note that selection formula components that don't fit any of the Select Groups fixed criteria will not be translated; instead, the section of code that doesn't conform will be displayed in the Selection Test box.

Edit Group Selection Formula command (Print menu)

Use Edit Group Selection Formula to select the groups that you want included in your report (if you don't want them all included).

To use Print|Edit Group Selection Formula

1. Select Print|Edit Group Selection Formula. The **Edit Formula dialog box** appears.

You can use the full range of operators, functions, and data fields to create a formula which restricts the range of data to print.

Example: when printing a sales report grouped by sales rep, you may want to restrict the report to those salesreps who are below quota. You could do that with a formula such as the following:

```
Sum({file.Sales},{file.RepNumb}) < Quota
```

- Crystal Reports would calculate Sales on the first pass and sort and group the sales figures by RepNumb. On the second pass it would compare each subtotal for the Sales field to the value in the Quota field and print only those groups in which the Sales subtotal was less than the Quota value.

See Edit Formula for a discussion of how to work with the various elements of the Edit Formula dialog box.

2. Enter your formula.

3. Select Accept when finished. Crystal Reports limits the report to the groups specified.

NOTE: *In order for this function to work, you must have already defined a group section in your report that matches the group selection criteria you build into your formula. For example, if you want your report to include only those groups with a subtotal greater than \$1000 in the Amount field (triggered by changes in the Customer field), you must have already used in your report a group field (summary or subtotal) that sums (totals) the Amount field whenever there is a change in value in the Customer field.*

NOTE: *You can use Page Number and Record Number fields in a group selection formula via the PageNumber and RecordNumber functions.*

NOTE: *No insertion cursor appears when you create a selection formula; the formula is simply stored in the report.*

NOTE: *Your group selection formula must be boolean, that is, it must result in a Yes or No answer.*

NOTE: *You can't use commas in numbers you enter in a formula. Enter only the number itself.*

Record Sort Order command (Print menu)

Use Record Sort Order to define how you want the records in your report to be sorted for printing. You can add and remove sort fields and define the sort direction (ascending or descending) for the data in your report.

To use Print|Record Sort Order

1. Select Print|Record Sort Order. The **Sort Order dialog box** appears.

Sort Order dialog box options

Fields used in your report are listed in the **Report Fields** box; Sort fields (if any) are listed in the **Sort Fields** box.

2. Highlight the first sort field you wish to use and select **Add** to enter it as your first sort field.
 3. Choose **Ascending** (1 to 9, A to Z) or **Descending** (9 to 1, Z to A) for the sort direction of the selected field. Crystal Reports marks your selection with an A (Ascending) or D (Descending).
 4. Repeat Steps 2 and 3 to select any additional sort fields you wish to use. You can use up to five sort fields.
- To remove a field from the sort list, highlight the field in the **Sort Fields** box and select **Remove** to remove it.
5. Select OK when finished. Crystal Reports sorts your report in the sort order selected.

NOTE: *Sorting is done automatically for all groups. For example, if you group on Customer, Crystal Reports knows to sort on customer. The sorts specified in this dialog box will take lesser precedence.*

See Also

[Sorting report data by record](#)

[Multiple field sorts](#)

Group Sort Order command (Print menu)

Use Group Sort Order to change the order in which groups appear in your report. This command sorts the groups in ascending or descending order based on group value (sum, maximum, minimum, average, or count). This command has no effect on the order of values within a group; it simply changes the order of the groups in relation to one another.

To use Print|Group Sort Order

1. Select Print|Group Sort Order. The **Sort Order dialog box** appears. Groups established in your report are listed in the **Summary Fields** box on the left. Each group is identified as to the field grouped and the sort and group by field that triggers the grouping. For example, if the Amount field is the field grouped (subtotaled for our example), and the Customer field is the sort and group by field, the listing for that group will be:

Grouped by file

Customer Sum of Amount

If you have set up multiple groups, they will all be listed.

2. Highlight the group for which you want to change the sort order and Click the **Add** button to select the group as the sort group. The group description moves to the **Sort Fields** box.
3. Select the sort direction for the group, either ascending or descending.
4. Repeat Steps 2 and 3 if you want to use additional sort groups.
5. Click OK when finished. When you print your report, Crystal Reports sorts the groups as specified.

See also

[Sorting report data by group](#)

Tile command (Window menu)

Use **Tile** to display your Crystal Reports windows side by side on screen. With Tile, windows may be resized so they can all fit on screen; all windows are visible.

Cascade command (Window menu)

Use **Cascade** to stack and overlap your Crystal Reports windows. With Cascade, the entire top window is visible but only the title bars of the remaining windows are.

Arrange Icons command (Window menu)

If you have minimized any document windows, use **Arrange Icons** to arrange the document icons neatly at the bottom of the Crystal Reports window.

Close All command (Window menu)

Use **Close All** to close out all open windows. Crystal Reports gives you an opportunity to save any work in each window that you haven't already saved.

When you select **Window|Close All**

- If you have saved all your reports, Crystal Reports closes out all the windows.
- If you haven't saved all your reports, Crystal Reports prompts you to save them, report by report.
 - Select *Yes* to save the report before closing the window.
 - Select *No* to close the window without saving the report.

Index command (Help menu)

Use the **Index** command to call up the main Crystal Reports help index. Using this index as a starting point, you can rapidly find any help topic of interest. Once in the help system, you can always return to the main index by clicking the **Index button** in the upper left corner of the help window.

Print Registration command (Help menu)

Use the Print Registration command to print the completed copy of the registration form that you filled out when setting up Crystal Reports for the first time. This command simply sends the completed form to the printer for hard copy output. Instructions for sending the form by mail or FAX are printed right on the form.

NOTE: You must send in the registration form in order to receive technical support on your product.

System Information command (Help menu)

Use System Information to display and edit important information about Crystal Reports and the computer and environment in which it is running. This information can be useful to you in solving system problems.

This information prints as part of a technical support request, and it provides technical support personnel with an overview of your system that it can use to solve your problems more quickly.

To use System Information

1. Select Help\System Information. The System Information dialog box appears.
2. Enter information about yourself in the User Information text boxes. You can also edit existing information by deleting the text in a text box and typing new text in its place.
3. Click OK when finished. Crystal Reports stores the data you provided for later recall (via the System Information command). or printing (via the Technical Support Request command).

NOTE: No serial number appears in the User Information box until you have registered with the company, received your serial number, and entered the serial number in the Crystal Reports Registration dialog box which appears as the opening screen.

NOTE: The information in the System Information box (the right portion of the System Information dialog box) is determined internally by Crystal Reports. No input is required on your part nor is any direct modification of the data possible. Data in the System Information box changes only when you change the system (change the printer driver, activate programs that utilize more User Data, etc.), and then only after the System Information dialog box is closed and then called up again.

NOTE: To print the information in the System Information dialog box, select Help\Technical Support Request, and Click the Print button. Crystal Reports prints a technical support request form that includes the System Information dialog box information, the path statement, and other related data.

System Information

System information provides the following information about your system (in order of appearance in the System Information box):

Environment

The version of Microsoft Windows in use (3.0, 3.1), the mode in which Windows is running (Real, Standard, Enhanced), and the version of DOS in use (3.3, 4.0, 5.0).

Drive

The drive in use, whether the drive is local or network, and the kind of computer in use (286, 386, 386SX, etc.).

Video

The video display in use (EGA, VGA, etc.).

Printer

The printer driver and printer port in use.

Network

The kind of network in use (if any).

Free Memory

The amount of free memory available once Crystal Reports is up and running. Free memory is that part of base memory (the first 640K) that is unused after loading Crystal Reports.

Free Disk Space

The amount of free disk space available (on the active hard drive) over and above that needed for necessary swap files.

Free User Data

The percentage of the User storage area still available under Windows. This is the part of Windows that controls the keyboard, mouse, communications port, etc. For further information on this value, please consult the documentation that came with Microsoft Windows.

Free GDI Data

The percentage of the GDI (Graphics Device Interface) storage area still available under Windows. This is the part of Windows that controls printing and graphics. For further information on this value, please consult the documentation that came with Microsoft Windows. Windows and icons use this storage area.

EXE Size

The size of the executable file CRW.EXE (the main program file) in use. This value is helpful in determining if the original file has been corrupted in any way.

Technical Support Request command (Help menu)

The Technical Support Request command displays all the information you need to get technical support with Crystal Reports. It provides you with a step-by-step procedure for getting technical support as well as a technical support request form. You can fill out the form in your computer, print it out, and then FAX it or mail it to the technical support department for a timely response.

To use Technical Support Request

1. Select Help|Technical Support Request. The Technical Support Request dialog box appears.
2. Read the instructions carefully at the top of the dialog box. The instructions provide a systematic approach to solving your problems.
3. If you are unable to solve your problems using on-line help, the manual, or Support Questions and Answers on the Help menu, fill in the information at the bottom of the dialog box.

NOTE: The Crystal Reports manual provides an extensive index, and this online--help facility provides comprehensive topical and alphabetical indexes and an extensive key--words search index. Additionally, Support Questions and Answers (on the Help menu) addresses specific areas in which questions are common. You may save considerable time by consulting these resources first.

4. Click the scroll arrow on the Category scroll box, and select the category of technical support request you are making.
5. Click the scroll arrow on the General scroll box and find the listing that best describes the area in which you are having a problem (installation, creating a report, etc.).
6. Type in the subject in the Subject text box. The subject is a one line description of your problem (garbage characters in font box, see-through dialog boxes, etc.).
7. Type a description of your problem in the Details box. Be as specific as possible. Include any information that you think might be helpful in solving the problem. Some things you may find it helpful to include (where they are appropriate to your request) are:
 - What you want to do and don't know how to do.
 - What you were trying to do and what the results were.
 - If a problem occurs, when it occurs (at start up, after a specific series of steps, etc.). Analyze the problem and try to reconstruct as best you can the circumstances that bring about the problem.
 - If a problem occurs, if it occur with every report or just one report. Analyze the reports and try to determine what is different about the problem report (database links, group selection formula, etc.).
 - If you have recently modified your system, what the modifications were (installing a new version of DOS or Windows, installing Adobe Type Manager, running Windows under Desqview, changing your config.sys or autoexec.bat files, using a new printer, etc.).
8. When finished, Click the Print button. Crystal Reports prints a hard copy of your technical support request. The request includes the information you have just entered as well as the contents of the System Information dialog box (information about you and your system).
9. Once the request is printed out, FAX it or mail it to the technical support department at (604) 681--7163. Technical support will FAX or mail back a response.

NOTE: You may find that, having asked yourself the questions necessary to fill out the request, you have identified some additional clues to solving your problem. For the quickest results and to build your confidence in working with the program, you may want to try to solve the problem yourself first.

About Crystal Reports command (Help menu)

Use the **About Crystal Reports** command to find the version number and other pertinent information about Crystal Reports.

DEFINITIONS

Select the word of interest from the choices below:

Access

Active database

Alias

Argument

Array

Boilerplate text

Boolean formulas

Calculated data field

Case sensitive

Character attributes

Clicking

Column

Concatenate

Condition

Consequence

Constant

Cursor keys

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Divide by zero protection

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Dynamic Link Library (DLL)

Element (report)

Empty date

Empty string

Field

File

Flag

Font

Font size

Footer

Form letter

Formula

Function

Grand total

Group
Group value
Header
Hourglass cursor
I--beam cursor
Icon
Index
Insertion cursor
Insertion point
Integer
Landscape orientation
Link
Logical expression
Maximize button
Menu
Minimize button
Nesting
Null string
Numeric
Operators
Paste
Point
Population
Population standard deviation
Population variance
Portrait orientation
Precedence, order of precedence
Range
Record
Report
Report definition
Returns
Row
Sample
Scroll bars, scrolling
Select
Selection formula
Sort and group by field
Sort field
Sort order
Sorting
Standard deviation
String
Substring
Subtotal

Summary field

Syntax

Text string

Title bar

Total

Truncate

Two pass formula/function

Value

Variance

access data

To access data means **to retrieve data**.

alias

In Crystal Reports, an alias is **an alternative name assigned to a database file**. If a database is called customer.db, you could assign the alias *customer*, *cust*, *company*, *DB1*, or any other name that suits your needs. Aliases make it easier for you to use a report created with a database whose name and/or location has changed since the report was created.

active database

An active database is **a database that has been selected for use in a report**. You activate databases via the File|New and Database|Add File to Report commands.

argument

An argument is an **item**, or one of a group of items, **that receives the action of a function**. It provides information that the function needs in order to operate. The Truncate function, for example, cannot operate by itself. It needs an argument that identifies the *thing* to be truncated. Thus, in the formula Truncate (*{file.Amount}*) where Truncate is the function and *{file.Amount}* is the argument, it is the value of the *{file.Amount}* field that is the item to be truncated.

array

An array is **a group of values, separated by commas**. Arrays are used with a variety of Crystal Reports functions: Average([array]), Maximum([array]), etc. In these functions, the array is the argument for the function. The function works on the items in the array. Items in an array can be constants, data fields, or formula results.

boilerplate text

Boilerplate text is **text that can be created once, then used again and again**. Using a Crystal Reports' if-then-else formula, you can automatically insert different blocks of boilerplate text in form letters to customers, sales reps, lenders, etc.

Boolean formulas

Boolean formulas are **formulas that return a Yes/No (True/False) value**. For example, the Boolean formula $\{file.Qty\} > 6$ compares the value in the $\{file.Qty\}$ field to 6. If the value is greater than 6 it returns a Yes; if it is 6 or less, it returns a No. Contrast this with a non-Boolean formula like $\{file.Qty\} * 6$. In this case Crystal Reports returns a number, the value of $\{file.Qty\}$ times 6.

All record and group selection formulas must be Boolean.

calculated data field

A calculated data field is **a field that holds a value that comes from a calculation instead of coming directly from a database**. For example, if the database you are using includes a *{file.Sales}* field and a *{file.Cost}* field but no *Gross Profit* field, you can still show gross profit on your report, if you wish, using a calculated data field. To create a calculated data field, you simply create a formula that subtracts *{file.Cost}* from *{file.Sales}*. The formula calculates a *Gross Profit* value for each row and prints it wherever you place the formula.

case sensitive

Case sensitive means that a program **differentiates between uppercase and lowercase letters** when evaluating a text string. A case sensitive search for the word `house` will return only the value `house`, but a non--case sensitive search will return `house`, `House`, `HOUSE`, `HoUsE`, and similar mixed--case responses. Crystal Reports operators (`Equal`, `In string`, etc.) are case sensitive.

character attributes

A character attribute is something that **defines the look of a character** when it is displayed or printed. Crystal Reports allows you to change such attributes as font and point size, and it allows you to make characters bold or italic, to underline them if you wish, and to make other related changes. You can change the character attributes of selected parts of your report (headings, totals, etc.) to emphasize key information.

clicking

Clicking is the process of **depressing the mouse button to make a selection** in a program.

column

In Crystal Reports, a column is the display of data **from a single field or formula**. Columns run up and down the page. The words `column` and `field` are sometimes used interchangeably in this manual. Contrast with Row.

concatenate

Concatenate means **to join two or more text strings together** to form a single contiguous string.

condition

In an if-then-else formula, the condition is **the *if* part of the formula**, the set of circumstances that must take place (be true) to trigger the *then* (or consequence) part of the formula. *If* $x > 5$ *then* x *else* 5

consequence

In an if-then-else formula, the consequence is **the *then* part of the formula**, the action that takes place if the *if* condition is met.

constant

A value that is fixed and unchanging as opposed to a variable value which can take on different values depending on the circumstances.

The value 5 is a constant; the value of the Quantity field (which sometimes may be 5, sometimes may be a different number) is a variable value. In the formula for converting pounds to ounces (Pounds * 16) for example, 16 is a constant while Ounces and Pounds are variables. In the formula Today -- January 1, 1900, January 1, 1900, is a constant, while Today is a variable that changes whenever the current date changes. In Crystal Reports, **constants can be numbers, text strings, dates, dollar amounts, or the result of a formula that itself contains no variables**, i.e., 14--9. Contrast with Variable.

cursor keys

Cursor keys are the keys on your numeric keypad that can be used to control cursor or highlight movement. These include **Home, End, PgUp, PgDn, and the arrow keys.**

cut

In Crystal Reports, Cut means **to remove data from a report or formula and move it to the Windows clipboard**. Once in the clipboard it can be pasted (retrieved and placed) somewhere else in the same (or different) report or formula. Contrast with Paste.

data field

A data field (or field) is **the basic building block of a record**. Each record is made up of one or more data fields, and each data field can hold one piece of data (known as a value). A customer record in a typical customer mailing list database might contain data fields similar to these: Name, Address, City, State, Zip, Phone, FAX. A data field can be empty or contain a value. Data field data is generally displayed or printed in columns in the Details section of a Crystal Reports report. See also Database, Record, Value, Row, Column, Details section

data types

A data type is **a classification of the data that appears in a field or formula**. Each piece of data used in a Crystal Reports report or formula has one of the following data types: text, dollar amount, number, date, or Boolean (YES/NO). It is important to understand data types because each function and operator works with only a limited number of data types (often as few as one). For some operators (+ and -- for example), Crystal Reports uses a different set of calculation rules for one type of data than it uses for another.

database

A database is **a bank of related data**. Each unit (record) of the database is typically organized in a fixed format to make it easier to retrieve selected portions of the data on demand. See also Record, Field, Value

default

A default is a **pre--loaded response to a software request for data**. It is the response the computer accepts automatically if you don't enter different data.

definition, report definition

A report definition is **an overview or *thumbnail sketch* of a given report**. It lists, among other things, the name of the report, the active databases, and any record or group sort fields. For each formula it also lists the formula name and the formula itself.

details section

The details section of a Crystal Reports report is **the core section of the report**. You structure the report in this section by inserting data fields, formulas, and other report elements.

dialog box

In a Windows application, a dialog box is **a special kind of window that** appears whenever you make a selection from a pull down menu. The dialog box **allows you to define your menu selection more clearly**. In Crystal Reports, for example, if you select Font from the Format menu, a dialog box appears asking you to specify the font, point size, and type style you want to use.

divide by zero protection.

PC's will not allow you to divide a number by zero. If you attempt such a division, you will get a system error message. To protect you from a system error, **Crystal Reports refuses to print a report which contains a formula that divides a value by zero.**

double clicking

Double clicking means **clicking the mouse button twice, in rapid succession**. Double clicking has the effect of selecting an item and initiating an action on the item, all in a single step.

For example, once you have minimized a window, you can restore it in one of two ways. One way is to click on the item and then to select Restore from the menu when it appears. The other way is to double click on the icon, which both selects and restores at the same time.

drag

Drag means different things, depending on the context in which the word is used:

- When referring to *moving a field*, drag means to **Click on the field box and, while keeping the left mouse button depressed, to move it to a new position using the mouse**. You release the mouse button when the field is in the position you want it.
- When referring to *resizing a field*, drag means to **Click on one of the field box handles and, while keeping the left mouse button depressed, to make the field bigger or smaller using the mouse**. You release the mouse button when the field is the size you want it.
- When referring to formatting text, drag means **to highlight the text of interest by moving the I--beam cursor across it while the left mouse button is depressed**. You release the mouse button when you have finished highlighting.

Dynamic Link Library

A Dynamic Link Library (DLL) is **a special kind of file that contains Windows functions**. DLL's are **used by developers to extend the capabilities of Windows applications**. The library is activated whenever a program or another DLL calls a function in the library. *DLL's link on the fly*, at runtime, whenever an included function is called. DLL functions are available on an as-needed basis to any program that can call DLL's; they don't need to be linked to the program via the compiler.

element

The word element is used at times to describe **individual report components such as database fields, formulas, group fields, and text**. The Report Editor uses rectangular boxes to represent fields; text entered directly into the Report Editor appears as text in the Editor.

empty string

An empty string (designated as "") is **a string that contains no characters**. In Crystal Reports, you use an empty string to specify that nothing be printed. For example, in the formula:

```
If Gradepoint = 3.5, then
```

```
    "Cum Laude"
```

```
else
```

```
    ""
```

you are specifying that the words *Cum Laude* be printed (then) if the grade point is 3.5 or higher. You are using the empty string "" to indicate that nothing is to be printed (else) if the grade point is below 3.5.

empty date

An empty date [designated as Date(0,0,0)] is **a date that contains no month, day, or year, and thus does not print**. In Crystal Reports you use an empty date in if-then-else formulas that either return a date or do not. For example, the formula:

```
If PageNumber = 1 then
```

```
    PrintDate
```

```
else
```

```
    Date(0,0,0)
```

prints the print date on the first page and prints nothing on every other page. Since the *then* part of the formula is a date (PrintDate), the *else* part of the formula must be a date as well, but a non--printing date. To create such a non--printing (empty) date you use the Date function and the arguments (0,0,0).

field

A field is **the basic building block of a record**. Each record is made up of one or more fields, and each field can hold one piece of data (known as a value). A customer record in a typical customer mailing list database might contain fields similar to these: Name, Address, City, State, Zip, Phone, FAX. A field can be empty or contain a value. Field data is generally displayed or printed in columns in the Details section of a Crystal Reports report. See also Database, Record, Value, Row, Column, Details section

file

A file is **a collection of related data stored together on a disk or tape under a single name**. In Crystal Reports, each report is stored as a single file.

flag

A flag is **a character or group of characters used to highlight or identify items of interest to call them to the reader's attention**. For example, in an accounts receivable report, the words "past due" might be printed as a flag beside every past due account.

font

In the PC world, a font is **a set of display and/or printing characters** (letters, numbers, etc.) that is designed with a distinctive and easily identifiable look. Crystal Reports gives you the ability to easily change the fonts you use for your reports.

font size

The **size of a font, measured in points**. A typical book, for example, might use a 10 or 12 point font for the main text and an 18 or 24 point font for the headings. With Crystal Reports, you can use different font sizes to highlight various data on your report.

footer

A footer is **a small amount of text that appears at the bottom of a report page**. Footer text often includes page numbers and sometimes other information that describes or identifies the report. Crystal Reports gives you the option of printing the footer on all pages or only on selected pages of your report.

form letter

In Crystal Reports, a form letter is **a letter that can be reproduced, personalized, and customized using Crystal Reports' powerful formula capabilities**. One Crystal Reports formula could be used, for example, to print the current date on the letter. Another formula could print an inside address, pulling the data from an address database. Another formula could insert the proper name in the salutation. Yet another formula could insert an appropriate paragraph of boilerplate text, based on the evaluation of specific field values or the results of certain calculations or comparisons. Form letters, customized in this way, can be very effective tools for marketing, collections, fund raising, etc.

formula

A formula is **a symbolic statement of the manipulations you want performed on certain data before it is printed on your report.** If your report is to contain a *{file.Sales}* field and a *{file.Cost}* field, for example, you may want to create a *GrossProfit* field and designate its value as *{file.Sales} -- {file.Cost}*. *{file.Sales} -- {file.Cost}* is a simple formula that tells Crystal Reports to subtract the value of the *{file.Cost}* field from the value of the *{file.Sales}* field and then to print the result. You can use formulas to calculate numeric values, compare one value to another and select alternative actions based on the comparison, join multiple text strings into a single string, and for a multitude of other purposes. Creating a formula in Crystal Reports is much like creating one in your favorite spreadsheet.

function

A function is a built-in **procedure or subroutine** used to **evaluate, make calculations on, or transform data**. When you specify a function, Crystal Reports performs the set of operations built into the function without you having to specify each operation separately. In this way, a function is a kind of shorthand that makes it easier and less time consuming for you to create reports. Crystal Reports comes with a wide range of functions, and it also includes tools that allow you to build and save additional functions for yourself.

grand total

A grand total is **the total of all values in a column for the entire report.**

group

A group is **a set of records that are related to each other in some way**. In a customer list, for example, a group could consist of all those customers living in the same ZIP code, or in the same state. In a sales report, a group could consist of all the orders placed by the same customer, or all of the orders generated by a specific sales rep. Crystal Reports offers you a great deal of flexibility in the way you group the data on your report.

sort and group by field

A sort and group by field is **a field that triggers the printing of a subtotal (or a group field value) whenever its own value changes**. On a customer order report, for example, two fields are *{file.Customer}* and *{file.Amount}*. If you want to subtotal by customer (total the orders for each customer), you select the *{file.Amount}* field as the field to subtotal and the *{file.Customer}* field as the sort and group by field. Crystal Reports sorts the data by customer, so that all orders from the same customer are grouped together. Then, whenever the value in the *{file.Customer}* field changes (when it changes from one customer to a different customer), Crystal Reports prints a subtotal of the values in the *{file.Amount}* field (a total of orders for the individual customer.) You also select sort and group by fields to trigger summaries.

group value

A group value is **the value generated as the result of an evaluation, a tally, or a calculation performed on data from a single group**. A subtotal is one kind of group value; it is the sum of all of the values from a single field, from all the records in a group. In a sales report, for example, if you subtotal the amount ordered by sales rep, Crystal Reports gathers all the records that belong to the sales rep and totals the amounts ordered from all the records. In a group average, Crystal Reports averages the values in a group of records; in a group count, it counts the values in a group of records, etc. Group values are important tools for creating powerful reports.

header

A header is **a small amount of text that appears at the top of a report page**, above the body of the report. While a header can contain virtually any information, it often contains such things as the report title, company name, date, range of dates covered by the report, etc. Crystal Reports gives you the option of printing the header on all pages or only on selected pages of your report.

hourglass cursor

The Hourglass pointer is **the Windows cursor that appears whenever Crystal Reports, or another Windows application, is processing a command you selected.** Whenever the cursor is visible, you cannot select any other commands or proceed further with your report.

I--beam cursor

The I--beam cursor is the cursor you will find yourself working with most often in Crystal Reports. Shaped like a stylized letter I, this cursor is active whenever you are working in either the Report Editor or the Formula Editor. The I--beam cursor is **the cursor you use to select report elements, and to set the position of the text**

icon

In Windows, an Icon is **a symbol that is used to represent a program or a file, or to appear in place of a minimized window.** Crystal Reports displays an application icon in the Program Manager; you double click on the icon to start Crystal Reports. When you double click on the icon for a minimized Window, the Window is restored to its previous size.

index

An index is **a small file that identifies the location of each record in a database.**

Since a tiny index file can be searched or sorted much quicker than a large database, Crystal Reports uses index files to speed up the report generation process. In a search, for example, Crystal Reports searches the index for the correct field location. Once found, Crystal Reports goes directly to the database field. Such a search does away with the need for searching every field of every record in a database. A database may have several indexes, each based on a specific field (or fields).

insertion cursor

An insertion cursor is **a rectangular cursor that appears as an aid to placing database fields and formulas on your report.** Once you have selected a field or created a formula, the cursor appears. When you move the cursor to the place in the report you want the field or formula to appear and click on the mouse button, Crystal Reports inserts the item at the insertion point specified.

insertion point

The insertion point is **a vertical line that indicates the point at which Crystal Reports will insert any text that you type in.** You set the insertion point by moving the I-beam cursor to the position you want to insert text and clicking on the left mouse button. When typing text for the first time in a Report Editor section, Crystal Reports sets the insertion point flush left in the section, regardless of where you Click the I-beam cursor.

integer

An integer is a **positive or negative whole number or zero**. Integers have no decimal places. Crystal Reports' Truncate function cuts the decimal places off a value, thus converting the value into an integer.

landscape

Landscape orientation means that your **printing is rotated 90 degrees so it runs right and left across the length of the paper** instead of across the width. The effect is that of a wider but shorter sheet. See also Portrait orientation.

link

A link is **a field that is common to two or more databases and that serves as a connecting point between those databases.** Crystal Reports uses the link to match up records from one database with those from the other(s). For example, if the databases each contain a customer number field (even though the fields might have different names), Crystal Reports can use those fields to electronically connect all records in one database with corresponding records in the other(s). When you create a single report based on multiple databases, the link assures that all the data in each row on that report refers to the same customer (transaction, invoice, etc.).

logical expression

A logical expression is an **expression that defines a logical relationship between two or more items**. A logical expression is either TRUE or FALSE. $A > 5$ and $B < 10$ is a logical expression that uses the logical operator And. For the expression to be TRUE, both conditions (joined with the And operator) must be true. The value of A must be greater than five and the value of B must be less than 10. If the values don't fall into those ranges, then the expression is FALSE. Logical expressions are useful in if-then-else formulas. For example, `If A > 5 and B < 10 then In Range else ""` is a formula that says, if the logical expression $A > 5$ and $B < 10$ is TRUE, print In Range. Else (if the logical expression is FALSE) print nothing (as designated by the empty string "").)

maximize button

In Windows, the maximize button **expands the active window** so it fills the whole screen.

menu

A menu is a **list of choices** that appears on screen. With menus, you don't have to remember cryptic commands or arcane keystroke combinations; you just call up a menu and select the item of interest. Crystal Reports provides you with several menus that you can use to create your reports quickly and easily.

minimize button

In Windows, the minimize button **reduces the active window** to an icon that can later be activated and recalled. You can use the minimize button to reduce the clutter on your Windows desktop while still keeping all of your needed files close at hand.

nesting

In Crystal Reports, nesting means to **use one if--then--else expression inside another.** For example, If employees degree isn't Ph.D. then (if employee's sex is male, use the salutation Dear Mr. else use the salutation Dr. Ms.) else use the salutation Dear Dr. In this example, the nested if--then--else statement is surrounded by parentheses. [Note: this is not an actual formula but a verbal explanation of a formula.] The example says, check the degree field on the employee record to verify that the employee is not a Ph.D. If that condition is true [the employee is not a Ph.D.], Then use a letter salutation based on the sex indicated on the employee record. (If the sex is male, then use a male salutation. Else [if the sex is female] use a female salutation.) Else [that is, if the employee is a Ph.D.], use a Dr. salutation. By using this type of formula construction, you can create a wider set of conditions and a wider set of consequences easier than you could without nesting.

null string

A null string is an **empty string**. It contains no characters. If you were to use the Count function to count the string, it would return a length of zero. "" is used to designate a null string. See also, Empty string.

numeric

Numeric data is **data on which you can perform arithmetic**. The designation numeric refers to the way the data is treated by Crystal Reports and database programs, not to the way the data looks to you. For example, a serial number 12345 looks numeric, that is, every character is a number. But a serial number is not the kind of data on which you would want to perform arithmetic so you would probably store a serial number as text instead of as numeric data. Numeric is one of several data types. Database programs require you to designate a data type when you create a field for use in a database. The data type you select determines the rules the program follows when dealing with the values stored in that field.

operators

Operators are **special symbols that describe an operation or an action to take place between two or more values**. The symbol / for example, is an operator that means divide. A / B means Divide A by B. Crystal Reports reads the operators in a formula and performs the actions specified. Crystal Reports contains arithmetic, string, comparison, logical, conversion, date, and range operators.

paste

In Crystal Reports, Paste means **to retrieve and place data from the Windows clipboard into a report or formula**. The data may have been Cut (moved to the Clipboard) from the same report or formula or from a different one. Contrast with Cut.

point

A point is **unit of measure used to define type size**. The higher the point value, the larger the type. In a book, for example, the main body copy may be 10 or 12 point type while the headings may be 15 or 18 points.

population

A population is the **entire** set of values that might be tested statistically as opposed to a sample which is a subset of the population. A population does not necessarily refer to a group of people; it can refer to the number of automobiles produced on an assembly line or the number of construction companies bidding on a project.

For example, a Real Estate Agent might sell twenty houses in one year. The population of houses sold by that Agent in that year is twenty. Compare with **sample**.

population standard deviation

Population standard deviation is a statistical test of **how** the values in an entire population (all values) deviate from the mean or average value for that population. Population standard deviation is most often used when all values are being evaluated as opposed to just a sample of those values (StdDev).

NOTE: This comparison simply suggests typical usage. In practice, some users prefer a calculation based on N values (PopulationStdDev) while others prefer a calculation based on N--1 values (StdDev) . Both forms of standard deviation are provided by Crystal Reports.

Crystal Reports calculates the population standard deviation in the following manner:

1. It calculates the average (mean) value for the items being analyzed.
2. It subtracts the average value from the value of each item.
3. It squares the difference for each item.
4. It adds the squared differences for all the items being analyzed.
5. It divides the sum by the number of items being analyzed (N). (Contrast with StdDev which divides by $N-1$.) The result is the Population Variance.
6. It calculates the square root of the Population Variance to arrive at the Population Standard Deviation.

NOTE: Also see standard deviation for a general discussion on the use of standard deviation.

population variance

Population variance is the square of the population standard deviation . It is a measure of **the amount** by which the values in an entire population vary from the mean (average) value for that population.

Population variance is typically used when all values are being evaluated as opposed to just a sample of those values (Variance).

NOTE: This comparison simply suggests typical usage. In practice, some users prefer a calculation based on N values (PopulationVariance) while others prefer a calculation based on N--1 values (Variance) . Both forms of variance are provided by Crystal Reports.

Crystal Reports calculates the population variance in the following way:

1. It calculates the average (mean) value for the items being analyzed.
2. It subtracts the average value from the value of each item.
3. It squares the difference for each item.
4. It adds the squared differences for all the items being analyzed.
5. It divides the sum by the number of items being analyzed (N). (Contrast with Variance which divides by $N-1$.) The result is the Population Variance.

NOTE: Also see variance for a general discussion on the use of variance.

portrait orientation

Portrait orientation describes the typical relationship of printing to paper. With portrait orientation, your **printing runs right and left across the width of the paper**. The effect is that of a narrower but longer sheet. See also, Landscape orientation.

precedence, order of Precedence

The order of precedence is **a set of rules that determines the order in which arithmetic operations take place in a formula that involves multiple arithmetic operations**. Multiplication (*) and division (/) are performed first (first tier operations), followed by addition (+) and subtraction (-) (second tier operations). When there are multiple operations involving the same tier, the order of precedence dictates that the operations are performed from left to right. You can use parentheses, if you wish, to alter the normal order.

range

A range is a **set of values that fall between and include a defined upper and lower limit**. For example, the range 10 to 20 includes 10, 20, and all the numbers that fall between. Also, the range January 1, 1991 to January 30, 1991, includes January 1, January 30, and all the dates that fall between. In Crystal Reports, a range can consist of numbers, dollar amounts, or dates.

record

In a database, a record is a **complete unit of related information, an electronic file folder that holds all of the data on a given entity**. Each record contains one or more fields that contain the specific pieces of data of interest. In a customer database, for example, a record would store all of the data on a single customer. In an inventory database, a record would store all of the data on a single inventory item. Data from an individual record is displayed or printed as a row of data on a columnar report.

report

A report is simply **an organized presentation of data**. As a management tool, a report is used to provide management with the insight it needs to run an organization effectively. Crystal Reports allows you to create comprehensive, customized, attractive management reports quickly and easily. But *report* in Crystal Reports means much more. It also refers to invoices, form letters, mailing labels, and other related items that require the organization and output of data.

returns

The word returns refers to **the result of a function, an operation, or a formula.**

- When you use a **function**, it **performs a calculation or manipulation that results in a data change of some kind. The data that results is what the function returns.** For example, *Average(1,2,3,4,5)* returns the average of the array 1,2,3,4,5. *Truncate(1.2345)* returns the integer (whole number) portion of the number 1,2,3,4,5.
- When you use an **operator, the result of the operation using that operation is what the operation returns.** For example, $5*6$ equals 30. You can say that the operation $5*6$ returns 30. Also, the operation $100<200$ compares the two values and returns True; $200<100$ compares the two values and returns False.
- When you use a formula that contains functions or operators, **each function or operation within the formula returns a result, but the formula taken as a whole returns a result too. When talking about a formula, it is the result of the formula that is of interest, not the result of individual functions or operations.** For example, in the formula *If {file.Qty} < {file.ReorderAmount} then "Reorder" else ""*, an internal operation compares the value of the *{file.Qty}* field with the value of the *{file.ReorderAmount}* field. If *{file.Qty}* is less than *{file.ReorderAmount}*, that individual operation returns the value *True*. but that is *not* what the formula taken as a whole returns. The formula, taken as a whole, returns the flag "Reorder" when the operation internally returns the value True.

row

In Crystal Reports, a row is **the display of data from a single record**. Rows run across the page. The words `row` and `record` are sometimes used interchangeably in this manual. Contrast with `Column`.

sample

A sample, as used in statistics, is a subset of a population used to represent the entire population. Researchers frequently do not have the option of testing an entire population before forming conclusions based on their tests. In such cases, they use a sample to represent the whole.

For example, political polling before elections is often based on questioning only four or five hundred people. From the answers given by this sample, predictions can be made on how an entire nation will vote. Compare with **population**.

scroll bars, scrolling

Sometimes a window can display only a portion of a document. In such a case, the window includes scroll bars that you can use to **move other parts of the document into the window for your review**. Scroll bars also appear with lists that are longer than the available window. The scroll bars allow you to move back and forth through the list. The process of moving through a list or document using scroll bars is called scrolling. In Crystal Reports, the screen automatically scrolls whenever you move the mouse cursor outside the window and press and hold down the left mouse button.

select

- **With regard to *menu options***, select means to point to a menu option using the mouse and then to click on that option, thus making it active.
- **With regard to a *report element (data field, formula, etc.)***, select means to point to the element with the mouse and then to click the left mouse button to choose the element as the object of the next menu selection. For example, to change font size, you first select the block of data for which you want to change font size. Then you select the Font option from the Format menu to select the new font size. The new font size applies only to the element you selected.
- **With regard to *text***, select means to highlight the text by dragging the I-beam cursor over it.
- **With regard to *records***, select means to **identify and choose those records of interest** while disregarding all others. For example, if you want to build a report based only on the records of those customers who have purchased within the last six months, Crystal Reports will build the report with those records and will ignore all the rest.
- **With regard to *groups***, select means to identify and choose those groups of interest while disregarding all others.

selection formula

A selection formula is **a formula that specifies the records, or groups of records, you want included in your report.**

sort field

A sort field is a **data field on which the sort procedure is based**. A mailing list, for example, could be sorted, in ascending order, on the *{file.ZIP}* code field; that is, the customers would be sorted so that those with the lowest zip codes would appear first and those with the highest ZIP codes would appear last. It could also be sorted in ascending alphabetical order, on the *{file.lastname}* field; that is, customers with last names beginning with A would appear first and those with last names beginning with Z would appear last. In these examples, *{file.ZIP}* and *{file.lastname}* are the sort fields.

sort order

Sort order is an indicator of the **direction in which you want your data to be presented**, once sorted. Data is typically printed in one of two sort orders: **ascending** (lowest to highest, earliest to latest, first to last, a to z, etc.) or **descending** (highest to lowest, latest to earliest, last to first, z to a, etc.).

sorting

Sorting is a **method of organizing the order in which data appears** on your report. Crystal Reports provides you with powerful tools for sorting your report data.

standard deviation

Standard deviation is the square root of the **variance**. It is a statistical test of **how** various values in a set of values deviate from the mean or average value for that set. You can use standard deviation, for example, for assessing the relative difficulty of tests given to students, for evaluating and projecting customer purchase patterns, or for comparing the results delivered by two or more products under evaluation (laboratory blood tests, smoke detectors, radar detectors, etc.) The uses are endless.

To use standard deviation in practice, consider this: in a normal grouping of values, 68% of all values fall within one standard deviation of the mean and 95% of all values fall within two standard deviations of the mean. This means that with a mean of 10, for example, and a standard deviation of 2, 68% of the values will be in the range 8 -- 12 (10 +/- one standard deviation or 10 +/- 2), and 95% of the values will be in the range 6 -- 14 (10 +/- two standard deviations or 10 +/- 4).

While standard deviation is used routinely in technical and academic circles, it also has many uses in business. Here's just one example of how it can be valuable in a business situation:

A printer could run a standard deviation on invoices for the previous year. Once the printer knows the mean and standard deviation, it is a simple calculation to determine the price range for the most common invoice (in a normal pattern, 68% of the invoices should fall within one standard deviation of the mean) and the price range for most of the business done during the year (95% of the invoices should fall within two standard deviations of the mean). Armed with this information, the printer is in a better position to understand his/her market and to adjust marketing strategies and equipment purchases to best meet the needs of that market.

Standard deviation (as opposed to population standard deviation) is typically used to project the standard deviation for an entire population (all values) based on testing only a small sample of that population. For example, a company producing batteries with a new manufacturing process might want to test the batteries to determine how long they will last before they go dead. If the company tested all of its batteries, it would have no product left to sell. As an alternative, the company might test thirty batteries selected at random and project the mean burn out time and standard deviation for all batteries based on the results from that thirty battery sample.

NOTE: This comparison simply suggests typical usage. In practice, some users prefer a calculation based on N values (PopulationStdDev) while others prefer a calculation based on N--1 values (StdDev) . Both forms of standard deviation are provided by Crystal Reports.

Crystal Reports calculates the standard deviation in the following manner:

1. It calculates the average (mean) value for the items in the sample.
2. It subtracts the average value from the value of each item.
3. It squares the difference for each item.
4. It adds the squared differences for all of the items in the sample.
5. It divides the sum by one less than the number of items in the sample ($N-1$). Thus, if there are ten items in the sample, it divides the sum by 9. (Contrast with population standard deviation which divides by N .) The result is the Variance.
6. It calculates the square root of the Variance to arrive at the Standard Deviation.

string

A string is **a series of connected characters (letters, numbers, symbols, spaces) stored and used as text**. The word "hello" is a text string as is the phrase "Order # 2453" and the customer number "B30--124--777." Strings are sometimes referred to as text strings or character strings.

substring

A substring is simply **a part of a larger string**. "Columbia" is a substring of the string "British Columbia," "1040" is a substring of the customer number "B--1040--0032456," and "G" is a substring of the string "President George Bush."

subtotal

A subtotal is **a partial total, a total of a specific, limited group of data** in a field. For example, given the following data:

1, 2, 3, 4, 5, 6, 7

a subtotal after the 3 produces the value 6 ($1 + 2 + 3$). A second subtotal after the 6 produces the value 15 ($4 + 5 + 6$).

summary field

A summary field is **a field that determines the sum of the values, the average value, the maximum value, the minimum value, or count of values in a group of values in a given field**. Much like a subtotal, a summary field groups data to your specifications and then performs the requested calculation/determination.

syntax

Syntax, in Crystal Reports, is **a set of rules that specifies the proper way to use functions and operators in formulas.**

text string

A text string is **text that is entered directly onto the report itself** instead of being entered via a data field or formula.

title bar

The title bar is the **bar at the top of a window** that indicates the content of the window (application, document, etc.).

total

A total is a **sum of values**. Subtotals, running totals, and grand totals are three different varieties of totals. See also, Subtotal, Running Total, and Grand Total

truncate

Truncate means to **cut off or eliminate all data that comes after the decimal point**. Thus, if you truncate 1.2345, you get the value 1. If you truncate the value 1.9999 you also get the value 1. **Truncate does not round data**, it simply cuts off unwanted data.

two pass formula/function

A two pass formula is a **formula that requires two passes through the data for completion**. The first pass performs some calculation or selection and the second pass performs a calculation or selection that uses the result generated by the first pass. An example of a two pass formula is one that calculates the sales for each sales rep as a percent of total company sales. The first pass sums the sales for each rep to arrive at total company sales. The second pass divides the sales per rep by total company sales to calculate the percent--of--total--sales.

value

A value is **the data found in a field**. For a field called *{file.FirstName}*, for example, John or Mary might be the value. For a field called *{file.Amount}*, 1234.55 or \$200 might be the value.

variance

Variance is the square of the **standard deviation**. It is a measure of **the amount** by which all values in a group vary from the mean (average) value in the group. It is a statistical test that can be used to evaluate the variability in a group of values (for example, the amount bid by each of the bidders on a construction project).

Variance (as opposed to PopulationVariance) is most often used to project the variance for an entire population (all values) based on testing only a small sample of that population. For example, with a limited number of bids in on a construction project, you might want to project the variance for all bids based on the sample already in. Or, based on sales figures for the first three months of the year, you might want to project the variance for orders for the entire year (including the nine months yet to come).

NOTE: These comparisons simply suggest typical usage. In practice, some users prefer a calculation based on N values (PopulationVariance) while others prefer a calculation based on $N-1$ values (Variance) . Both forms of variance are provided by Crystal Reports. For a more thorough discussion on the use of variance, consult any reliable statistics text.

Crystal Reports calculates the variance in the following way:

1. It calculates the average (mean) value for the items in the sample.
2. It subtracts the average value from the value of each item.
3. It squares the difference for each item.
4. It adds the squared differences for all of the items in the sample.
5. It divides the sum by one less than the number of items in the sample ($N-1$). Thus, if there are ten items in the sample, it divides the sum by 9. The result is the Variance. (Contrast with population variance which divides by N).

FUNCTIONS INDEX (BY FUNCTION TYPE)

Functions are **built--in procedures or subroutines** used to **evaluate, make calculations on, or transform data**. When you specify a function, Crystal Reports performs the set of operations built into the function without you having to specify each operation separately. In this way, a function is a kind of shorthand that makes it easier and less time consuming for you to create reports.

Select the function type of interest from the choices below. For convenience, some functions are listed in more than one place:

[Functions \(Alphabetical, by function name\)](#)

[Arithmetic Functions](#)

["Grand Total" Functions](#)

[Functions To Duplicate Group Fields](#)

[String functions](#)

[Date Functions](#)

[Date Range Functions](#)

[Array Functions](#)

[Special Fields Functions](#)

[Evaluation Time Functions](#)

[Example report using evaluation time function](#)

[Summary Functions](#)

[Other Functions](#)

FUNCTIONS INDEX (ALPHABETICAL)

[Abs\(x\)](#)

[Average\(\[array\]\)](#)

[Average\(field, condField\)](#)

[Average\(field, condField, "condition"\)](#)

[Average\(field\)](#)

[BeforeReadingRecords](#)

[Count\(\[array\]\)](#)

[Count\(field, condField\)](#)

[Count\(field, condField, "condition"\)](#)

[Count\(field\)](#)

[Date \(yyyy, mm, dd\)](#)

[Day \(x\)](#)

[DayOfWeek \(x\)](#)

[GroupNumber](#)

[IsNull](#)

[Length\(x\)](#)

[LowerCase \(x\)](#)

[Maximum\(\[array\]\)](#)

[Maximum\(field, condField\)](#)

[Maximum\(field, condField, "condition"\)](#)

[Maximum\(field\)](#)

[Minimum\(\[array\]\)](#)

[Minimum\(field, condField\)](#)

[Minimum\(field, condField, "condition"\)](#)

[Minimum\(field\)](#)

[Month \(x\)](#)

[Next](#)

[NextIsNull](#)

[NumericText\(fieldname\)](#)

[PageNumber](#)

[PopulationStdDev\(\[array\]\)](#)

[PopulationStdDev\(field, condField\)](#)

[PopulationStdDev\(field, condField, "condition"\)](#)

[PopulationStdDev\(field\)](#)

[PopulationVariance\(\[array\]\)](#)

[PopulationVariance\(field, condField\)](#)

[PopulationVariance\(field, condField, "condition"\)](#)

[PopulationVariance\(field\)](#)

[Previous](#)

[PreviousIsNull](#)

[PrintDate](#)

[RecordNumber](#)

[Remainder\(numerator, denominator\)](#)

[ReplicateString\(x,n\)](#)

Round(x, # places)

Round(x)

StdDev([array])

StdDev(field, condField)

StdDev(field, condField, "condition")

StdDev(field)

Sum([array])

Sum(field, condField)

Sum(field, condField, "condition")

Sum(field)

Today

ToNumber (x)

ToText (x, # places)

ToText (x)

ToWords(x, # places)

ToWords(x)

TrimLeft (x)

TrimRight (x)

Truncate (x)

UpperCase (x)

Variance([array])

Variance(field, condField)

Variance(field, condField, "condition")

Variance(field)

WhilePrintingRecords

WhileReadingRecords

Year (x)

ARITHMETIC FUNCTIONS INDEX

Arithmetic functions are used for a variety of arithmetic--oriented calculations and operations. Select the function of interest from the choices below:

Abs(x)

Average(field)

Average(field, condField)

Average(field, condField, "condition")

Average([array])

Count(field)

Count(field, condField)

Count(field, condField, "condition")

Count([array])

Maximum(field)

Maximum(field, condField)

Maximum(field, condField, "condition")

Maximum([array])

Minimum(field)

Minimum(field, condField)

Minimum(field, condField, "condition")

Minimum([array])

PopulationStdDev([array])

PopulationStdDev(field, condField)

PopulationStdDev(field, condField, "condition")

PopulationStdDev(field)

PopulationVariance([array])

PopulationVariance(field, condField)

PopulationVariance(field, condField, "condition")

PopulationVariance(field)

Remainder(numerator, denominator)

Round(x)

Round(x, # places)

StdDev([array])

StdDev(field, condField)

StdDev(field, condField, "condition")

StdDev(field)

Sum(field)

Sum(field, condField)

Sum(field, condField, "condition")

Sum([array])

Variance([array])

Variance(field, condField)

Variance(field, condField, "condition")

Variance(field)

"GRAND TOTAL" FUNCTIONS INDEX

Use these functions whenever you want Crystal Reports to evaluate all the values in a given field for the entire report and return a calculated value (in effect, a "grand total" average, a "grand total" count, etc.).

Select the function of interest from the choices below:

Average(field)

Count(field)

Maximum(field)

Minimum(field)

PopulationStdDev(field)

PopulationVariance(field)

StdDev(field)

Sum(field)

Variance(field)

FUNCTIONS TO DUPLICATE GROUP FIELDS

Use these functions whenever you want to duplicate a group field in a formula.

NOTE: In order to use these functions, you must have already entered a group field in your report with identical parameters to those you plan to reproduce in the formula, i.e., same field, same sort and group by field, same date/Boolean condition (if applicable), and same action (average, count, etc.).

Select the function of interest from the choices below:

Sort and group by field = character, number, or dollar value.

Average(field, condField)

Count(field, condField)

Maximum(field, condField)

Minimum(field, condField)

PopulationStdDev(field, condField)

PopulationVariance(field, condField)

StdDev(field, condField)

Sum(field, condField)

Variance(field, condField)

Sort and group by field = date or Boolean.

Average(field, condField, "condition")

Count(field, condField, "condition")

Maximum(field, condField, "condition")

Minimum(field, condField, "condition")

PopulationStdDev(field, condField, "condition")

PopulationVariance(field, condField, "condition")

StdDev(field, condField, "condition")

Sum(field, condField, "condition")

Variance(field, condField, "condition")

STRING FUNCTIONS INDEX

String functions are used for the evaluation, manipulation and conversion of text strings.
Select the function of interest from the choices below:

Length(x)

LowerCase (x)

NumericText(fieldname)

ReplicateString(x, n)

ToNumber (x)

ToText (x)

ToText (x, # places)

ToWords(x)

ToWords(x, # places)

TrimLeft (x)

TrimRight (x)

UpperCase (x)

DATE FUNCTIONS INDEX

Date functions allow you to convert numbers to dates (which you can then format to display as you wish) and to convert dates to numbers.

Select the function of interest from the choices below:

[Date \(yyyy, mm, dd\)](#)

[Day \(x\)](#)

[DayOfWeek \(x\)](#)

[Month \(x\)](#)

[Today](#)

[Year \(x\)](#)

DATE RANGE FUNCTIONS

Date range functions are preset date ranges.

Aged...Days

Aged as of today the number of days specified

AllDatesFromToday

From today to any future date

AllDatesFromTomorrow

From tomorrow to any future date

AllDatesToToday

From the first date entered to today.

AllDatesToYesterday

From the first date entered to yesterday.

Calendar1stHalf/2ndHalf

All included dates in the first or second half of the calendar year

Calendar1stQtr...4thQtr

All included dates in the 1st to 4th quarters of the fiscal year

Last4WeeksToSun

The four weeks previous to last Sunday

Last7Days

From seven days ago to today

LastFullMonth

From the first to last day of the previous month

LastFullWeek

From Sunday to Saturday of the last full week

LastYearMTD

All dates in the current month last year, up to the current date last year

LastYearYTD

All dates in the last year, up to the current date last year.

MonthToDate

From the first day of the month to today.

Next...Days

Dates in the period specified starting from today.

WeekToDateFromSun

From last Sunday to Today.

YearToDate

From the first day of the calendar year to today.

ARRAY FUNCTIONS INDEX

These functions calculate a value based on an array of values.
Select the function of interest from the choices below:

[Average\(\[array\]\)](#)

[Count\(\[array\]\)](#)

[Maximum\(\[array\]\)](#)

[Minimum\(\[array\]\)](#)

[PopulationStdDev\(\[array\]\)](#)

[PopulationVariance\(\[array\]\)](#)

[StdDev\(\[array\]\)](#)

[Sum\(\[array\]\)](#)

[Variance\(\[array\]\)](#)

SPECIAL FIELD FUNCTIONS INDEX

Special Field Functions can be used to insert special fields in formulas.
Select the function of interest from the choices below:

GroupNumber

PageNumber

PrintDate

RecordNumber

EVALUATION TIME FUNCTIONS INDEX

[BeforeReadingRecords](#)

[WhilePrintingRecords](#)

[WhileReadingRecords](#)

OTHER FUNCTIONS INDEX

Select the function of interest from the choices below:

[GroupNumber](#)

[IsNull](#)

[Next](#)

[NextIsNull](#)

[PageNumber](#)

[Previous](#)

[PreviousIsNull](#)

[PrintDate](#)

[RecordNumber](#)

Summary Functions Index

Average([array])

Average(field, condField)

Average(field, condField, "condition")

Average(field)

Count([array])

Count(field, condField)

Count(field, condField, "condition")

Count(field)

Maximum([array])

Maximum(field, condField)

Maximum(field, condField, "condition")

Maximum(field)

Minimum([array])

Minimum(field, condField)

Minimum(field, condField, "condition")

Minimum(field)

PopulationStdDev([array])

PopulationStdDev(field, condField)

PopulationStdDev(field, condField, "condition")

PopulationStdDev(field)

PopulationVariance([array])

PopulationVariance(field, condField)

PopulationVariance(field, condField, "condition")

PopulationVariance(field)

StdDev([array])

StdDev(field, condField)

StdDev(field, condField, "condition")

StdDev(field)

Sum([array])

Sum(field, condField)

Sum(field, condField, "condition")

Sum(field)

Variance([array])

Variance(field, condField)

Variance(field, condField, "condition")

Variance(field)

Abs

Format

Abs(x)

« where x is the number for which you want the absolute value returned.»

Action

Absolute returns the value of x, ignoring any + or -- signs.

Typical use(s)

Example(s)

Abs(1.50) = 1.50

Abs(--1.50) = 1.50

Abs(10 -- 7) = 3

Abs(7 -- 10) = 3

If Abs(37 -- {file.Temp}) > 1 then

"Maintenance, Temperature Check"

else

""

« (flags instances where a laboratory heat block has a temperature variation greater than +/- 1 degree C »

Expanded example(s) using this function

Formula 1

Average(field)

Format

Average(field)

« where *field* is a number or dollar value field or formula. »

Action

Average calculates the average (mean) value for the *field* for the entire report. It is, in effect, a "grand total" average.

Typical use(s)

Use any time you need to calculate the average value for a column of number or dollar values, or use the average value in a calculation or comparison.

Example(s)

Average({file.Amount}) =

« Calculates the average of all values in the *{file.Amount}* field. »

if *{file.Amount}* > Average(*{file.Amount}*) then

"Above Average"

else

""

« Compares each value in the *{file.Amount}* field to the average of all values in the *{file.Amount}* field. If the value is above average, it flags it "Above Average;" if it is average or below average, it prints nothing. »

Average(field, condField)

Format

Average(field, condField)

« where:

- *field* is the name of the number or dollar value field for which Crystal Reports generates a summary field, and
- *condField* is the name of the character, number, or dollar value field that triggers the summary field to print whenever its value changes »

Action

Averages the values in each group that results from the specified subtotal or summary field. This is a group average, the average of a group of values from a given field.

Typical use(s)

Use this function whenever you want to duplicate, in a formula, a summary field:

- that averages the values in a group, and
- that uses a character, number, or dollar value field as the sort and group by field.

Example(s)

Average({file.Orders},{file.Customer}) =

« Calculates the average order in each group of customer orders. The orders are separated into groups whenever the value in the {file.Customer} field changes. »

Average({file.Amount}, {file.State}) % Average({file.Amount})

« Groups values in the {file.Amount} field by state, and calculates the average value for each state group as a percentage of the average value for the entire report. »

Comment

In order to use this function to insert a group field in a formula, you must have already entered a group field in your report with identical parameters: same field, same sort and group by field, same action (average).

Average(field, condField, "condition")

Format

Average(field, condField, "condition")

« where:

- *field* is the name of the number or dollar value field for which Crystal Reports generates the summary field,
- *condField* is the name of the date or Boolean field that triggers the summary field to be calculated whenever a certain condition is met, and
- *condition* is the condition ("weekly", "monthly", "change to Yes", "next is No", etc.) that needs to be met »

Action

Averages the values in each group that results from the specified summary field. This is a group average, the average of a group of values in a given field. This function works just like Average(field, condField), but, because it uses a date or Boolean field as a sort and group by field, it requires a condition in addition to the other arguments.

Typical use(s)

Use this function whenever you want to duplicate, in a formula, a subtotal or summary field:

- that averages the values in a group, and
- that uses a date or Boolean field as the sort and group by field.

Example(s)

Average({file.Order},{file.Date}, "monthly") =

« Calculates the average order in each group of orders in the {file.Orders} field (the average order for each month). The orders are separated into groups whenever the value in the {file.Date} field changes to a new month. »

(Average({file.Amount},{file.date}, "monthly")) %(Average({file.Amount}))

« Groups values in the {file.Amount} field by month, and calculates the average value for each month group as a percentage of the average value for the entire report. »

Comment

In order to use this function to insert a group field in a formula, you must have already entered a group field in your report with identical parameters: same field, same sort and group by field, same date or Boolean condition, same action (average).

Average([array])

Format

Average([x,...])

« where *x* is an array of numeric values (constants, field values, formula results) separated by commas. »

Action

Average([array]) returns the average (mean) value for an array of constants, data field values, or formulas (a*b,c/d, etc.) separated by commas.

Typical use(s)

Use any time you're more interested in the typical or normal value in a group of values than in the actual values themselves. Typical uses include such things as calculating average salaries, average sales, average rainfall, average inventory turns, etc.

Example(s)

Average([25,50,75,100]) = 250/4 = 62.50

Average({file.Period 8}, {file.Period 9}, {file.Period 10}) = 65

« where {file.Period 8} = 45.00, {file.Period 9} = 100.00, {file.Period 10} = 50.00 »

Expanded example(s) using this function

Formula 8

Formula 12

BeforeReadingRecords

Format

BeforeReadingRecords

Action

Specifies that the formula is to be evaluated before the database records are read.

Typical use(s)

Formulas are normally evaluated at the following times:

- If no database or group field is included in the formula, the formula is evaluated before the program reads database records.
- If a database is included in the formula, the formula is evaluated while the program reads database records.
- If a group field, page # field, subtotal, etc. is included in the formula, the formula is evaluated after database records are read and while the data from the records is being printed in the report.
BeforeReadingRecords forces the formula to be evaluated before the program reads database records. When this function is used in a formula, the Formula Checker returns an error message if you attempt to include elements in the formula (database fields, groups, etc.) that must be evaluated at a later time (while reading or while printing records).

Example(s)

BeforeReadingRecords;
ToNumber ("12345")

«Forces the formula (which contains no database fields or groups), to be evaluated at the time it is normally evaluate (before reading records).»

NOTE: If you try to include a database field or group in this formula, you get an error message.

Count(field)

Format

Count(field)

« where *field* is the field in which you want the number of values counted »

Action

Counts the number of values in the *field* for the entire report. It creates, in effect, a "grand total" count.

Typical use(s)

Use Count(*field*) any time you need to print the count (number of values in a field) in a report or use the number in a calculation or comparison.

Example(s)

Count({*file.Amount*})

« counts the number of values in the {*file.Amount*} field. »

if Count({*file.Orders*}) >= 100 then

"Congratulations on meeting your quota!"

else

""

« prints the congratulatory message if the number of orders is 100 or more, and prints nothing if the number of orders is less than 100. »

Count(field, condField)

Format

Count(field, condField)

« where:

- *field* is the name of the field for which Crystal Reports generates the summary field value, and
- *condField* is the name of the character, number, or dollar value field that triggers the summary field to print whenever its value changes »

Action

Counts the values in each group that results from the specified summary field. This is a group count, the count of a group of values in a given field.

Typical use(s)

Use this function whenever you want to duplicate, in a formula, a summary field:

- that counts the values in a group, and
- that uses a character, number, or dollar value field as the sort and group by field.

Example(s)

Count({file.Orders},{file.Customer}) =

« This formula counts the number of orders in each group of orders in the {file.Orders} field (the total orders for each month). The orders are separated into groups whenever the value in the {file.Customer} field changes. »

(Count({file.Amount}, {file.State})) %(Count({file.Amount}))

« Groups values in the {file.Amount} field by state, and calculates the count of values for each state group as a percentage of the count of values for the entire report. »

Comment

In order to use this function to insert a group field in a formula, you must have already entered a group field in your report with identical parameters: same field, same sort and group by field, same action (count).

Count(field, condField, "condition")

Format

Count(field, condField, "condition")

« where:

- *field* is the name of the field for which Crystal Reports generates the summary field value,
- *condField* is the name of the date or Boolean field that triggers the summary field to print whenever a certain condition is met, and
- *condition* is the condition ("weekly", "monthly", "change to Yes", "next is No", etc.) that needs to be met »

Action

Counts the values in each group that results from the specified summary field. This is a group count, the count of a group of values in a given field. This function works just like Count(field, condField), but, because it uses a date or Boolean field as a sort and group by field, it requires a condition in addition to the other arguments.

Typical use(s)

Use this function whenever you want to duplicate, in a formula, a summary field:

- that counts the values in a group, and
- that uses a date or Boolean field as the sort and group by field.

Example(s)

Count(*{file.Order}*,*{file.Date}*, "monthly") =

« Counts the number of orders in each group of orders in the *{file.Orders}* field (the total orders for each month). The orders are separated into groups whenever the value in the *{file.Date}* field changes to a new month.»

(Count(*{file.Amount}*,*{file.date}*, "monthly")) %(Count(*{file.Amount}*))

« Groups values in the *{file.Amount}* field by month, and calculates the count of values for each month group as a percentage of the count of values for the entire report. »

Comment

In order to use this function to insert a group field in a formula, you must have already entered a group field in your report with identical parameters: same field, same sort and group by field, same date or Boolean condition, same action (count).

Count([array])

Format

Count([x,...])

« where x is an array of data elements separated by commas »

Action

Count counts the number of data elements in an array.

Typical use(s)

Use this whenever you need to condition a response on the count of items in an array.

Example(s)

Count([1, 2, 3, 4, 5]) = 5

Date

Format

Date (YYYY, MM, DD)

Action

Date returns a date from the year, month, and day numbers entered.

- The year must be four digits.
- The month must be a number from 1 to 12.
- The day must be a number from 1 to 31.

Typical use(s)

This function is used so that the formula can differentiate between a date and a division equation such as 1999/10/1.

Example(s)

Date(1990,10,1) = Oct 01 90

Date(1986, 9,11) = Sep 11 86

Date(1986,09,11) = Sep 11 86

If PageNumber = 1 then

PrintDate

else

Date(0,0,0)

« prints the print date on the first page, and prints nothing [as designated by the empty date Date(0,0,0)] on the remaining pages. Date(0,0,0) is the designation for an empty or non--printing date. It satisfies the need for a date data type in certain if--then--else formulas without printing anything.»

Comments

- Dates specified must be within the range 0000 and 9999.
- To create an empty (null) date (for example, to use in an if--then--else formula) use Date(0,0,0). Empty dates don't print. The empty date is the date equivalent of the empty string.
- If you want to convert a date to text, you must use a formula like this:
ToText(Year(Date)) + "/" + ToText(Month(Date)) + "/" + ToText(Day(Date))

Day

Format

Day(x)

« where x is a date or a field that has a date as a value. »

Action

Day extracts the day from a date and returns a number.

Typical use(s)

Use any time you need only the day component of a date. For example, if you're tracking payments that fall within a given month, you're interested only in the day they arrive; month and year information would be redundant. Also, if you need to use the day of the month in a numeric calculation (Day({file.OctPmt}) -- Day ({file.SepPmt})), for example use the Day function to extract the day of the month and convert it to a number.

Example(s)

Day({file.Last invoice on}) = 10

« where the last invoice date was the 10th day of the month ».

If Day({file.LastPaymentOn}) < 15 then

"Past Due"

else

""

« if the day of the last payment was less than 15, print "Past Due", otherwise print nothing »

DayOfWeek

Format

DayOfWeek(x)

« where x is a date »

Action

DayOfWeek:

- extracts the day component of a date,
- determines the day of the week the date falls on, and
- converts the day of the week to a number (1 to 7) where Sunday is the first day of the week.

Typical use(s)

Use this function any time you need to use the day of the week as a number in a numeric expression.

Example(s)

(DayOfWeek(Date(1990,10,1)) = 2

« where October 1, 1990 is a Monday ».

If DayOfWeek({file.orderdate}) = 3 then

"Sam"

else

"Bill"

« in determining whether Sam or Bill was on duty on September 8, 1990 »

If DayOfWeek({file.orderdate}) = 7 then

"Saturday"

else

""

Comments

If you want to get the day of the week spelled out, use this formula:

["Sun", "Mon", "Tues",...] [DayOfWeek(Date)]

« sets up an array (["Sun",...]) and uses the number of the day of the week (Sun = 1, Sat = 7) to select the desired date name from the array. »

Expanded example(s) using this function

Formula 10

GroupNumber

Format

GroupNumber

Action

Inserts the current group number in a field in a formula.

Typical use(s)

You can use this function in group selection formulas to print some groups and exclude others.

Example(s)

GroupNumber

« creates a field containing the current group number that you can place on your report. Using this formula is the equivalent of using the Insert|Group Number Field command. »

IsNull

Format

IsNull(*fld*)

« where *fld* is any field in the report.»

Action

Evaluates the field specified in the current record and returns TRUE if the field contains a null value.

Typical use(s)

You can use this function in a record selection formula to limit the report to records that have something other than a null value in the field specified. You can also use it to have Crystal Reports take some action whenever it encounters a null value.

Example(s)

IsNull(*{file.AMT}*) = produces the following results:

If{file.AMT}shows this value	IsNull({file.AMT}) returns
200.00	False
(null)	True
100.00	False
347.12	False

Not IsNull(*{file.AMT}*)

« when used as a record selection formula, includes in the report only those records that have something other than a null value in the *{file.AMT}* field. »

Length

Format

Length(x)

« where x is a text string, or a field containing a text string »

Action

Length returns the number of characters in a text string that you enter into the formula, or in a text string stored as a value in a data field.

NOTE: Text strings must be enclosed in either double or single quotation marks (" " or ` `). Crystal Reports includes any blank spaces as part of the character count.

Typical use(s)

Use this function any time you have a manipulation, comparison, or calculation that is dependent on the length of a text string.

Example(s)

Length("Account") = 7

Length('Text_String') = 11

Length("__Center__") = 10

Length(ToText({file.AMOUNT})) = 8

« where {file.AMOUNT} = 14233.08 »

Length(ToText({file.AMOUNT})) = 8

« where {file.AMOUNT} = 14,233.08 »

NOTE: ToText does not convert commas (or other thousands separators) to text. In the present example, it converts 14,233.08 (the number) to "14233.08" (text) and then counts the number of characters in the text to arrive at the length (8)

Length("BOB") = 3

Length("SMITH") = 5

Length("BOB SMITH") = 9

« the blank space between BOB and SMITH is counted as a character »

Length({file.Field1}) =

the length of the text string stored as a value in {file.Field1}.

{file.ItemNum}[Length({file.ItemNum})--2]

« Returns the third character from the right in an item number. This can be used, for example, if item numbers are of different length but the character that represents the color is always the third from the last character. The formula determines the length of the item number, subtracts 2 from it, and uses the result to identify the character in the item number that represents the color. Thus:

« if the item number is ICADER34, the Length is 8, 8--2 = 6, and the formula returns the 6th character, R. »

« if the item number is ICPLB21, the Length is 7, 7--2 = 5, and the formula returns the 5th

character, B. »

Expanded example(s) using this function

Formula 14

LowerCase

Format

LowerCase(x)

« where x is a text value in a data field or a text string. »

Action

LowerCase prints the text string or text value in the data field in all lower case letters.

Typical use(s)

A good use of this function is when a field contains both uppercase and lowercase letters and you want to convert all values to lowercase for consistency.

Example(s)

LowerCase("Description") = "description"

LowerCase(*file.Name*) = "ronald black"

LowerCase("Ronald Black") = "ronald black"

LowerCase("ABC12345") = "abc12345"

LowerCase("BrEaD " + "AND " + "bUtTeR") = "bread and butter"

Comments

Numbers that are part of the text are not affected by the LowerCase function.

Maximum(field)

Format

Maximum(field)

« where (*field*) is a field or formula. »

Action

Maximum(field) returns the highest value in the *field* for the entire report. It is, in effect, a "grand total" maximum.

Typical use(s)

Use Maximum(field) any time you need to print the highest value in a field or use the number in a calculation or comparison.

Example(s)

Maximum({*file.Amount*}) =

« returns the highest value in the {*file.Amount*} field. »

Maximum(field, condField)

Format

Maximum(field, condField)

« where:

- *field* is the name of the field for which Crystal Reports generates the summary field, and
- *condField* is the name of the character, number, or dollar value field that triggers the summary field to print whenever its value changes. »

Action

Calculates the highest value in each group that results from the specified summary field. This is a group maximum, the maximum value in a group of values in a given field.

Typical use(s)

Use this function whenever you want to duplicate, in a formula, a summary field that:

- returns (finds and reports) the highest (maximum) value in a group, and
- that uses a character, number, or dollar value field as the sort and group by field.

Example(s)

Maximum(*{file.Orders}*,*{file.Customer}*) =

« Identifies the largest order in each group of orders in the *{file.Orders}* field (the largest order for each month). The orders are separated into groups whenever the value in the *{file.Customer}* field changes. »

Maximum(*{file.Amount}*, *{file.State}*) % Maximum(*{file.Amount}*)

« Groups values in the *{file.Amount}* field by state, and calculates the highest value for each state group as a percentage of the highest value for the entire report. »

Comment

In order to use this function to insert a group field in a formula, you must have already entered a group field in your report with identical parameters: same field, same sort and group by field, same action (maximum).

Maximum(field, condField, "condition")

Format

Maximum(field, condField, "condition")

« where:

- *field* is the name of the field for which Crystal Reports generates the summary field value,
- *condField* is the name of the date or Boolean field that triggers the summary field to print whenever a certain condition is met, and
- *condition* is the condition ("weekly", "monthly", "change to Yes", "next is No," etc.) that needs to be met. »

Action

Calculates the highest value in each group that results from the specified summary field. This is a group maximum, the maximum value in a group of values in a given field. This function works just like Maximum(field, condField), but, because it uses a date or Boolean field as a sort and group by field, it requires a condition in addition to the other arguments.

Typical use(s)

Use this function whenever you want to duplicate, in a formula, a summary field:

- that returns (finds and reports) the highest (maximum) value in a group, and
- that uses a date or Boolean field as the sort and group by field.

Example(s)

Maximum(*{file.Order}*,*{file.Date}*, "monthly") =

« Identifies the largest order in each group of orders in the *{file.Orders}* field (the largest order for each month). The orders are separated into groups whenever the value in the *{file.Date}* field changes to a new month. »

Maximum(*{file.Amount}*,*{file.date}*, "monthly") % Maximum(*{file.Amount}*)

« Groups values in the *{file.Amount}* field by month, and calculates the highest value for each month group as a percentage of the highest value for the entire report.»

Comment

In order to use this function to insert a group field in a formula, you must have already entered a group field in your report with identical parameters: same field, same sort and group by field, same date or Boolean condition, same action (maximum).

Maximum([array])

Format

Maximum([x,...])

« where *x* is an array of values separated by commas. »

Action

Maximum evaluates an array of constants, data field values, or formula results and returns the highest value in the array.

Typical use(s)

Use Maximum([array]) any time you have an array of values and need to use the highest of those values in a calculation or comparison.

Maximum([array]) also allows you to set a floor limit, a limit beneath which a calculation must not go.

Example(s)

Maximum([25, 50, 75,100]) = 100

Maximum([.10, .05, 5.0, --10.0]) = 5.0

Maximum([*{file.Period 8}*, *{file.Period 9}*, *{file.Period 10}*]) = 100.00

You might use this example to return the maximum account balance during three specific periods.

Maximum allows you to set a floor on a calculation. For example:

Maximum([*{file.Balance}*, 500])

sets a floor of 500 on the calculation. The expression will always return the balance unless the balance drops below 500. Then it will return the floor amount of 500. Thus:

Maximum([*{file.Profits}*, 500]) = *{file.Profits}*

« where *{file.Profits}* > 500 »

and

Maximum([*{file.Profits}*, 500]) = 500

« where *{file.Profits}* < 500 »

This kind of formula could be used if an employee recreation hall receives as its monthly budget, \$500 or the profits from employee vending machines, whichever is higher.

Expanded example(s) using this function

Formula 7

Formula 11

Minimum(field)

Format

Minimum(field)

« where *field* is a database field or a formula. »

Action

Minimum(field) returns the lowest value in the field for the entire report. It is, in effect, a "grand total" minimum.

Typical use(s)

Use Minimum(field) any time you need to print the lowest value in a field or use the number in a calculation or comparison.

Example(s)

Minimum({*file.Amount*}) =

« returns the lowest value in the *{file.Amount field}*. »

Minimum(field, condField)

Format

Minimum(field, condField)

« where:

- *field* is the name of the database field or formula for which Crystal Reports generates the summary field value, and
- *condField* is the name of the character, number, or dollar value field or formula that triggers the summary field to print whenever its value changes »

Action

Minimum(field, condField) calculates the lowest value in each group that results from the specified summary field. This is a group minimum, the minimum value in a group of values in a given field.

Typical use(s)

Use this function whenever you want to duplicate, in a formula, a summary field:

- that returns (finds and reports) the lowest (minimum) value in a group, and
- that uses a character, number, or dollar value field as the sort and group by field.

Example(s)

Minimum({file.Orders}, {file.Customer}) =

« Identifies the smallest order in each group of orders in the {file.Orders} field (the smallest order for each month). The orders are separated into groups whenever the value in the {file.Customer} field changes. »

(Minimum({file.Amount}, {file.State})) % (Minimum({file.Amount}))

« Groups values in the {file.Amount} field by state, and calculates the minimum value for each state group as a percentage of the minimum value for the entire report. »

Comment

In order to use this function to insert a group field in a formula, you must have already entered a group field in your report with identical parameters: same field, same sort and group by field, same action (minimum).

Expanded example(s) using this function

Formula 12

Minimum(field, condField, "condition")

Format

Minimum(field, condField, "condition")

« where:

- *field* is the name of the database field or formula for which Crystal Reports generates the summary field value,
- *condField* is the name of the date or Boolean field that triggers the summary field to print whenever a certain condition is met, and
- *condition* is the condition ("weekly", "monthly", "change to Yes", "next is No", etc.) that needs to be met. »

Action

Minimum(field, condField, "condition") calculates the lowest value in each group that results from the specified summary field. This is a group minimum, the minimum value in a group of values in a given field. This function works just like Minimum(field, condField), but, because it uses a date or Boolean field as a sort and group by field, it requires a condition in addition to the other arguments.

Typical use(s)

Use this function whenever you want to duplicate, in a formula, a summary field:

- that returns (finds and reports) the lowest (minimum) value in a group, and
- that uses a date or Boolean field as the sort and group by field.

Example(s)

Minimum({file.Order},{file.Date}, "monthly") =

« Identifies the smallest order in each group of orders in the {file.Orders} field (the smallest order for each month). The orders are separated into groups whenever the value in the {file.Date} field changes to a new month. »

Minimum({file.Amount}, {file.date}, "monthly") % Minimum({file.Amount})

« Groups values in the {file.Amount} field by month, and calculates the lowest value for each month group as a percentage of the lowest value for the entire report. »

Comment

In order to use this function to insert a group field in a formula, you must have already entered a group field in your report with identical parameters: same field, same sort and group by field, same date or Boolean condition, same action (minimum).

Minimum([array])

Format

Minimum([array])

« where *array* is an array of values separated by commas. »

Action

Minimum([array]) evaluates a array of constants, data field values, or formula results and returns the lowest value in the array.

Typical use(s)

Minimum also allows you to set a ceiling limit, a limit above which a calculation must not go.

Example(s)

Minimum([25, 50, 75, 100]) = 25

Minimum([1, 15, 7, --20]) = --20

Minimum([*{file.Period 8}*, *{file.Period 9}*, *{file.Period 10}*]) = 45.00

« where *{file.Period 8}* = 45.00, *{file.Period 9}* = 100.00, *{file.Period 10}* = 50.00 »

You might use this example to return the minimum account balance during three specific periods.

Minimum allows you to set a ceiling on a calculation. For example:

Minimum([*{file.Commission}*, 2500])

returns the commission accrued up to a cap or ceiling of 2500. Once accrued commission passes the \$2500 mark, this expression returns 2500. Thus:

Minimum([*{file.Commission}*, 2500]) = 1575

« where *{file.Commission}* = 1575 »

and

Minimum([*{file.Commission}*, 2500]) = 2500

« where *{file.Commission}* = 3250 (or any number in excess of 2500) »

Sales managers often use commission plans like this to keep commissions within a controllable range.

Month

Format

Month(x)

« where x is a date or a field that has a date as a value. »

Action

Month extracts the month component of a date and converts it to a number.

Typical use(s)

Use any time you need only the month component of a date. For example, if you're tracking payments that fall within a given year, you're interested only in the month they arrive; day and year information would be redundant. Also, if you need to use the number of the month in a numeric calculation (Month({file.OctPmt}) -- Month({file.SepPmt})), for example) use the Month function to extract the month component of the date and convert it to a number.

Example(s)

Month({file.Last invoice on}) = 10

« where the last invoice date was in October. »

Month({file.PaymentDate}) -- Month({file.InvoiceDate}) =

« calculates the number of months between the invoice and the payment. »

If Month({file.LastPurchase}) < 6 then

"No doubt you'll see some changes since you last shopped our store."

else

"As you have certainly noticed, we've been making many changes in our store recently."

« Prints "No doubt you'll see some changes since you last shopped our store." for those customers whose last purchase was in May or earlier, and prints "As you have certainly noticed, we've been making many changes in our store recently." for customers who have purchased more recently than May. »

Next

Format

Next (fld)

« where *fld* is any field or formula field in the report »

Action

Next(fld) returns the value of the specified field for the next record.

Typical use(s)

You can use Next to identify the first or last record in a range, to identify the starting point for a new group, or to test for duplicate values.

Example(s)

Next(*{file.AMT}*) = produces the following results:

If <i>{file.AMT}</i> shows this amount	Next(<i>{file.AMT}</i>) returns
---	--

200.00	0
null	100.00
100.00	347.12
347.12	

If Next(*{file.QTY}*)<>0 then

{file.QTY}/2

else

{file.QTY}

« tests the next value in the *{file.QTY}* field to see if it is a zero value. If it is not, it divides the value by two. If it is a zero value, it returns the value itself. »

If Remainder(Next (*{file.SerialNum}*), 300) = 0 then

"End of block"

else

""

« divides the next value in the *{file.SerialNum}* field by 300. If there is no remainder, it flags the current value as "End of block". If there is a remainder (else) it prints no flag. (This formula divides serial numbers into blocks of 300) »

NextIsNull

Format

NextIsNull(*fld*)

« where *fld* is any field or formula field in the report. »

Action

Evaluates the field specified in the next record and returns a TRUE if the field contains a null value.

Typical use(s)

You can use this function to test for the last item in a list and to take some action when you identify that last item.

Example(s)

NextIsNull(*{file.AMT}*) = produces the following results:

If *{file.AMT}* shows this valueNext(*{file.AMT}*) returns

200.00	True
(null)	False
100.00	False
347.12	True*

*No next record

```
If NextIsNull ({file.EmpNo}) then
    "Last employee of record"
else
    ""
```

« in an employee database with no null values in the employee number field, flags the last employee on the list »

NumericText

Format

NumericText(x)

« where x is a text field you wish to test to see if it contains a number stored as text. »

Action

NumericText tests to see if the content of a text field is a number.

- If the entire content of the field is a number -- or if the characters extracted via the subscript operators are entirely a number -- the expression returns a YES value.
- If any part of the content of the field -- or of the characters extracted -- are not a number, the expression returns the value NO.

Typical use(s)

If you store numbers (like weight) in a text field, you would use NumericText to check the value of each record to make sure it is OK to convert using ToNumber.

Example(s)

NumericText({file.Reference}) = NO

« where {file.Reference} = "ABCDEFGG" »

NumericText({file.IDNUM}) = YES

« where {file.IDNUM} = "12345" »

NumericText({file.IDNUM}) = YES

« where {file.IDNUM} = "12345443" »

NumericText({file.IDNUM}) = NO

« where {file.IDNUM} = "12345--443" »

NumericText ({file.IDNUM} [1 to 5]) = YES

« where {file.IDNUM} = "12345--443" »

NumericText ({file.IDNUM} [6]) = NO

« where {file.IDNUM} = "12345--443" »

NumericText ({file.IDNUM} [7 to 9]) = YES

« where {file.IDNUM} = "12345--443" »

NumericText({file.IDNUM}) = NO

« where {file.IDNUM} = "12345T" »

NOTE: You can use this function in combination with ToNumber to test for a number in the Reference field, then print the string as a number or print 0 if the text string is not a number.

```
if NumericText({file.Reference}) then
  ToNumber({file.Reference})
else
  0
```

Expanded example(s) using this function

Formula 9

PageNumber

Format

PageNumber

« no arguments required »

Action

PageNumber inserts the current page number as a field in a formula.

Typical use(s)

Use this function any time you want Crystal Reports to determine the page number, at print time, and use that number in calculating formula results. For example, you can use this function when you want Crystal Reports to print something on certain pages and not on others.

Example(s)

PageNumber

« creates a field containing the current page number that you can place anywhere on the page. Using this formula is the equivalent of using the Insert|Page Number Field command. »

If PageNumber > 1 then

PageNumber

else

0

« creates a field that prints the page number on every page but the first. By formatting this formula field using Suppress if Zero = active, the formula will print nothing on the first page instead of a zero. »

NOTE: You don't have to have a page number field in your report to use the PageNumber function in a report formula.

PopulationStdDev(fld)

Format

PopulationStdDev(*fld*)

« where *fld* is a number or currency field or formula ».

Action

PopulationStdDev(*fld*) calculates the population standard deviation of the number or dollar values in the field for the entire report. It calculates the grand total population standard deviation for that field.

Typical use(s)

Use any time you need to calculate the population standard deviation of the values in a number or currency field, or use the population standard deviation in a calculation or comparison.

Example(s)

PopulationStdDev({*file.Quantity*})

« Calculates the grand total population standard deviation for all values in the field *Quantity* ».

Comment

Crystal Reports uses *N* when calculating population standard deviation, *N--1* when calculating standard deviation.

PopulationStdDev(*fld*, *condFld*)

Format

PopulationStdDev(*fld*, *condFld*)

« where:

- *fld* is the name of the number or currency field for which Crystal Reports generates a summary field, and
- *condFld* is the name of the string, number, or currency field that triggers the summary field to print whenever its value changes »

Action

PopulationStdDev(*fld*, *condFld*) calculates the population standard deviation for the values in each group that results from the specified summary field. This is a group population standard deviation, the population standard deviation of a group of values in a given field.

Typical use(s)

Use this function whenever you want to duplicate, in a formula, a summary field:

- that calculates the population standard deviation for the values in a group, and
- that uses a string, number, or currency field as the sort and group by field.

Example(s)

```
PopulationStdDev({file.Amount}, {file.State}) %  
PopulationStdDev({file.Amount})
```

« Groups values in the *Amount* field by state, and calculates the population standard deviation for each state group as a percentage of the population standard deviation for the values for the entire report ».

Comments

- Crystal Reports uses *N* when calculating population standard deviation, *N--1* when calculating standard deviation.
- In order to use this function to insert a group field in a formula, you must have already entered a group field in your report with identical parameters: same field, same sort and group by field, same action (population standard deviation).

PopulationStdDev(*fld*, *condFld*, "cond")

Format

PopulationStdDev(*fld*, *condFld*, "cond")

« where:

- *fld* is the name of the number or currency field for which Crystal Reports generates subtotals/summary fields,
- *condFld* is the name of the date or Boolean field that triggers the subtotals/summary fields to print whenever a certain condition is met, and
- *cond* is the condition (weekly, monthly, change to Yes, next is No" etc.) that needs to be met ».

Action

PopulationStdDev(*fld*, *condFld*, "cond") calculates the population standard deviation for the values in each group that results from the specified summary field. This is a group population standard deviation, the population standard deviation of a group of values in a given field). This function works just like PopulationStdDev(*fld*, *condFld*), but, because it uses a date or Boolean field as a sort and group by field, it requires a condition in addition to the other arguments.

Typical use(s)

Use this function whenever you want to duplicate, in a formula, a summary field:

- that calculates the population standard deviation for the values in a group, and
- that uses a date or Boolean field as the sort and group by field.

Example(s)

```
PopulationStdDev({file.Scores}, {file.naturalized}, any change)
```

« Groups values in the *Scores* field based on whether or not the test taker is a naturalized citizen, and calculates the population standard deviation for each group of scores.»

```
PopulationStdDev({file.Scores}, {file.Date}, weekly) %
```

```
PopulationStdDev({file.Scores})
```

« Groups values in the *Scores* field by week, and calculates the population standard deviation for each group of scores as a percentage of the population standard deviation of the scores for the entire report (for all dates listed) ».

Comments

- Crystal Reports uses *N* when calculating population standard deviation, *N--1* when calculating standard deviation.
- In order to use this function to insert a group field in a formula, you must have already entered a group field in your report with identical parameters: same field, same sort and group by field, same date or Boolean condition, same action (population standard deviation).

PopulationStdDev([array])

Format

PopulationStdDev([array])

« where *array* is an array of numeric values, separated by commas ».

Action

PopulationStdDev([array]) calculates the population standard deviation for an array of numeric constants, data field values, or formulas (*a*b*, *c/d*, etc.), separated by commas.

Typical use(s)

Use PopulationStdDev([array]) any time you need to use the population standard deviation of values in an array in a calculation or comparison.

Example(s)

PopulationStdDev([2,4,6,8,10]) = 2.83

PopulationStdDev([file.Qty1], file.Qty2, file.Qty3, file.Qty4]) = 3.57

« where Qty1 = 2, Qty2 = 2, Qty3 = 10, and Qty4 = 8 »

PopulationStdDev([(file.QTY1 * file.Price1), (file.QTY2 * file.Price2), (file.QTY3) * (file.Price3), (file.QTY4) * file.Price4])) = 31.70

« where Qty1 = 2, Price1 = 10.00, Qty2 = 2, Price2 = 2.00, Qty3 = 10, Price3 = 3.00, and Qty4 = 8 , Price4 = 11.00 »

Comment

Crystal Reports uses *N* when calculating population standard deviation, *N--1* when calculating standard deviation.

PopulationVariance(fld)

Format

PopulationVariance(*fld*)

« where *fld* is a number or currency field or formula ».

Action

PopulationVariance(*fld*) calculates the population variance of the number or currency values in the field for the entire report. It calculates the grand total population variance for that field.

Typical use(s)

Use any time you need to calculate the variance of the values in a number or currency field, or use the variance in a calculation or comparison.

Example(s)

PopulationVariance({*field.Quantity*})

« Calculates the grand total population variance for all values in the field *Quantity* ».

Comment

Crystal Reports uses *N* when calculating population variance, *N--1* when calculating variance.

PopulationVariance(fld, condFld)

Format

PopulationVariance(*fld*, *condFld*)

« where:

- *fld* is the name of the number or currency field for which Crystal Reports generates subtotals/summary fields, and
- *condFld* is the name of the string, number, or currency field that triggers the subtotals/summary fields to print whenever its value changes »

Action

PopulationVariance(*fld*, *condFld*) calculates the population variance for the values in each group that results from the specified summary field. This is a group population variance, the population variance of a group of values in a given field.

Typical use(s)

Use this function whenever you want to duplicate, in a formula, a summary field:

- that calculates the population variance for the values in a group, and
- that uses a string, number, or currency field as the sort and group by field.

Example(s)

PopulationVariance({file.Results},{file.Procedure})

« Calculates the population variation for each group of laboratory test results in the *Results* field. The test results are separated into groups whenever the value in the *Procedure* field changes ».

Comments

- Crystal Reports uses *N* when calculating population variance, *N--1* when calculating variance.
- In order to use this function to insert a group field in a formula, you must have already entered a group field in your report with identical parameters: same field, same sort and group by field, same action (population variance).

PopulationVariance(fld, condFld, cond)

Format

PopulationVariance(*fld*, *condFld*, "*cond*")

« where:

- *fld* is the name of the number or currency field for which Crystal Reports generates subtotals/summary fields,
- *condFld* is the name of the date or Boolean field that triggers the subtotals/summary fields to print whenever a certain condition is met, and
- *cond* is the condition (weekly, monthly, change to Yes, next is No, etc.) that needs to be met »

Action

PopulationVariance(*fld*, *condFld*, "*cond*") calculates the population variance for the values in each group that results from the specified summary field. This is a group population variance, the population variance of a group of values in a given field. This function works just like PopulationVariance(*fld*, *condFld*), but, because it uses a date or Boolean field as a sort and group by field, it requires a condition in addition to the other arguments.

Typical use(s)

Use this function whenever you want to duplicate, in a formula, a summary field:

- that calculates the population variance for the values in a group, and
- that uses a date or Boolean field as the sort and group by field.

Example(s)

PopulationVariance({file.Results}, {file.Date}, daily) =

« Calculates the population variation for each group of laboratory test results in the *Results* field. The test results are separated into groups whenever the value in the *Date* field changes to a new day ».

PopulationVariance({file.Scores}, {file.Date}, weekly) %
PopulationVariance({file.Scores})

« Groups values in the *Scores* field by week, and calculates the population variance for each group of scores as a percentage of the population variance of the scores for the entire report (for all dates listed) ».

Comments

- Crystal Reports uses *N* when calculating population variance, *N--1* when calculating variance.
- In order to use this function to insert a group field in a formula, you must have already entered a group field in your report with identical parameters: same field, same sort and group by field, same date or Boolean condition, same action (population variance).

PopulationVariance([array])

Format

PopulationVariance([array])

« where array is an array of numeric values, separated by commas ».

Action

PopulationVariance([array]) calculates the statistical population variance for an array of numeric constants, data field values, or formulas ($a*b$, c/d , etc.), separated by commas.

Typical use(s)

Use PopulationVariance([array]) any time you need to use the population variance of values in an array in a calculation or comparison.

Example(s)

PopulationVariance([2,4,6,8,10]) = 8.00

PopulationVariance([file.Qty1, file.Qty2, file.Qty3, file.Qty4]) = 12.75

« where Qty1 = 2, Qty2 = 2, Qty3 = 10, and Qty4 = 8 »

PopulationVariance([(file.Qty1* file.Price1), (file.Qty2* file.Price2), (file.Qty3* file.Price3), (file.Qty4* file.Price4)]) = 1004.75

« where Qty1 = 2, Price1 = 10.00, Qty2 = 2, Price2 = 2.00, Qty3 = 10, Price3 = 3.00, and Qty4 = 8, Price4 = 11.00 »

Comment

Crystal Reports uses N when calculating population variance, $N-1$ when calculating variance.

Previous

Format

Previous (fld)

« where fld is any field or formula field in the report »

Action

Previous(fld) returns the value of the specified field for the previous record.

Typical use(s)

You can use previous to identify the last record in a previous range or the last record occurring before a new range begins, or to test for duplicate values.

Example(s)

Previous({file.AMT}) = produces the following results:

If {file.AMT} shows this value Previous({file.AMT}) returns

200.00	0
400.00	200.00
100.00	400.00
347.12	100.00

If Previous({file.QTY}) <> 0 then

{file.QTY}/2

else

{file.QTY}

« tests the previous value in the {file.QTY} field to see if it is a zero value. If it is not, it divides the value by two. If it is a zero value, it returns the value itself. »

If Previous ({file.CustNum}) = {file.CustNum} then

"Repeated Value"

else

""

« flags repeated values in the {file.CustNum} field »

If Remainder(Previous ({file.SerialNum}), 300) = 0 then

"Beginning, new block"

else

""

« divides the previous value in the {file.SerialNum} field by 300. If there is no remainder, it flags the current value as "Beginning, new block". If there is a remainder (else) it prints no flag. (This formula divides serial numbers into blocks of 300) »

PreviousIsNull

Format

PreviousIsNull(*fld*)

« where *fld* is any numeric field or numeric formula field in the report.»

Action

Evaluates the field specified in the previous record and returns a TRUE if the field contains a null value.

Typical use(s)

You can use this function to test for the first item in a list and to take some action when that first item is identified.

Example(s)

PreviousIsNull(*{file.AMT}*) = produces the following results:

If *{file.AMT}* shows this value PreviousIsNull(*{file.AMT}*) returns

200.00	True*
(null)	False
100.00	True
347.12	False

*no previous record

If PreviousIsNull (*{file.EmpNo}*) then

 "First employee of record"

else

 ""

« in an employee database with no null values in the employee number field, flags the first employee on the list »

PrintDate

Format

PrintDate

« no arguments required »

Action

PrintDate inserts the date the report is printed as a field in a formula.

Typical use(s)

You can use this function any time you want to print the date of printing on the report, or to condition something in the report on the print date.

Example(s)

PrintDate

« creates a field containing the date the report is printed that you can place on your report. Using this formula is the equivalent of using the Insert|Print Date Field command. »

```
If PrintDate >= Date(1992,01,01) then
```

```
    "Please excuse the delayed report."
```

```
else
```

```
    ""
```

« prints the message apologizing for the delay if the report prints after January 1, 1992, and prints nothing if the report prints before that date. »

RecordNumber

Format

Record number

« no arguments required »

Action

RecordNumber inserts the current record number as a field in a formula.

Typical use(s)

You can use this function in creating record selection formulas to print some records and exclude others.

Example(s)

RecordNumber

« creates a field containing the current record number that you can place on your report. Using this formula is the equivalent of using the Insert|Record Number Field command. »

Remainder

Format

Remainder(numerator, denominator)

Action

Remainder returns the remainder after the numerator (dividend) has been divided by the denominator (divisor). In a typical division situation, Crystal Reports expresses a quotient as a whole number (if any) and up to six decimal places. When using Remainder, however, Crystal Reports performs the division internally, determines the whole number quotient and the remainder, and returns only the remainder.

Typical use(s)

You can use this function in making conversions (feet to miles, units to grosses, etc.) You can also use it to select every *n*th item out of an array.

Example(s)

Remainder(12,5) = 2

Remainder(16,5) = 1

If Remainder({file.Exam#}, 7) = 0 then

else

""

« flags every 7th exam for grading by a second party »

ToText(Truncate({file.Days}/7)) + " week(s), " + ToText(Remainder({file.Days},7)) + " day(s)" =
"9 week(s), 1 day(s)"

« (if {file.Days} = 64)converts days to weeks and days »

Expanded example(s) using this function

Formula 13

Formula 17

ReplicateString(x,n)

Format

ReplicateString(*x*,*n*)

« where *x* is a string and *n* is an integer».

Action

Prints string *x*, *n* number of times.

Typical use(s)

You can use this function to insert a line of characters any time they are needed. Some typical uses are:

- to flag critical data on your report,
- to build simple bar graphs,
- to split your report into visible sections, and
- to highlight totals, subtotals, and other summary data.

Example(s)

```
If {file.Sales} < {file.Quota} then
    ReplicateString(*,10)
else
```

« Prints the string * ten times as a flag ».

```
{file.Name}+    + ReplicateString(*, {file.Score})
```

« prints a simple bar graph showing test results. The formula prints an asterisk for each point in a test score (the value in the file.Score field).

Comments

You must enclose the string in quotation marks.

Round

Format

Round(x)

« where x is the number -- or arithmetic expression yielding a number -- to be rounded »

Action

Round rounds to the nearest whole number. If the value to the right of the decimal point is .499 or below, Crystal Reports rounds to the next lowest number. If the value to the right of the decimal point is .5 or above, Crystal Reports rounds to the next highest number.

Typical use(s)

Use Round any time an approximate integer value will suffice instead of a value with many decimal places.

Example(s)

Round(1.23456) = 1

Round(1.499) = 1

Round(1.5000) = 2

Round({file.Amount}) = 1854.00

« where {file.Amount} = 1854.49 »

Round({file.Amount}) = 1854.00

« where {file.Amount} = 1854.51 »

Round({file.Weight}/100) = 4

« where {file.Weight} = 424 »

Round({file.Weight}/100) = 5

« where {file.Weight} = 451 »

Round((A*B)/C) = 11

« where A = 25, B = 3, and C = 7 »

Expanded example(s) using this function

Formula 8

Round(x, # places)

Format

Round(x, n)

«where x is a number or dollar amount and n is the number of places to which you want the value rounded.»

Action

Round(x,n) rounds a number x to the number of decimal places specified by n . The number n may be positive, negative, or zero (0).

Typical use(s)

Crystal Reports' Round function rounds to the closest whole number. Use the Round(x,n) function any time you need greater precision in your rounding.

Example(s)

Round(2345.23456,4) = 2345.2346

Round(2345.23456,3) = 2345.235

Round(2345.23456,2) = 2345.23

Round(2345.23456,1) = 2345.2

Round(2345.23456,0) = 2345

Round(2345.23456,-1) = 2350

Round(2345.23456,-2) = 2300

Round(2345.23456,-3) = 2000

Round(1.234499,3) = 1.234

Round(1.234500,3) = 1.235

Round({file.Amount},1) = 1854.5

« where {file.Amount} = 1854.49 »

Round({file.Amount},1) = 1854.5

« where {file.Amount} = 1854.51 »

Round({file.Wage} * {file.Hours worked},2) = \$146.63

« where {file.Wage} = \$5.75 and {file.Hours worked} = 25.5: $5.75 * 25.5 = 146.625 = 146.63$ (when rounded to two decimal places) »

StdDev(fld)

Format

StdDev(*fld*)

« where *fld* is a number or currency field or formula ».

Action

Standard Deviation(*fld*) calculates the standard deviation of the number or dollar values in the field for the entire report. It calculates the grand total standard deviation for that field.

Typical use(s)

Use any time you need to calculate the standard deviation of the values in a number or currency field, or use the standard deviation in a calculation or comparison.

Example(s)

StdDev({*file.Quantity*})

« Calculates the grand total standard deviation for all values in the field *Quantity* ».

Comment

Crystal Reports uses *N--1* when calculating standard deviation, *N* when calculating population standard deviation.

StdDev(fld, condFld)

Format

StdDev(*fld*, *condFld*)

« where:

- *fld* is the name of the number or currency field for which Crystal Reports generates subtotals/summary fields, and
- *condFld* is the name of the string, number, or currency field that triggers the subtotals/summary fields to print whenever its value changes »

Action

Standard Deviation(*fld*, *condFld*) calculates the standard deviation for the values in each group that results from the specified summary field. This is a group standard deviation, the standard deviation of a group of values in a given field.

Typical use(s)

Use this function whenever you want to duplicate, in a formula, a summary field:

- that calculates the standard deviation for the values in a group, and
- that uses a string, number, or currency field as the sort and group by field.

Example(s)

```
Standard Deviation({file.Amount}, {file.State}) % Standard  
Deviation({file.Amount})
```

« Groups values in the Amount field by state, and calculates the standard deviation for each state group as a percentage of the standard deviation for the values for the entire report ».

Comments

- Crystal Reports uses $N-1$ when calculating standard deviation, N when calculating population standard deviation.
- In order to use this function to insert a group field in a formula, you must have already entered a group field in your report with identical parameters: same field, same sort and group by field, same action (standard deviation).

StdDev(fld, conDFld, "cond")

Format

StdDev(*fld*, *conDFld*, "*cond*")

« where:

- *fld* is the name of the number or currency field for which Crystal Reports generates subtotals/summary fields,
- *conDFld* is the name of the date or Boolean field that triggers the subtotals/summary fields to print whenever a certain condition is met, and
- *cond* is the condition (weekly, monthly, change to Yes, next is No, etc.) that needs to be met »

Action

Standard Deviation(*fld*, *conDFld*, "*cond*") calculates the standard deviation for the values in each group that results from the specified summary field. This is a group standard deviation, the standard deviation of a group of values in a given field). This function works just like standard deviation(*fld*, *conDFld*), but, because it uses a date or Boolean field as a sort and group by field, it requires a condition in addition to the other arguments.

Typical use(s)

Use this function whenever you want to duplicate, in a formula, a summary field:

- that calculates the standard deviation for the values in a group, and
- that uses a date or Boolean field as the sort and group by field.

Example(s)

```
Standard Deviation({file.Scores}, {file.Date}, weekly) % Standard  
Deviation({file.Scores})
```

« Groups values in the *Scores* field by week, and calculates the standard deviation for each group of scores as a percentage of the standard deviation of the scores for the entire report (for all dates listed) ».

Comments

- Crystal Reports uses *N--1* when calculating standard deviation, *N* when calculating population standard deviation.
- In order to use this function to insert a group field in a formula, you must have already entered a group field in your report with identical parameters: same field, same sort and group by field, same date or Boolean condition, same action (standard deviation).

StdDev([array])

Format

StdDev([array])

« where *array* is an array of numeric values, separated by commas ».

Action

Standard deviation([array]) calculates the standard deviation for an array of numeric constants, data field values, or formulas (*a*b*, *c/d*, etc.), separated by commas.

Typical use(s)

Use Standard deviation([array]) any time you need to use the standard deviation of values in an array in a calculation or comparison.

Example(s)

Standard deviation([2,4,6,8,10]) = 3.16

Standard deviation([file.Qty1], file.Qty2, file.Qty3, file.Qty4]) = 4.12

« where Qty1 = 2, Qty2 = 2, Qty3 = 10, and Qty4 = 8 »

Standard deviation([(file.Qty1 * file.Price1), (file.Qty2*file.Price2), (file.Qty3*file.Price3), (file.Qty4 * file.Price4)]) = 36.60

« where Qty1 = 2, Price1 = 10.00, Qty2 = 2, Price2 = 2.00, Qty3 = 10, Price3 = 3.00, and Qty4 =8, Price4 = 11.00 »

Comment

Crystal Reports uses *N--1* when calculating standard deviation, *N* when calculating population standard deviation.

Sum(field)

Format

Sum(field)

« where *field* is a number or dollar value field or formula. »

Action

Sum(*field*) totals the number or dollar values in the *field* for the entire report. It calculates the grand total for that field.

Typical use(s)

Use any time you need to print the sum of the values in a number or dollar value field, or use the sum in a calculation or comparison.

Example(s)

Sum({*file.Amount*}) =

« calculates the sum of all values in the {*file.Amount field*}. »

Sum(field, condField)

Format

Sum(field, condField)

« where:

- *field* is the name of the number or dollar value field for which Crystal Reports generates subtotals/summary fields, and
- *condField* is the name of the character, number, or dollar value field that triggers the subtotals/summary fields to print whenever its value changes. »

Action

Sum(field, condField) sums (totals) the values in each group that results from the specified subtotal or summary field. This is a group sum (a subtotal), the sum of a group of values in a given field.

Typical use(s)

Use this function whenever you want to duplicate, in a formula, a subtotal or summary field:

- that sums (totals) the values in a group, and
- that uses a character, number, or dollar value field as the sort and group by field.

Example(s)

Sum({file.Orders}, {file.Customer}) =

« Sums (totals) the orders in each group of orders in the *Orders* field. The orders are separated into groups whenever the value in the *Customer* field changes. »

Sum({file.Amount}, {file.State}) % Sum({file.Amount})

« Groups values in the *Amount* field by state, and calculates the sum of values for each state group as a percentage of the sum of values for the entire report. »

Comment

In order to use this function to insert a group field in a formula, you must have already entered a subtotal or other group field in your report with identical parameters: same field, same sort and group by field, same action (sum).

Sum(field, condField, "condition")

Format

Sum(field, condField, "condition")

« where:

- *field* is the name of the number or dollar value field for which Crystal Reports generates subtotals/summary fields,
- *condField* is the name of the date or Boolean field that triggers the subtotals/summary fields to print whenever a certain condition is met, and
- *condition* is the condition(weekly, monthly, "change to Yes", "next is No", etc.) that needs to be met. »

Action

Sum(field, condField, "condition") sums (totals) the values in each group that results from the specified subtotal or summary field. This is a group sum (a subtotal, the sum of a group of values in a given field). This function works just like Sum(field, condField), but, because it uses a date or Boolean field as a sort and group by field, it requires a condition in addition to the other arguments.

Typical use(s)

Use this function whenever you want to duplicate, in a formula, a subtotal or summary field:

- that sums (totals) the values in a group, and
- that uses a date or Boolean field as the sort and group by field.

Example(s)

Sum(*{file.Order}*,*{file.Date}*, "monthly") =

« Sums (totals) the orders in each group of orders in the *{file.Orders}* field (the total of all orders for each month). The orders are separated into groups whenever the value in the *{file.Date}* field changes to a new month. »

Sum(*{file.Amount}*,*{file.date}*, "monthly") % Sum(*{file.Amount}*)

« Groups values in the *{file.Amount}* field by month, and calculates the sum of the values for each month group as a percentage of the sum of the values for the entire report. »

Comment

In order to use this function to insert a group field in a formula, you must have already entered a subtotal or other group field in your report with identical parameters: same field, same sort and group by field, same date or Boolean condition, same action (sum).

Sum([array])

Format

Sum([array])

« where *array* is an array of numeric values, separated by commas. »

Action

Sum([array]) adds the values in an array of numeric constants, data field values, or formulas ($a*b$, c/d , etc.), separated by commas.

Typical use(s)

Use Sum([array]) any time you need to use the sum of values in an array in a calculation or comparison.

Example(s)

Sum([5, 5, 5, 5]) = 20

Sum([*{file.Amount}*, *{file.Price}*, *{file.Cost}*]) = Sum of values in the *{file.Amount}*, *{file.Price}*, and *{file.Cost}* fields.

Sum([*{file.ItemA Price}* * *{file.QuantityA}*, *{file.ItemB Price}* * *{file.QuantityB}*]) = \$47.50

« where *{file.ItemA Price}* = 5.00, *{file.QuantityA}* = 3, *{file.ItemB Price}* = 6.50, *{file.QuantityB}* = 5 --
(5.00 * 3) +
(6.50 * 5) = (15.00) + (32.50) = 47.50 »

Expanded example(s) using this function

Formula 4

Today

Format

Today

Action

Today returns the current date.

Typical use(s)

Use Today any time you wish to insert today's date (taken from your computer's internal clock) into a formula.

Example(s)

Today = May 16 91

« where today's date is May 16, 1991 »

Day(Today) = 16

« where today's date is May 16, 1991 »

Comment

If you simply want to print today's date on your report, use the PrintDate function.

ToNumber

Format

ToNumber(x)

« where *x* is a number stored as a text string »

Action

ToNumber converts a text string to a number.

In a database, some numbers are stored in numeric fields, as numbers, and some are stored in character fields, as text. You make the determination which fields are to be numeric and which are to be text when you set up the database in the first place. Numbers on which you might wish to perform arithmetic (item cost, quantity ordered, etc.) are typically stored in numeric fields; numbers on which you don't expect to perform arithmetic (customer number, telephone number, etc.) are typically stored in text fields.

ToNumber allows you to convert a number stored as text to a number on which you can perform arithmetic.

Typical use(s)

You might use this function, for example, if your item numbers contain coded product information and you want to use that information in calculations.

Example(s)

ToNumber("123.45") = 123.45

ToNumber({file.Reference}) = 200.00

« where "200" is the text string in the {file.Reference} field ».

ToNumber({file.AcctNo}/2) = 22144

« where {file.AcctNo} = 44288

ToNumber({file.ZIP}) < 33333 = TRUE

« where {file.ZIP} is "21385" »

Expanded example(s) using this function

Formula 2

Formula 3

Formula 9

Formula 17

ToText

Format

ToText(x)

« where x is a number that you wish to convert to text. »

Action

ToText converts a number to a text string.

Typical use(s)

You can use this function to convert a numeric field value or the result of a numeric calculation to text so it can be used in a text string (form letter, comment on report, flag, etc.)

Example(s)

ToText(123.45) = "123.45"

ToText is useful when you want to build a sentence by concatenating a converted number with other text strings.

"The base price of item # " + {file.Item number} + " is \$" + ToText({file.Base Price}) + "."

prints the sentence

"The base price of item A1/4520/B12 is \$50.00."

« where the {file.Item number} field contains A1/4520/B12" and the {file.Base Price} field contains 50.00, converted to text and formatted with two decimal places. »

NOTE: Use the TrimLeft and TrimRight functions to eliminate spaces before and after left-justified and right-justified text fields. For example:

TrimLeft({file.Item number})

will trim the spaces to the left of the item number, which is stored right-justified. The example for ToNumber also includes the use of the ToText function.

ToText({file.Amt} * {file.Quantity}) = "44,890.20"

« where {file.Amt} = 24.45 and {file.Quantity} = 1836 »

Expanded example(s) using this function

Formula 1

Formula 2

Formula 3

Formula 5

Formula 13

ToText (number of places)

Format

ToText(*x*, # places)

« where *x* is a number you want to convert to text, and # *places* is a number specifying the number of decimal places. »

Action

ToText(*x*, # places) converts a number to a text string and allows you to specify the number of decimal places in the number when it is written as text.

Typical use(s)

Use ToText(*x*, # places) any time you want to convert a number to text and you don't want as many decimal places in the text version as in the decimal version (for example, when you're converting multiple numbers, each with a different number of decimal places, and you want a consistent number of decimal places in the text representation of the numbers).

Example(s)

ToText(12345.6749,2) = "12345.67"

ToText(12345.6750,2) = "12345.68"

ToText(12345.4999,0) = "12345"

ToText(12345.5000,0) = "12346"

Comments

This function does not truncate the number written as text, but rounds it to the number of decimal places specified. See Round(*x*, # places) for additional information.

ToWords(x)

Format

ToWords(x)

« where x is a number that you wish to convert to words (1 = one, 68 = sixty--eight, etc. ».

Action

You can use this function to convert a number or currency field value or the result of a numeric calculation to words so it can be used as text.

The function treats the number as a whole, rather than as a series of individual numbers. That is, 123 is treated as the number one hundred twenty--three rather than the individual digits one, two, and three.

Negative numbers begin with the word negative.

Typical use(s)

You can use this function to spell out the dollar amount for each check if you are using computer checks.

Example(s)

ToWords(12345) = twelve thousand three hundred forty--five and xx/100

ToWords(--12345) = negative twelve thousand three hundred forty--five and xx/100

ToWords(12.3499) = twelve and 35/100

ToWords(.98 * {file.Amount}) = two thousand sixteen and 84/100

« where Amount = 2058.00 »

ToWords((({file.QTY1} + {file.QTY2} + {file.QTY3}) * {file.Price}) * 1.075) = one hundred two and 13/100

« where QTY1 = 1, Qty2 = 82, QTY3 = 12, and Price = 1.00 (sums three quantities, multiplies them times the price and adds 7.5% sales tax. In this case the numeric answer is 102.125 which is then rounded to 102.13 (the standard two decimal places) before putting into words ».

Comments

- Currency field values and number field values are treated in the same way and produce identical results.
- Since the spelled out value will be much longer than the number value, you will need to increase the size of the field box to accommodate the new field length.

ToWords(x, number of places)

Format

ToWords(x,n)

« where *x* is a number that you want to convert to words (1 = one, 68 = sixty--eight, etc.) and *n* is the number of decimal places you want included in the resulting word version ».

Action

You can use this function to convert a number or currency field value or the result of a numeric calculation to words so it can be used as text. The ability to adjust the number of decimal places can be useful when the number is the result of a calculation that may produce more decimal places than you want

Typical use(s)

You can use this function to spell out the dollar amount for each check if you are using computer checks.

Example(s)

ToWords(12345.6749,2) = twelve thousand three hundred forty--five and 67/100

ToWords(12345.4999,0) = twelve thousand three hundred forty--five

————

ToWords(12345.5000,0) = twelve thousand three hundred forty six

« Note that the value is rounded to the number of decimal places specified ».

————

ToWords(((*file.QTY1*) + *file.QTY2*) + *file.QTY3*) * *file.Price*) * 1.075,0)
= one hundred two

« where QTY1 = 1, Qty2 = 82, QTY3 = 12, and Price = 1.00 (sums three quantities, multiplies them times the price and adds 7.5% sales tax. In this case the numeric answer is 102.125 which is then rounded to 0 decimal places before putting into words ».

Comments

- The function treats the number as a whole, rather than as a series of individual numbers. That is, 123 is treated as the number one hundred twenty--three rather than the individual digits one, two, and three.
- Negative numbers begin with the word negative.
- Currency field values and number field values are treated in the same way and produce identical results.
- Since the spelled out value will be much longer than the number value, you will need to increase the size of the field box to accommodate the new field length.

TrimLeft

Format

TrimLeft(x)

« where x is a string or data field stored right justified.»

Action

TrimLeft removes all spaces to the left of a string or data field which is stored as a right-justified string in a database.

Typical use(s)

Use this function any time there are leading blanks in a text field that may interfere with an alignment of text strings, a character count, or with a calculation (if the string is eventually converted to a number).

Use whenever you are concatenating justified text strings and want to have the proper spacing between strings.

Example(s)

TrimLeft(" _____A1/4520/B12") = "A1/4520/B12"

TrimLeft({file.Customer number}) = "200"

« where the text string " 200" is right-justified in the field. »

You have two right justified database fields, {file.Food1} and {file.Food2}. Each field can hold up to 15 characters. {file.Food1} contains the word *bread* and {file.Food2} contains the word *butter*. If you were to print these words, they would appear like this:

" bread"

" butter"

For each 15 character field the database includes the field value, justified right plus enough blank spaces to fill up the field. To use these words without the leading spaces (to create the expression bread and butter, for example) use the TrimLeft function in the following manner:

TrimLeft({file.Food1}) + " and " + TrimLeft({file.Food2}) = "bread and butter"

NOTE: The spaces enclosed in the quotation marks before and after the word *and* assure that there is the correct spacing between the three words in the resulting sentence.

Expanded example(s) using this function

Formula 14

TrimRight

Format

TrimRight(x)

« where x is a string or data field stored left justified.»

Action

TrimRight removes all spaces to the right of a string or data field which is stored left-justified in a database.

Typical use(s)

Use this function any time there are trailing blanks in a text field that may interfere with an alignment of text strings, a character count, or with a calculation (if the string is eventually converted to a number).

Example(s)

TrimRight("A1/4520/B12____ ") = "A1/4520/B12"

TrimRight(*{file.Reference}*) = "Bal Fwd."

« where the text string "Bal Fwd. " is left-justified in the field. »

Truncate

Format

Truncate(x)

« where x is the number you want truncated. »

Action

Truncate returns a whole number (integer) by truncating the number at the decimal point.

Typical use(s)

Use this function whenever the characters to the right of the decimal are unimportant.

Example(s)

Truncate(1.23456) = 1

Truncate(1.499) = 1

Truncate(1.599) = 1

Truncate(1.999) = 1

If you have 147 golf balls in stock and want to know how many dozen are available for sale, your calculation is $147/12=12.25$ 12.25 (truncated) = 12 dozen available for sale. If you sell balls only by the dozen, the .25 dozen you truncated is unimportant.

Truncate({file.Ball inventory}/12) = 12

« where {file.Ball inventory} = 147 » ($147/12 = 12.25$, 12.25 truncated = 12)

Truncate ({file.Ball inventory}/12) = 12

« where {file.Ball inventory} = 155 » ($155/12 = 12.92$, 12.92 truncated = 12)

Truncate({file.Ball inventory}/12) = 13

« where {file.Ball inventory} = 157 » ($157/12 = 13.08$, 13.08 truncated = 13)

Comments

This is *not* a rounding function; truncate simply deletes all characters to the right of the decimal point.

Expanded example(s) using this function

Formula 13

UpperCase

Format

Uppercase(x)

« where *x* is the text string you want converted to upper case. »

Action

UpperCase prints the text string or text value in the data field in upper case (capital letters).

Typical use(s)

A good use of this function is when a field contains both uppercase and lowercase letters and you want to convert all values to uppercase for consistency.

Example(s)

```
UpperCase("Description") = "DESCRIPTION"
```

```
UpperCase({file.Name}) = "RONALD BLACK"
```

```
UpperCase("Ronald Black") = "RONALD BLACK"
```

```
UpperCase("abc12345") = "ABC12345"
```

```
UpperCase("BrEaD " + "AND " + "bUtTeR" ) = "BREAD AND BUTTER"
```

Variance(fld)

Format

Variance(*fld*)

« where *fld* is a number or currency field or formula ».

Action

Variance(*fld*) calculates the variance of the number or currency values in the field for the entire report. It calculates the grand total variance for that field.

Typical use(s)

Use any time you need to calculate the variance of the values in a number or currency field, or use the variance in a calculation or comparison.

Example(s)

Variance({*field.Quantity*})

« Calculates the grand total variance for all values in the field *Quantity* ».

Comment

Crystal Reports uses $N-1$ when calculating variance, N when calculating population variance.

Variance(*fld*, *conDFld*)

Format

Variance(*fld*, *conDFld*)

« where:

- *fld* is the name of the number or currency field for which Crystal Reports generates subtotals/summary fields, and
- *conDFld* is the name of the string, number, or currency field that triggers the subtotals/summary fields to print whenever its value changes »

Action

Variance(*fld*, *conDFld*) calculates the variance for the values in each group that results from the specified summary field. This is a group variance, the variance of a group of values in a given field.

Typical use(s)

Use this function whenever you want to duplicate, in a formula, a summary field:

- that calculates the variance for the values in a group, and
- that uses a string, number, or currency field as the sort and group by field.

Example(s)

Variance({file.Results}, {file.Procedure})

« Calculates the variation for each group of laboratory test results in the *Results* field. The test results are separated into groups whenever the value in the *Procedure* field changes ».

Comments

- Crystal Reports uses $N-1$ when calculating variance, N when calculating population variance.
- In order to use this function to insert a group field in a formula, you must have already entered a group field in your report with identical parameters: same field, same sort and group by field, same action (variance).

Variance(*fld*, *condFld*, *cond*)

Format

Variance(*fld*, *condFld*, "*cond*")

« where:

- *fld* is the name of the number or currency field for which Crystal Reports generates subtotals/summary fields,
- *condFld* is the name of the date or Boolean field that triggers the subtotals/summary fields to print whenever a certain condition is met, and
- *cond* is the condition (weekly, monthly, change to Yes, next is No, etc.) that needs to be met »

Action

Variance(*fld*, *condFld*, "*cond*") calculates the variance for the values in each group that results from the specified summary field. This is a group variance, the variance of a group of values in a given field). This function works just like Variance(*fld*, *condFld*), but, because it uses a date or Boolean field as a sort and group by field, it requires a condition in addition to the other arguments.

Typical use(s)

Use this function whenever you want to duplicate, in a formula, a summary field:

- that calculates the variance for the values in a group, and
- that uses a date or Boolean field as the sort and group by field.

Example(s)

Variance({file.Scores}, {file.Date}, weekly) % Variance({file.Scores})

« Groups values in the *Scores* field by week, and calculates the variance for each group of scores as a percentage of the variance of the scores for the entire report (for all dates listed) ».

Comments

- Crystal Reports uses *N--1* when calculating variance, *N* when calculating population variance.
- In order to use this function to insert a group field in a formula, you must have already entered a subtotal or other group field in your report with identical parameters: same field, same sort and group by field, same date or Boolean condition, same action (variance).

Variance([array])

Format

Variance([array])

« where *array* is an array of numeric values, separated by commas ».

Action

Variance([array]) calculates the statistical variance for an array of numeric constants, data field values, or formulas ($a*b$, c/d , etc.), separated by commas.

Typical use(s)

Use Variance([array]) any time you need to use the variance of values in an array in a calculation or comparison.

Example(s)

Variance([2,4,6,8,10]) = 10

Variance([file.Qty1, file.Qty2, file.Qty3, file.Qty4]) = 17.00

« where Qty1 = 2, Qty2 = 2, Qty3 = 10, and Qty4 = 8 »

Variance([(file.Qty1 * file.Price1), (file.Qty2 * file.Price2),
(file.Qty3 * file.Price3), (file.Qty4 * file.Price4)]) = 1339.67

« where Qty1 = 2, Price1 = 10.00, Qty2 = 2, Price2 = 2.00, Qty3 = 10, Price3 = 3.00,
and Qty4 = 8, Price4 = 11.00 »

Comment

Crystal Reports uses $N-1$ when calculating variance, N when calculating population variance.

WhileReadingRecords

Format

WhileReadingRecords

Action

Forces the program to evaluate the formula while it is reading database record data.

Typical use(s)

Formulas are normally evaluated at the following times:

- If no database or group field is included in the formula, the formula is evaluated before the program reads database records.
- If a database is included in the formula, the formula is evaluated while the program reads database records.
- If a group field, page # field, subtotal, etc. is included in the formula, the formula is evaluated after database records are read and while the data from the records is being printed in the report.
WhileReadingRecords forces the formula to be evaluated while the program reads database records. When this function is used in a formula, the Formula Checker returns an error message if you attempt to include elements in the formula (groups, page number fields, etc.) that must be evaluated at a later time (while printing records). This function can also be used to force a formula that includes no database fields and no group fields to process while reading records instead of before reading records.

Example(s)

WhileReadingRecords;

ToNumber({*items.Qty*})

« Forces the formula (which contains a database field) to be evaluated at its normal time (while reading records). »

NOTE: If you try to include a group in this formula, you will get an error message.

WhileReadingRecords;

ToNumber ("12345")

«Forces the formula (which contains no database fields or groups), to be evaluated later than it would normally be evaluated. In this case it causes the formula to be evaluated while reading records instead of before reading records.»

NOTE: If you try to include a group in this formula, you will get an error message.

See also

[Example report using evaluation time function](#)

WhilePrintingRecords

Format

WhilePrintingRecords

Action

Forces the program to evaluate the formula while it is printing database record data.

Typical use(s)

Formulas are normally evaluated at the following times:

- If no database or group field is included in the formula, the formula is evaluated before the program reads database records.
- If a database is included in the formula, the formula is evaluated while the program reads database records.
- If a group field, page # field, subtotal, etc. is included in the formula, the formula is evaluated after database records are read and while the data from the records is being printed in the report.

WhilePrintingRecords forces the formula to be evaluated while the program prints database records.

This function can also force a formula that includes no database fields and no group fields to process while printing records instead of before reading records. It will also force a formula that includes database fields to process while printing records instead of while reading records.

Example(s)

WhilePrintingRecords;

3* Sum ({detail.Qty1}, {detail.Qty2})

«Forces the formula (which contains a group) to be evaluated at its normal time (while printing records)»

WhilePrintingRecords;

ToNumber ("12345")

«Forces the formula (which contains no database fields or groups), to be evaluated later than it would normally be evaluated. In this case it causes the formula to be evaluated while printing records instead of before reading records.»

See also

[Example report using evaluation time function](#)

Year

Format

Year(x)

« where x is a date (yyyy, mm, dd) from which you want to extract the year. »

Action

Year extracts the year from a date and returns a number.

Typical use(s)

Use this function any time you need to use a year, converted to a number, in calculations or comparisons.

Example(s)

Year(*{file.Last invoice on}*) = 1989

« where the last invoice date was in 1989. »

If Year(*{file.LastUpgrade}*) < 1988 then

"P.S. You're missing out on many of the benefits of our new, improved version."

else

""

« Prints a P.S. for those customers who last upgraded prior to 1988, and prints nothing for those customers who show a more recent upgrade.»

Example report using evaluation time function

This example report illustrates the use of an evaluation time function to take a formula that would normally be evaluated while reading records and force it instead to be evaluated while printing records.

Scenario

You want to create an order detail report that:

- shows the extended price for each line item,
- calculates a running total for each line, and
- resets itself to 0 for each new order.

Unless you disabled the *Samples and Examples* option during installation, the report, called EVALTIME.RPT, is one of the sample reports that was installed on your system. An example showing partial data from that report follows:

Order#	Item#	Qty	Price	Extension	RunTotal
Order #2203					
2203	1002	3	276.00	828.00	828.00
2203	1102	1	1,230.00	1,230.00	2,058.00
Total for order 2203					2,058.00
Order # 2204					
2204	1001	7	192.00	1,344.00	1,344.00
2204	1002	3	276.00	828.00	2,172.00
2204	1003	1	484.00	484.00	2,656.00
2204	1102	3	1,230.00	3,690.00	6,346.00
Total for order 2204					6,346.00

The report uses four database fields:

Order# {*detail.ORDERNUM*}
Item# {*detail.ITEMNUM*}
Qty {*detail.QTY*}
Price {*detail.PRICE*}

It uses three formulas:

@extend {*detail.QTY*} * {*detail.PRICE*}

«@extend simply calculates the extended price for a line item (quantity ordered times price per item). This provides the values in the *Extension* column.»

@initialize NumberVar Runtotal;
 If {*detail.ORDERNUM*} <> Previous ({*detail.ORDERNUM*}) then
 Runtotal := 0
 else
 Runtotal := Runtotal

«@initialize resets the variable *Runtotal* each time the order number changes so the running total for each order begins at 0.»

@running WhilePrintingRecords;
 NumberVar Runtotal;

Runtotal:= Runtotal + {@extend}

«@running calculates the running total for each order by adding the extended price for each line item to the existing running total for the order. This provides the values in the *Running Total* column.»

And it includes one subtotal:

Sum of @extend End group #1: detail.ORDER

Sum of @extend

«It subtotals the extended price each time the order number changes, thus providing the *Total for order nnnn* order total.»

The evaluation time problem in this report

Formulas are normally evaluated at the following times:

- If no database or group field is included in the formula, the formula is evaluated before the program reads database records.
- If a database is included in the formula, the formula is evaluated while the program reads database records.
- If a group field, page # field, subtotal, etc. is included in the formula, the formula is evaluated after database records are read and while the data from the records is being printed in the report.

The evaluation time problem which is solved with one of the evaluation time functions involves the relative evaluation time of two formulas, @initialize and @running.

- @initialize includes the Previous function which is evaluated while records are printed. Any formula that includes the Previous function, therefore, will be evaluated while the records are printing as well.
- @running, on the other hand, is normally evaluated while records are read. @running includes the formula @extend in its calculations, and @extend involves a database field. Whenever a database field is involved in a formula, the formula is evaluated while reading records (unless there is something in the formula -- a subtotal, a page # field, etc. -- that causes the formula to be evaluated later).

If we leave both formulas to be evaluated at their normal times,

- @running is evaluated first (during record read time) and it outputs running totals for each line item.
- Then, after it is finished calculating the running totals, @initialize is evaluated (during record print time). This formula initializes (sets to 0) the Runtotal variable each time the order number changes.
 - By this time it's too late. The running totals have already been calculated without being initialized between orders. The final printed report shows running totals getting bigger with each line item; they are not reset from order to order.

Your report comes out looking like this:

Order detail report -- @running doesn't include evaluation time function

Order#	Item#	Qty	Price	Extension	RunTotal
Order #2203					
2203	1002	3	276.00	828.00	828.00
2203	1102	1	1,230.00	1,230.00	2,058.00
Total for order 2203					2,058.00
Order # 2204					
2204	1001	7	192.00	1,344.00	3,402.00
2204	1002	3	276.00	828.00	4,230.00
2204	1003	1	484.00	484.00	4,714.00
2204	1102	3	1,230.00	3,690.00	8,404.00
Total for order 2204					6,346.00

To solve this problem, you must make certain that @initialize is evaluated at the same time as @running. You can't force a print time evaluation formula (@initialize) to evaluate at read time (forcing it to be evaluated before the required data is available), but you can force a read time evaluation formula (@running) to evaluate later, at print time. You do this by starting the formula (as we did) with the function **WhilePrintingRecords;**

```
WhilePrintingRecords;
NumberVar Runtotal;
Runtotal:= Runtotal + {@extend}
```

When you do this, your report comes out looking like you want it, like this:

Order detail report--@running includes evaluation time function

Order#	Item#	Qty	Price	Extension	RunTotal
Order #2203					
2203	1002	3	276.00	828.00	828.00
2203	1102	1	1,230.00	1,230.00	2,058.00
Total for order 2203					2,058.00
Order # 2204					
2204	1001	7	192.00	1,344.00	1,344.00
2204	1002	3	276.00	828.00	2,172.00
2204	1003	1	484.00	484.00	2,656.00
2204	1102	3	1,230.00	3,690.00	6,346.00
Total for order 2204					6,346.00

See also:

- [BeforeReadingRecords](#)
- [WhileReadingRecords](#)
- [WhilePrintingRecords](#)

Understanding the Help System

Crystal Reports offers a comprehensive help system to support you during every step of the report development process.

The help system is easy to use. If you've used help systems in other Windows programs (or in Windows itself, for that matter), you probably know enough to begin using the Crystal Reports help system without further study. If you need help understanding the Windows help system, see the documentation that you received with Microsoft Windows.

The program offers two kinds of help: context sensitive help and indexed help.

Context sensitive help

Context sensitive help gives you immediate help with a screen element of interest (menu command, dialog box, etc.). The program takes you directly to the help information you seek without the need to traverse the indexing system.

- To get context sensitive help on a dialog box, Click F1 when the dialog box is active.
- To get context sensitive help on a specific menu command, Click the menu name and then use the Down Arrow key to highlight the command of interest. Once the command is highlighted, press F1.

Indexed help

Indexed help takes you to the help indexing system, a hierarchy of indexes which is designed to help you target your topic of interest. Using the indexing system, you can select a broad topic of interest from the first index and then narrow your selection using the next index that appears, then the next. etc. For example:

- if you are interested in learning what arithmetic functions are built into Crystal Reports, you might first select Functions/*Indexed by function type* from the Reference Information section of *Index to Crystal Reports Help*, the first (main) index that appears when you call up indexed help. That selection takes you to the *Functions Index* which lists the various categories of functions available. Arithmetic functions is one of those categories.
- When you select *Arithmetic Functions*, Crystal Reports takes you to the *Arithmetic Functions Index* which lists all arithmetic functions by name.
- From that point you can choose a function of interest and Crystal Reports displays a window of information about the function and its usage.

The Crystal Reports indexing system lists all of the topics that relate directly to screen elements as well as many topics that do not. For example, the main index lists a glossary which defines report--related terms, many of which are not tied directly to screen elements (case sensitive, empty string, etc.).

Jumps within the help system

Crystal Reports' help system was designed to provide comprehensive technical support. Each help screen contains important information about the topic of interest. Many screens contain examples and comments as well.

Underlined text

Most screens also contain underlined text. (On color systems, underlined items are colored green as well.) When an item is underlined, it means that there is additional information immediately available on that item.

There are two kinds of underlines:

Solid

The solid underline indicates a cross reference. Clicking on a word with a solid underline takes you directly to the help screen for that topic.

Dotted

The dotted underline means that a definition is available for the topic. To call up the definition, move the cursor over the topic of interest, press the left mouse button, and keep it depressed. The definition will appear and remain on screen until you release the mouse button.

NOTE: As a visual aid, the cursor changes to the shape of a tiny hand whenever it is over

one of these underlined expressions.

Selecting an alias

For a variety of reasons, database names get changed. Many times this is not a problem, but if you have created a report using fields in formulas, changing the name of the database after you have created the formulas could be a real problem. Crystal Reports would look for formula fields under the old database name, and if the database had its name changed, the program wouldn't find the fields and thus couldn't use the formulas.

Crystal Reports avoids this kind of problem by using aliases. Aliases are pointers, programming devices that tell Crystal Reports where it should currently look for a database field. Now, if you change the name or location of the database (via the Database|File Location command), you simply reset the pointer (tell the alias about the change). The name of the alias doesn't change, so your formulas are not affected. Crystal Reports looks to the alias for a database reference as always, goes to the database referenced, and runs the formula without a problem.

NOTE: Crystal Reports comes preset to use the default alias (the database name without the extension). If you want to use something different than the default, you will need to toggle the Use Default Alias switch off in the Options dialog box. This will cause the Database File/Alias dialog box to appear whenever you activate a new database.

To change the default alias

- When the Alias dialog box appears, choose the name you want to use to refer to the database you just selected. You may want to choose the default name (the name of the database without the extension, i.e., company.dbf = company), or you may want to choose a different, more meaningful name (ordrhead.db = header, 03_30_92.dbf = March, etc.). Crystal Reports will display the alias you select (instead of the actual database name) every time it refers to the database.

Linking the databases

You link databases so that records from one database will match up with records from another. For example, if you activate a Customer database and an Order database, you link the databases so that orders in the Order database can be matched up with the customers (from the Customer database) who placed the orders.

Links are fields that are common to the two databases. The fields don't have to have the same name; but they must have the same structure (size, data type), and contain the same kind of data.

- When you activate additional databases using the Database|Add File to Report command, Crystal Reports takes you directly to the Define Link dialog box. You use this dialog box to establish the link between the database you are activating and a database which is already active..
- If you later wish to create new links, or update or delete existing links, you use the Database|File Links command which takes you to the File Links dialog box .You use this dialog box for a variety of linking activities.

Understanding the invisible grid

The Report Editor looks very freeform. It looks like you can place anything anywhere and hope for good results. But that is not the case. The Editor contains an invisible grid which directly affects the placement of data fields and text fields.

Think of the grid as a series of row and column coordinates. Crystal Reports allows you to place fields and text only at these coordinates, not between them. In this way it makes it very easy for you to place and space data on your report, and to align text and fields as needed. If you attempt to place a report element between grid coordinates, Crystal Reports "snaps" the element to grid, that is, it moves the element automatically to the nearest coordinate.

When you place a data field in the Report Editor, Crystal Reports "snaps" it to the nearest coordinate. You use the arrow keys or the mouse to move the fields, once they have been placed.

- When you use the arrow keys to move the field, each time you press the arrow the field moves **one grid position**.
- When you use the mouse to drag the field to a new location, Crystal Reports "snaps" the field to the nearest coordinate as the field moves.

When you type text in the Report Editor, Crystal Reports always begins the text at a grid coordinate.

- You use the Tab key to move the text; each time you press the Tab key the text moves **six grid positions**.

See Also

[Aligning text with fields](#)

Understanding the cursors

Crystal Reports uses a number of different cursors at different points in its operation:

Hourglass cursor

The Hourglass cursor is the cursor that appears whenever Crystal Reports is processing a command you have selected. Whenever the hourglass is visible, you cannot select any other commands or proceed further with your report.

I--beam cursor

The I--beam cursor is a cursor you will probably find yourself working with often in Crystal Reports. Shaped like a stylized letter I, this cursor is active whenever you are working in the text entry sections of the Report Editor, the Formula Editor, and some of the dialog boxes. The I--beam cursor is the cursor you use to highlight text and to set the position of the insertion point.

Insertion point

The insertion point is a flashing vertical bar that identifies the insertion point for text. This cursor is available in the text entry sections of the Report Editor, the Formula Editor, and some of the dialog boxes. You set the insertion point by positioning the I--beam cursor and then clicking. When no text has yet been entered, Crystal Reports positions the insertion point, by default, at the left edge of the Editor or text entry box.

Rectangular placement cursor

The Rectangular placement cursor is the cursor you will use for placing fields and formulas in the Report Editor. This cursor is a graphic approximation of the field and formula boxes Crystal Reports uses to represent fields and formulas in the Editor.

Arrow cursor

The Arrow cursor is the primary cursor. You will use this cursor everywhere but where you can type text. The cursor is used for making menu selections, selecting options from dialog boxes, working with scroll bars, etc.

Pencil cursor

The Pencil cursor is a drawing cursor. It appears whenever you select Insert|Box or Insert|Line. The point of the pencil marks the spot where the drawing begins and is used to define the size and shape of the object drawn.

Double--arrow cursor

A double--arrow cursor is a resizing cursor. The cursor changes to one of a number of different double-- arrow cursors whenever it is over a resizing handle on a bit--mapped graphic, a graphic box, a graphic line, or a field.

Section sizing cursor

A section sizing cursor is a double arrow cursor with a horizontal line between the arrows. The cursor changes to the section sizing cursor whenever it is positioned over one of the lines dividing report sections. Using this cursor you can drag a section boundary line to expand or reduce the size of a section.

Tiny hand cursor

The Tiny hand cursor is available only in the Help facility. The Arrow cursor changes to the Tiny hand cursor whenever it is positioned over text or a graphic that you can use to jump to another position in the Help system.

Creating margins

You set margins in Crystal Reports using the Print|Set Printer Margins command.

- Crystal Reports uses a dashed line to display your margins in the Report Editor and Label Editor.
- The displayed margins are active: they define the outer printing limits of the report or label. Crystal Reports will not allow you to place or move a field or text so it extends beyond the margins.
- The numeric margin settings appear in both the Mailing Labels dialog box and in the Printer Margins dialog box.
- When you create a new report, Crystal Reports uses the non--printing areas established for your printer as default margins. For example, if your printer specifications indicate that the left quarter inch of a page is a non--printing area, Crystal Reports sets the default left margin at .25 inches. While you can set margins that fall inside the non--printing areas, parts of your report may be clipped off if you do.
- All margins are calculated from the paper edge. Thus, a left margin of .25 inches causes the printing to start exactly one quarter inch in from the edge of the paper.

Spacing fields

You set spacing between data fields by placing the fields where you want them in the Report Editor (using the mouse or Arrow keys), checking your spacing using the Print|Print to Window command, and then fine-tuning the spacing, again in the Report Editor.

Spacing considerations

Here are some things that can affect column spacing:

Field size

The amount of space allotted for a field may be much greater than the size of the value that appears in the field.

- In a number or dollar amount field (which is right justified by default), this can create a large number of leading blank spaces which can impact field spacing.
- In all other fields (which are left justified by default), it can create a large number of trailing blank spaces which can impact field spacing.

You can reduce the amount of space allotted for a field by selecting the field and then resizing it using the mouse or a Shift--Left Arrow or Shift--Right Arrow key combination.

Mouse

To reduce the size of a field in the Report Editor using the mouse, select the field and then drag either of the handles to make the field box smaller.

Shift--Left Arrow key

To reduce the size of a field in the Report Editor using the Shift--Arrow key combination, select the field, press the Shift key, and, while keeping it depressed, press the Left Arrow key enough times to reduce the field to the desired size.

NOTE: If you have set up a data block of fields in the Report Editor (i.e., Customer|Address|City in a customer list report), you can resize all of the fields at once. First, Click each of the fields while holding down the Shift key. Then resize the fields by dragging on one of the sizing handles from any of the selected fields (using the mouse) or by using the Shift--Arrow key combination.

Alignment

Number and dollar amount fields are right justified by default; all other data types are left justified. A right aligned field following a left aligned field may appear to be spaced properly in the Report Editor. You may need to fine tune the spacing, however, once you review the report in the Print Window.

Inserting text (titles, labels, etc.)

You can add text to your report by typing it at the insertion point and then moving it into place or, by using the Insert|Text Field command.

To insert text directly on your report

1. Move the I--beam cursor to the line on which you wish to enter text.
2. Click the left mouse button to set the insertion point at the left edge of the Report Editor.
3. Type in your text.
4. Move the I--beam cursor in front of the text, Click to set the insertion point, and push the text into position using the Tab key.

To insert text using a text field

1. Select Insert|Text Field. The Edit Text Field dialog box appears.
2. Enter your text in the Enter Text edit box, and Click OK when finished. A rectangular placement cursor appears and changes into a field box when it enters the Report Editor.
3. Position the field box where you want the text field to appear and click the left mouse button to place it.

NOTE: *By default, Crystal Reports automatically places a title in the Page Header section to identify each field or formula field you insert in your report. These titles are simply text fields. As such, they can be moved, formatted, deleted, resized, or edited to change the text.*

- *For fields, the default title is the name of the field.*
- *For formulas, the default title is the name of the formula.*

The left edge of each title comes aligned with the left edge of the field it identifies.

NOTE: *Automatic titles can be toggled off and on via the Insert Detail Field Titles option in the Options dialog box.*

See Also

Aligning text with fields

Centering text, field values

Aligning text with fields

Often in reporting, you may find yourself wanting to align text with column data (that you entered as fields or formula fields). To do this, you place your fields, type your text, and then move the text into position using the Tab key. It is important to understand why you **use the Tab key** to perform this function and **not the Space Bar**.

Spaces on the screen take up a different amount of space than spaces on the printer. Thus, what looks like it is aligned on screen (using the Space Bar) may not be aligned when you print. If text and fields are aligned to a given tab stop on screen, however, the elements will also be aligned when you print.

To align text with fields

To align text with fields, you move the text, the field, or both.

- Move the text with the Tab key. Each time you press the Tab key the text moves six grid positions.
- Move the fields with the Arrow keys. Each time you press one of the Arrow keys, the text moves one grid position.

NOTE: *If you want to center the text over a field, or right or left align it, you can type the text into a text field and use the Format|Field alignment commands to set the alignment of the text within the text field (See Centering Text and Fields).*

NOTE: *Text can be moved right and left (with the Tab and Backspace keys) and so can fields (with the Right Arrow and Left Arrow keys). By moving text and fields in concert, you should easily be able to get good alignment.*

NOTE: *To align field titles with fields it's best to work from left to right. Make certain the first title is aligned with its field, then align the second title with its field, etc. Aligning, in this case, consists of aligning the left edge of the title with the left edge of the field.*

NOTE: *For the best (and easiest) alignment of text and field data, enter your text elements as text fields using the Insert|Text Field command (instead of entering the text directly onto the report).*

Inserting blank lines

To insert a blank line, you move the I-beam cursor to the section in which you want to enter the blank line, Click the left mouse button to set the insertion point, and press Enter one time for each blank line you want to insert.

Considerations

- If you place the insertion point before text and then press Enter, the blank lines will appear above the text.
- If you place the insertion point after text and then press Enter, the blank lines will appear below the text.
- If you place the insertion point before or after a field and then press Enter, the blank lines will always appear below the field. If you want to insert blank lines above the field, insert the number of blanks you need below the field as indicated, and then move the field down to the bottom blank line you have just created.

NOTE: You can also add blank lines by dragging the section boundary to increase section size.

Centering text, field values

To center text and field values, you use the Crystal Reports' alignment command.

To center text

1. Select Insert|Text Field and create a text field that contains the text you want.
2. Place the text field in the approximate position you want it to appear on the report.
3. Change the font, font size, and font style for the text field if you wish.
4. Resize the text field box so it matches the margins within which you wish to center the text. For example, if you want to center text beneath a report title, expand the field box so it's the same size as the report title (or report title field box). If you want to center a header entry over the body of the report, expand the header entry field box so it's the same width as the data in your report.
5. Select Format|Field, and then select *centered* from the Alignment box in the Field Format dialog box when it appears.
6. Select OK when finished; Crystal Reports centers your text within the expanded field box, and thus, to your specifications.

To center a field value under a title, over the body of the report, etc.

1. Select Insert|Text Field and create a text field that contains the text you want.
2. Place the field in the approximate position you want it to appear on the report.
3. Change the font, font size, and font style for the field if you wish.
4. Resize the field box so it matches the margins within which you wish to center the value. For example, if you want to center a value beneath a report title, expand the field box so it's the same size as the report title (or report title field box). If you want to center a value over the body of the report, expand the field box so it's the same width as the data in your report.
5. Select Format|Field, and then select *centered* from the Alignment box in the Field Format dialog box when it appears.
6. Select OK when finished; Crystal Reports centers the value within the expanded field box, and thus, to your specifications.

To center a field value within the space allotted for the field

1. Select the field whose value you want to center.
2. Change the font, font size, and font style for the field if you wish.
3. Select Format|Field, and then select *centered* from the Alignment box in the Field Format dialog box when it appears.
4. Select OK when finished; Crystal Reports centers the field value within the space allotted for the field.

Inserting special fields

Crystal Reports gives you the ability to insert special fields in your reports (in addition to the data fields you draw from databases). These special fields allow you to insert dates, page numbers, and group and record numbers in your report.

Print Date Field

Use Insert|Print Date Field to insert a field that prints whatever is the current date when the report prints.

Page Number Field

Use Insert|Page Number Field to insert a field that prints the current page number.

Record Number Field

Use Insert|Record Number Field to have Crystal Reports number each record printed in the Details section of your report.

Group Number Field

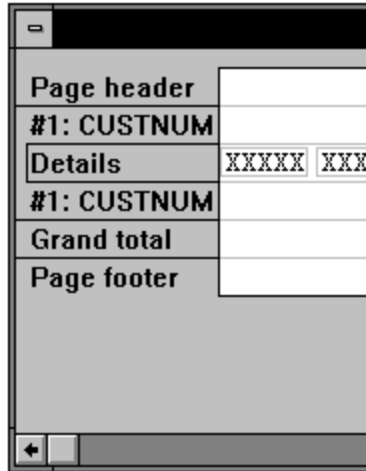
Use Insert|Group Number Field to have Crystal Reports number each group in your report.

When you select any of these special fields, a rectangular placement cursor appears. Move the cursor to the point where you want to insert the field and Click the left mouse button to place it.

Creating group headers

Crystal Reports allows you to place incremental headers above each group in your report. This feature allows you to give your reports a polished, professional appearance.

Whenever you insert a group, Crystal Reports creates two new sections on your report.



One section, the Group Footer section (#1: CUSTNUM in the screen shot), appears below the Details section. This section holds the group value field itself.

A matching section, the Group Header section (#1: CUSTNUM in the screen shot), appears above the Details section. Anything you place in this section will appear as a header for your group.

NOTE: Both sections are given the same designation so you can tell that they are tied together. The two sections are also tied together visually.

- If you put text in this section, the same text will appear as a header for each group on the report.
- If you put the field in this section that you use for the sort and group by field, Crystal Reports will create a "live" header for each group. For example, if you have a subtotal that sorts and groups your data by Customer, putting a duplicate copy of the Customer field in the Group Header section for that subtotal heads each group with the customer name. You can then format this header field to make it stand out if you wish, using a larger point size, bold face or italics, etc.

NOTE: You can hide either the Group Header section or the Group Footer section for any group by activating the Hide Section option available via the Format|Section command.

Multiple groups for the same field

When you set up a second group for the same field, Crystal Reports creates a second group section on your report beneath the first group section. Likewise, it creates a second Group Header section above the first Group Header section. For each new group field section on an existing field, Crystal Reports creates a pair of sections that effectively bracket the existing sections. Each section is clearly marked so you can easily tell which header section goes with each group section.

If you place headers in each of the Group Header sections, you get a report that is extremely easy to read. For example, if you have grouped your data by State and then by City within each state, each new State section will be headed by a State header, and each City section within the State section will be headed by a City header.

Grouping data with Crystal Reports

Grouping data means breaking your data into meaningful groups before it appears on your report. Crystal Reports makes it easy:

- to group your data, and
- to evaluate or perform calculations on the data in each group should you so wish.

Simple grouping

Simple grouping means breaking the data into groups without performing any additional action (totaling, averaging, etc.) on the grouped data.

- On a customer list, for example, you may want to group your data by state for use by your customer service or telemarketing personnel. Crystal Reports can quickly organize your data into state groups so that each group contains only customers from a single state.
- On a sales report you may want to group data by sales rep (each group containing only sales made by a single sales rep) or by customer (each group containing only sales made to a single customer). Crystal Reports gives you the flexibility to group data in a variety of ways.

NOTE: Whenever Crystal Reports groups data, it first sorts the data, and then it breaks the sorted data into groups. For example, if you want to group a customer list by state, Crystal Reports first sorts the data by state. Then it begins a new group whenever the state changes. The following data shows that process

Original Data	Sorted by state	Grouped by state
CO	AZ	AZ
WA	AZ	AZ
AZ	CA	
CA	CA	CA
CA	CO	CA
AZ	CO	
WA	WA	CO
CO	WA	CO
		WA
		WA

If all you want to do is group your data, you can do this easily with Crystal Reports using the Insert|Group Section command.

To do simple grouping

1. Select the field you want to group. For example:
 - if you want to group a customer list by state, select the field that contains the company name, or
 - if you want to group an orders report by customer, select the field that contains the order amount.
2. Select Insert|Group Section. The Insert Group Section dialog box appears.
3. In the top scroll box, select the field that you want to trigger a grouping, whenever its value changes. For example:
 - if you want to group a customer list by state, select the state field, or
 - if you want to group an orders report by customer, select the field that contains the customer name or customer number.
4. In the second scroll box, select the sort direction (in ascending order = A to Z, 0 to 9, in descending order = Z to A, 9 to 0).
5. If you selected a date or Boolean field in the top scroll box, a third scroll box appears near the bottom of the dialog box. In this scroll box, select the date or Boolean condition that finalizes your subtotal specification.
6. Select OK when finished. Crystal Reports groups the data to your specifications.

NOTE: You can tell that the data is grouped because two new sections appear in the Report Editor bracketing the Details section.

Nesting groups

■ You may also want to nest groups of data: group data within a group. For example, on a customer list, you may want to group your data by state, and then, within each state group, break the data down further, by city.

Crystal Reports allows you to do this easily: you use the Insert|Group Section command two times, first to set up the state group and then to set up the city group.

NOTE: You can add additional nesting levels as needed; there is no practical limit to how many nesting levels you can set up.

To group using nesting groups

1. Select the field you want to group. For example:
 - if you want to group a customer list by state and then, within each state group, group the list by city, select the field that contains the company name, or
 - if you want to group an orders report by customer and then, within each customer group, group the list by date, select the field that contains the order amount.
2. Select Insert|Group Section. The Insert Group Section dialog box appears.
3. In the top scroll box, select the field that you want to trigger a grouping, whenever its value changes. For example:
 - if you want to group a customer list by state and then by city, select the state field, or
 - if you want to group an orders report by customer and then by date, select the field that contains the customer name or customer number.
4. In the second scroll box, select the sort direction (in ascending order = A to Z, 0 to 9, in descending order = Z to A, 9 to 0).
5. Select OK when finished. Crystal Reports groups the data according to the first set of specifications.
6. Select the same field you selected in Step 1.
7. Select Insert|Group Section again. The Insert Group Section dialog box appears.
8. This time select the field you want to trigger the second group (the group within the group) whenever its value changes. For example:
 - if you want to group a customer list by state and then by city, select the city field, or
 - if you want to group an orders report by customer and then by date, select the date field.
9. Select the sort direction (in ascending order = A to Z, 0 to 9, in descending order = Z to A, 9 to 0).
10. Select OK when finished. Crystal Reports groups the data, this time using both sets of specifications.
11. Repeat Steps 7 to 11 for each additional group you want to set up.

Grouping, then summarizing grouped data

Sometimes you may want to go beyond mere grouping of data. You may want to first group the data and then evaluate or perform calculations on the data in each group. You may want to sum, average, or count the values, calculate the variance or standard deviation of the values, or determine the highest (maximum) or lowest (minimum) value in each group.

■ You can sum the data using the Insert|Subtotal or Insert|Summary commands.

NOTE: The Insert|Subtotal command is simply a shortcut for setting up a summary field that adds the values in each group.

■ You can average, count, calculate the variance or standard deviation, or determine the maximum or minimum values using the Insert|Summary commands.

NOTE: Not all summary field options are available for every data type. For example, you can't sum or average string fields.

How to group and summarize grouped data

1. Select the field you want to group. For example:
 - if you want to group a customer list by state and then count the number of values in each group, select the field that contains the company name, or

- if you want to group an orders report by customer and then determine the average sized order for each customer, select the field that contains the order amount.
2. Select Insert|Summary. The Insert Summary dialog box appears.
 3. In the top scroll box, select the action you want to take on the grouped data. For example:
 - if you want to count the number of values in each group, select Count, or
 - if you want to average the values in each group, select Average.
 4. In the next scroll box, select the field that you want to trigger a grouping, whenever its value changes. For example:
 - if you want to group a customer list by state, select the state field, or
 - if you want to group an orders report by customer, select the field that contains the customer name or customer number.
 5. In the next scroll box select the sort direction (in ascending order = A to Z, 0 to 9, in descending order = Z to A, 9 to 0).
 6. If you selected a date or Boolean field in the top scroll box, a third scroll box appears near the bottom of the dialog box. In this scroll box, select the date or Boolean condition that finalizes your subtotal specification.
 7. Select OK when finished. Crystal Reports sorts the data, and then groups and summarizes it to your specifications.

How to group and summarize using nesting groups

1. Select the field you want to group. For example:
 - if you want to group and count a customer list by state and then, within each state group, group and count the list by city, select the field that contains the company name, or
 - if you want to group and sum an orders report by customer and then, within each customer group, group and sum the list by date, select the field that contains the order amount.
2. Select Insert|Summary. The Insert Summary dialog box appears.
3. In the top scroll box, select the action you want to take on the grouped data. For example:
 - if you want to count the number of values in each group, select Count, or
 - if you want to sum the values in each group, select Sum.
4. In the next scroll box, select the field that you want to trigger a grouping, whenever its value changes. For example:
 - if you want to group and count a customer list by state and then by city, select the state field, or
 - if you want to group and sum an orders report by customer and then by date, select the field that contains the customer name or customer number.
5. In the next scroll box, select the sort direction (in ascending order= A to Z, 0 to 9, in descending order = Z to A, 9 to 0).
6. If you selected a date or Boolean field in the top scroll box, a third scroll box appears near the bottom of the dialog box. In this scroll box, select the date or Boolean condition that finalizes your subtotal specification.
7. Select OK when finished. Crystal Reports groups and summarizes the data to your specifications.
8. Select the same field you selected in Step 1.
9. Select Insert|Summary. The Insert Summary dialog box appears;
10. Select the action you want to take on the grouped data.
11. This time select the field you want to trigger the second group (the group within the group) whenever its value changes. For example:
 - if you want to group and count a customer list by state and then by city, select the city field, or
 - if you want to group and sum an orders report by customer and then by date, select the date field.
12. Select the sort direction (in ascending order = A to Z, 0 to 9, in descending order = Z to A, 9 to 0).
13. Select OK when finished. Crystal Reports sorts, groups, and summarizes the data to your specifications.
14. Repeat Steps 8 to 13 for each additional group you want to set up.

Adding, copying, deleting, and editing text

To add text

To add text, set the insertion point where you want the new text to begin, and type in your addition, or use a text field (Insert|Text Field command).

To copy text

- Select the text you want to copy by dragging the I-beam cursor over the text.
- Select Edit|Copy. Crystal Reports moves a copy of the selected text to the Clipboard without disturbing the highlighted text.
- Set the insertion point where you want to insert the copied text and select Edit|Paste. Crystal Reports copies the text at the selected point.

NOTE: You can also copy text to the Clipboard using the fifth button on the Button Bar ■. You can also paste text into your report from the clipboard using the sixth button on the Button Bar

■.

To delete text:

- set the insertion point where you want to begin deleting, and press the Delete key enough times to delete the unneeded text, or
- select the text you want to delete by dragging the I-beam cursor over it, then:
 - select Edit|Clear (or press Delete) to delete it permanently, or
 - select Edit|Cut (or press Shift--Delete) to cut the text to the clipboard for later use, or
- set the insertion point at the beginning of a line of text you want to delete and press Shift--End to select the entire line. Then:
 - select Edit|Clear (or press Delete) to delete it permanently,
 - or select Edit|Cut (or press Shift--Delete) to cut the text to the clipboard for later use.

To edit text

Delete, edit, and/or add text as needed following the techniques described above.

Moving text

You can move text in Crystal Reports in two different ways:

- By pushing or pulling it to a new position using the Tab key.
- By Cutting it to the Clipboard and then Pasting it in a new position.

Using the Tab key

Set the insertion point immediately in front of the text you want to move.

- Press the Tab key to move the text to the right. All text to the right of the insertion point moves each time you press the Tab key.
- Press the Backspace key to move the text to the left. All text to the right of the insertion point moves each time you press the Backspace key.

NOTE: If you want to move several pieces of text on a given line into position (i.e., aligning titles with data fields), begin at the left. Move the leftmost text into position, reset the insertion point to the left of the second text element and move it into position, reset the insertion point to the left of the third text element, etc.

Using Cut and Paste

1. Select the text you want to move.
2. Select Edit|Cut. Crystal Reports moves the text to the Clipboard.
3. Set the insertion point to the new text position.
4. Select Edit|Paste to paste the text at the new insertion point.

Moving fields

You move a database field by dragging it to a new position with the mouse, or by selecting it and using the Arrow keys.

With a mouse

1. Select the field you want to move.
 - To select a single field, Click the field.
 - To select multiple fields, hold the Shift key down while you Click the fields. Handles appear on the selected field(s).
2. With the cursor on the field and the left mouse button depressed, move the field to its new position.
3. Release the mouse button when the field is in place.

With the Arrow keys

1. Select the field you want to move.
 - To select a single field, Click the field.
 - To select multiple fields, hold the Shift key down while you Click the fields. Handles appear on the selected field(s).
2. Use the Arrow keys to move the field to its new position. The field moves one grid position each time you press the Arrow key.

NOTE: Crystal Reports allows you to move fields across other fields without affecting the placement of the bottom fields.

NOTE: You can move fields between sections with the following exceptions:

- ***grand totals cannot be moved outside the Grand Total section, and***
- ***a subtotal or summary can be moved only within its initial section or to the header portion of its initial section.***

See Also: [Understanding the invisible grid](#)

Sorting report data by record

There is a logic to the way values are arranged when they appear in a column on your report. Initially, they are arranged in the same order as the data appears in your database. But data can be sorted in a variety of ways:

- A mailing list, for example, could be sorted in ascending order on the ZIP code field; that is, the customers would be sorted so that those with the lowest ZIP codes would appear first and those with the highest ZIP codes would appear last.
- It could also be sorted in ascending alphabetical order, on the last name field; that is, customers with last names beginning with A would appear first, and those with last names beginning with Z would appear last.
- It could also be sorted by street address or customer first name if you had some practical reason for doing so.

Crystal Reports gives you the opportunity to change the existing sort order using the Print|Record Sort Order command.

To sort report data by record

1. Select Print|Record Sort Order. The Sort Order dialog box appears.
2. Select the Sort Fields and Sort Direction you want and Click OK when finished. Crystal Reports sorts the records to your specifications.

NOTE: If you group your data using the Insert|Group Section, Insert|Subtotal, or Insert|Summary command, Crystal Reports sorts your data automatically, as part of the grouping process. For example, if you sort a customer list by state, Crystal Reports first sorts the list alphabetically by state, before breaking it into state groups. In such a case, you don't have to use this command to generate the sorting.

Sorting report data by group

A group is a set of records that are related to each other in some way. In a customer list, for example, a group could consist of all those customers living in the same ZIP code, or in the same state. In a sales report, a group could consist of all the orders placed by the same customer, or all of the orders generated by a specific sales rep. Crystal Reports allows you to group data in a variety of ways (see [Grouping data with Crystal Reports](#))

The grouping process

When you group data, Crystal Reports first sorts the data by record and then groups it according to your specifications. Here is some data typical of that found in the *{file.STATE}* field of a customer list:

<u>Original Data</u>	<u>Sorted by state</u>	<u>Grouped by state</u>	<u>Groups sorted by count</u>
CO(1)	AZ(1)	AZ(1)	CA(1)
WA(1)	CA(1)		CA(2)
CA(1)	CA(2)	CA(1)	CA(3)
CA(2)	CA(3)	CA(2)	CA(4)
CA(3)	CA(4)	CA(3)	CA(5)
AZ(1)	CA(5)	CA(4)	
WA(2)	CO(1)	CA(5)	WA(1)
WA(3)	CO(2)		WA(2)
CA(4)	WA(1)	CO(1)	WA(3)
CA(5)	WA(2)	CO(2)	
CO(2)	WA(3)		CO(1)
		WA(1)	CO(2)
		WA(2)	
		WA(3)	AZ(1)

In order to group the data by state, Crystal Reports sorts the original data alphabetically by state, on the first pass, and then it breaks the data into groups (whenever the value in the state field changes) on the second pass. The resulting groups appear in ascending alphabetical order; the group containing all the customers from Arizona comes before the group containing all the customers from Colorado. Now this is fine if you want the groups appearing in that order. But let's assume we want the data grouped so that the group containing the most records (the state with the most customers) appears first, then the state with the second highest number of records, then the third, etc. Crystal Reports lets you do this easily using the [Print|Group Sort Order](#) command.

The Print|Group Sort Order command allows you to change the order in which groups appear on your report. You can:

- base the sort on any [group](#) (subtotal or summary) in your report, and
- sort your report so that group field values appear in ascending or descending [order](#).

How to sort groups

1. Select Print|Group Sort Order command. The Sort Order dialog box appears, listing all the groups that you have set up in your report. In our example, since customer data is grouped by state and the number of records in each state group is counted, a group name similar to this will appear in the Summary Fields box:

Group #n:customer.STATE

Count of customer.CUSTNAME

Translated, this means that the {customer.CUSTNAME} field (the field that contains the customer name), is grouped and counted every time the value in the {customer.STATE} field changes.

2. Select this group, Click the Add button, and Crystal Reports places it in the Sort Fields box and activates the Sort Direction options.
3. Since you want the largest groups (by count) to appear first and the smallest last, select Descending.

If you wanted the smallest groups to appear first, you would select Ascending.

4. Click OK when finished. Crystal Reports sorts the groups to your specifications (see table above).

NOTE: When you sort by group, nothing happens to the sort order of the records within a group (as evidenced by the record numbers in the table above); only the relative positions of the groups themselves change.

Hiding blank lines, zeros, & duplicate values

Crystal Reports has four formatting commands that suppress (hide) various parts of a report. The four commands are:

Suppress if Duplicated

Suppress if Duplicated (Field format dialog box) prevents a field value from printing if it is identical to (a duplicate of) the value that comes immediately before it. The value doesn't print but the space in which it would have printed remains.

Suppress if Zero

Suppress if Zero (Format Number dialog box) prevents a value from printing if it is a zero value. The value doesn't print but the space in which it would have printed remains.

Suppress Blank Lines

Suppress Blank Lines (Format Section dialog box) eliminates nonessential blank lines from your report.

Hide when Printing

Hide when Printing (Field format dialog box) prevents a field from printing. The field doesn't print but the space allotted for the field remains.

Select the commands that meet your needs from the dialog boxes indicated.

Specifying records/groups to be included

You can include all records in your report, or you can restrict your report to specific records or groups of records. For example, you can print a sales report showing year to date sales for all sales reps in the country, or you can print a report that presents nationwide sales but only for the last month, or even a report that shows year to date sales but only for those sales reps in Texas and California. Your reports can be as inclusive or exclusive as you wish.

Crystal Reports includes four commands on the Print menu for selecting records and groups.

Select Records

Select Groups

Edit Record Selection Formula

Edit Group Selection Formula

(bmc bullet.bmp) Using the first two commands, Crystal Reports generates a selection formula for you automatically, based on your specifications.

(bmc bullet.bmp) Using the last two commands, you create your own selection formula using the Formula Editor.

Generating a selection formula automatically

The Select Records and the Select Groups commands automatically generate record selection formulas based on your responses to dialog box questions. These commands require no knowledge of the Crystal Reports formula language.

When you're using these commands, you select a field/group value and respond to questions about how you want to limit that field or group value. For example, if you want to prepare a report limited to Texas customers, you first Click the state field in the customer database. Then, you select Print|Select Records (or choose Select Records from the right mouse button menu). When the Select Records dialog box appears you enter your selection criteria in the dialog box.

To have Crystal Reports generate your selection formula

1. Select the first field/group value you want Crystal Reports to use for determining the records/groups to be included in the report.
2. Select Print|Select Records or Print|Select Groups, whichever is appropriate.

NOTE: Alternately, you can select a field or group value and Click the right mouse button menu. Select Records appears on the right mouse button menu whenever a field is selected, and Select Groups appears on the right mouse button menu whenever a group value is selected.

The Select Records or Select Groups dialog box appears, depending on your selection.

3. Enter your selection criteria in the dialog box and Click OK when finished to return to the Report Editor.
4. Repeat Steps 1-- 3 for each additional field/group value you want the program to use for selecting records/groups.

Crystal Reports will generate a selection formula based on your specifications and limit the report to the records or groups you have specified.

NOTE: To view or edit the selection formula generated by Crystal Reports, select Print|Edit Record Selection Formula or Print|Edit Group Selection Formula, whichever is appropriate to your selection.

Creating a selection formula manually

The Edit Record Selection Formula and Edit Group Selection Formula commands take you to the Formula Editor so you can manually create your own selection formula. Both of these commands require some understanding of the Crystal Reports formula language.

Using the Formula Editor, you can build a formula that restricts your report to the records or groups you specify. For example, to limit your report to those records with a customer number greater than 099999,

you would build a record selection formula similar to this:

```
{file.CustNum} >> 099999"
```

To limit your report to those groups with a subtotal on the Amount column (triggered by changes in the CustNum field) less than \$10,000, you would build a group selection formula similar to this:

```
Sum({file.Amount},{file.CustNum})< $10000
```

NOTE: If you select :

Grouped by file.CustNum

Sum of file.Amount

(the group field of interest in this example) from the Field list, Crystal Reports automatically inserts everything into the formula with the exception of <\$10000.

You can also restrict the records used in the report by date. For example, to restrict an invoice report to invoices from a specific month, May 1991 in this case, you would build a record selection formula similar to this:

```
{file.Date}>=Date(1991,05,01) and {file.Date}<Date(1991,06,01)
```

or this:

```
{file.Date} in Date(1991,04,30) to Date(1991,06,01)
```

or this:

```
Month({file.Date}) = 5
```

You can make your selection formulas as simple or complex as you wish. You can use most of the functions and operators available for building any formula. *Your only restrictions are:*

- your record or group selection formula must be Boolean, that is, it must return a Yes (True) or No (False) value. If you build a selection formula that isn't Boolean, you get a Formula Compiler Error that says, The result of the selection formula must be a yes/no value.
- it can't use the PageNumber, GroupNumber, or RecordNumber functions, and it can't use a Subtotal, Grand Total, or Summary.

Selecting date ranges

When you wish to select records based on a range of dates, you can use any of Crystal Reports' preset date ranges, or you can build a custom range to fit your needs.

To generate your own selection formula

1. Select Print|Edit Record Selection Formula or Print|Edit Group Selection Formula. The Formula Editor appears.
2. Create your selection formula.
3. Click Accept when you are finished. Crystal Reports will limit your report to the records/groups specified.

NOTE: You will find a number of selection formula templates under Edit Record Selection Formula. These templates cover a wide range of typical record selection needs, and they can be pasted into the Formula Editor via the Windows clipboard. Once they're in the Formula Editor, you can change the formulas to fit your data

Creating summary reports

Summary reports are reports that present only summarized values, leaving out the details used to arrive at those values. For example, in a report summarizing the sales generated by each sales rep, the total amount of sales for each rep would appear but not the individual orders making up the total.

Crystal Reports makes it easy to create summary reports. To do so you simply create a report, enter totals, subtotals, and summary values to fit your needs, and then turn off (suppress) the details using the Format|Section command. Here is the process.

1. Create the report including all the fields, formulas, subtotals, grand totals, and summaries that you want. (For help in this area, refer to the topics in the Creating a report index.)
2. Select Format|Section. The Format Section dialog box appears.
3. Select Details (to format the Details section of your report.) A second Format Section dialog box appears.
4. Select Hide Section and Click OK. Crystal Reports hides the Details section when it prints your report.

NOTE: When you hide the Details section you hide everything in the Details section. You may have certain fields, formulas or text in that section that you want to appear on your final report, however. Re--enter those items in the subtotal section where they will print along with the summarized values.

Printing your report

When you want to print your report, see what your report will look like when printed, or print the report to a disk file, you can use one Crystal Reports' three printing options:

- Print to Printer (for hard copy output)
- Print to Window (to review your work)
- Print to File (to print the report electronically, to a disk)

When you are creating a report, you will find yourself printing to the print window often, in order to check placement and formatting of the various report elements. When you want to print a final or interim copy of the report for hands--on review, you can print to the printer for hard copy output. When you want to send a copy of the report to another office, or when you need to export report data so it can be used in other applications (spreadsheets, word processors, etc.), you can print to file.

Creating invoices/orders/statements

Invoices, orders, statements, credit memos, and similar documents have certain requirements not typically found in other reports:

- there are usually many documents created in a single run from a single file,
- each document may begin on Page 1,
- each document contains data about a single entity (order, transaction, customer, etc.),
- each document has a "live" header (a name, address, etc. specific to the details on the document),
- totals often appear only at the bottom of the page, and
- the documents are often printed on pre--printed forms.

Creating documents that fit these requirements is easy using Crystal Reports.

How to create invoices/orders/statements

There are two considerations in building these kinds of reports:

- creating the report itself, and
- custom formatting the report to meet its specialized needs.

Creating the report

You create the report (activate the database(s), insert the fields, etc.) following the steps discussed under Creating a report. Specifically, you need to do the following:

- activate the database(s) from which you want to draw data for the report,
- enter the data fields necessary to create a "live" document header (a page header that for each document,
- enter a page number field in the Page Footer section (if you want a page number to appear on each page of your document) and center it if you wish (following the procedure outlined in Centering text fields),
- enter the fields, formulas (for line item extensions, etc.), and text you want to appear as details in your document,
- group the data and subtotal the groups using the Insert|Subtotal or Insert|Summary commands, and

NOTE: When you format the document so that only one group appears per page, the sum for each group, the subtotal, effectively becomes the total for your document.

Formatting the report

You format the Group Footer section of your report (the section that contains the subtotal) using the tools provided with the Format|Section command. Those tools are:

- New Page After
- Print at Bottom of Page
- Reset Page Number After

Here is how the tools work together:

- The New Page After option causes Crystal Reports to insert a page break immediately after printing each subtotal. Since subtotals appear at the end of each group, New Page After allows only one group to print per page.
- The Print at Bottom of Page option causes the subtotals to appear only at the bottom of the page (if that's what you want), even if the details stop well up on the page. You can leave Print at Bottom of Page inactive if you want the subtotal to appear at the end of the details, even if that is well up the page.
- The Reset Page Number After option resets the page number for the following page to 1 after it prints the group total (subtotal). You can use this option if you want the pages in your document numbered with each new document beginning with page 1.

The final product

With the report created following the suggestions in *Creating the report* and formatted using the

options discussed in *Formatting the report*, Crystal Reports does the following:

- It sorts the data, groups it, and calculates the subtotal for each group.
- It prints a single group on each page. Each group consists of the group details (the line items of the document), the subtotal (which becomes the document total when the documents are separated), the page header (which contains the name and address of the customer, the document date, etc.), and the page footer (which includes the page number, etc.).
- It prints the group total at the bottom of the page (if that was your desire).
- It resets the page number of the page following the group total (which is the first page of the next document) to one.
- It continues this process until all of the groups in the file (each one an invoice, a statement, etc.) are printed.

Printing on preprinted forms

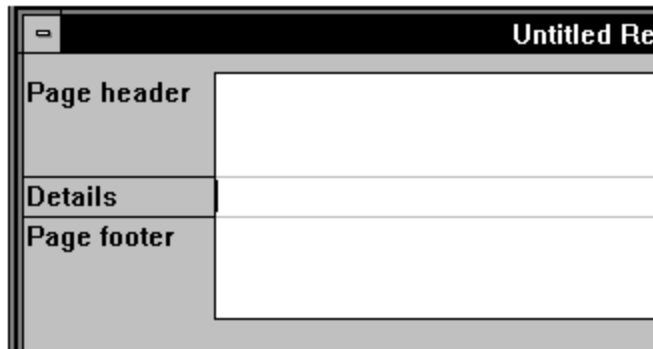
To print your document on preprinted forms:

1. Place the fields, formulas, and text in positions that approximate the positions in which they should appear on the forms.
2. Set up your preprinted forms in the printer.
3. Print a sample to the printer to check the placement on the form.
4. Adjust the field, formula, and text positions in Crystal Reports to correct printing misplacements.
5. Repeat Steps 2 and 3 until the data is correctly placed.

Once the data is correctly placed in Crystal Reports and the report saved, the data should line up automatically each time you print the documents as long as you always set the paper position in the printer to the same starting point.

The Report Editor

Once you select your database, Crystal Reports displays the Report Editor screen. You use this screen to insert and format data and to watch your report take shape.



When you open a new report, Crystal Reports automatically creates three sections in the Report Editor:

- a **Page header section** this section is generally used for the report title, field headings, range of values included, and other information that you want to appear at the top of each page. By default, the Page header section has room for three lines.
- a **Details section** this section is the body of the report. The bulk of your report data will generally appear in this section. By default, the Details section has room for one line.
- a **Page footer section** this section usually contains the page number and any other information that you want to appear on the bottom of each page. By default, the Page footer section has room for three lines.

Each section is separated by a section marker which displays the section name.

- You build your report by inserting data fields, formulas, and other report elements (record counts, record numbers, etc.) in the Details section of the Editor. You use the Insert menu, in most cases, to select or create the elements you want to insert on the report. The Report Editor uses rectangular field boxes to indicate the size, position, and data type of the fields and formulas you have inserted.
- You add subtotals (and other group values) by selecting a field to subtotal and then telling Crystal Reports the conditions that are to generate a new subtotal or group value (change of customer number, change of sales rep, etc.). Crystal Reports creates group sections as needed and places the group value in the section. Again, Crystal Reports uses rectangular field boxes to represent the group values.
- You insert grand totals in the Grand Total section. This section appears when you select the field to total and then select Insert|Grand Total or when you opt to place a summary field in the Grand Total section. In both cases, Crystal Reports uses a rectangular field box, this time to identify the field in the Grand Total section of the Report Editor.
- You can add freeform text anywhere on the report by positioning the insertion point in the section in which you want the text to appear, typing in the text, and then using the Tab key to move it into position. You can also type freeform text as a formula; this allows you to avail yourself of additional formatting options (alignment, hide options, etc.)

Crystal Reports data types

The data type of a field, (text, number, dollar, date, or Boolean) determines the type of information that can be stored in that field and which will print in the report.

Fields of each data type display on your screen like this:

XXXXXXX

Text: for example, a company name, account description or customer name.

\$5,555,555.55

Dollar amount (Paradox/Btrieve files only): for example \$500.00 or \$50,000,000.00--.

5,555,555.55

Number: for example 120 or 5555.

YYYY--MM--DD

Date: for example Oct 10 90.

YES/NO

Boolean (YES/NO) data fields: for example, the result of a formula which compares a customer's credit limit to see if it is greater than \$5000 and prints YES if the credit limit is more than that amount; NO if it is less than that amount.

How data types are sorted

A field's data type determines the method in which the data from the field is sorted.

Text

Text fields are sorted in the following manner:

- One character values are sorted so that blanks have the lowest value, then punctuation, then numbers, then uppercase letters, and finally lowercase letters.
- Then two character values are sorted, then three, etc., using the same rules. As a result:
 - "BOB" comes before "bob",
 - "123" comes before "124",
 - "" (blank) comes before "a", and
 - "aa" comes before "aaa"

Dollars

Dollar fields are sorted in numeric order.

Number

Number values (120, or 5555) are sorted in numeric order.

Dates

Date fields are sorted in chronological order.

Yes/No comparisons (Boolean)

Comparison fields are sorted so that false values come first, then true.

Databases that work with Crystal Reports

Crystal Reports can build reports using the standard data files generated by dBASE (III+, and IV), Paradox, and Btrieve (through the use of .ddf dictionaries). Since many programs can export data in dBASE format (.dbf files), you will find that you can use Crystal Reports to create reports with virtually any database.

Btrieve files

To activate a Btrieve file, you can select any .ddf file. Crystal Reports draws in all of the relevant files in the active directory so no linking is necessary.

NOTE: .ddf files are data dictionary files created by Novell's Xtrieve utility. You will need to create .ddf files using this utility before you can use Btrieve files with Crystal Reports.

.db files

To activate a Paradox .db file, select the file. If you select additional files using the Database| Add File to Report command, it will be necessary for you to specify linking fields via the File Links dialog box.

Crystal Reports works with the following indexes:

- .px (Paradox indexes)
- .x??, .y?? (Paradox secondary indexes)

.dbf files

To activate a dBASE .dbf file, select the file. If you select additional files using the Database| Add File to Report command, it will be necessary for you to specify linking fields via the File Links dialog box.

Crystal Reports 1.1 works with the following indexes:

- .ndx dBASE III+
- .mdx dBASE IV
- .ntx Clipper

The Crystal Reports window

The Crystal Reports window is clean and easy to understand:



- the Minimize and Maximize buttons appear in the upper right hand corner of the window,
- the Title Bar appears at the top of the window,
- the Menu Bar appears just below the Title Bar, and
- the Button Bar appears just below the Menu Bar.
- the Status Bar appears at the bottom of the window.

Minimize and Maximize buttons

The Minimize and Maximize buttons serve the same purpose for mouse users as the Minimize and Maximize options on the System menu serve for keyboard users.

- Minimize reduces the window to an icon.
 - Maximize expands the window to fill the screen.
- You can select either button with a single mouse click.

Title Bar

The Title Bar displays the name of the program running in the window, Crystal Reports. You can use the title bar to activate the window (if the window is buried in a cascade of windows) or to move the window (by depressing the left mouse button with the pointer on the title bar and then, while the button is still depressed, dragging the window to a new location), or to maximize the window (by double clicking on the title bar).

The Menu Bar

The Menu Bar is Crystal Reports' command center. Each option on the menu bar calls up a drop down menu of commands that you can use to create, modify, print, and save your reports.

The Menu Bar

The Menu Bar is Crystal Reports' command center. Each option on the menu bar calls up a drop down menu of commands that you can use to create, modify, print, and save your reports.

File

The File menu includes commands you can use to open, close, and save files, to save files under a different file name, print the file to a printer, compile your report, and create new report files. It also includes a command you can use to exit Crystal Reports. Additionally it contains a command that allows you to configure Crystal Reports to your specifications.

File Menu Commands

New Report

New Mailing Labels Report

Open Report

Save

Save As

Close

Print To Printer

Options

Exit

Edit

The Edit menu allows you to modify aspects of your report. The menu includes commands you can use to edit formulas, text fields, and summary operations, to review field data, to change the position of items in a stack, to change the report title, or to delete group sections. It also contains commands for cutting, copying, and pasting text, and clearing (deleting) report elements, and toggling the display of field names on and off.

Edit Menu Commands

Cut

Copy

Paste

Clear

Formula

Text Field

Summary Operation

Browse Field Data

Send Behind Others

Group Section

Delete Section

Show field names

Report Title

Insert

The Insert menu is the central menu you use for creating reports. The menu includes commands you can use to insert database, text, and formula fields; subtotals, grand totals, summaries (counts, averages, etc.), and group sections; print date, page number, record number and group number fields; and graphics, lines, and boxes.

Insert Menu Commands

Database Field

Text Field

Formula Field

Subtotal

Grand Total

Summary

Group Section

Print Date Field

Page Number Field

Record Number Field

Group Number Field

Graphic

Line

Box

Format

The Format menu includes commands for changing the look of the elements in your report. It includes commands for changing fonts, adding borders and colors and formatting fields, graphics, lines, and boxes. It also includes a command for formatting report sections.

Format Menu Commands

Font

Field

Border and Colors

Graphic

Line

Box

Section

Database

The Database menu is used to select and delete databases for use with your reports, to change the alias you use to identify the database, and to link and unlink databases. It also has a command, File Location, for directing Crystal Reports to look for database files in new locations.

Database Menu Commands

File Links

Add File to Report

Remove File from Report

File Location

File Alias

Verify Database

Verify on Every Print

Print

The Print menu includes commands that let you print your report to a print window, to a file, or to a printer, print the report definition (a report describing your report), select the records or groups to be included in your report, select printers, set up printer margins, and select the order in which report data is to be sorted (by record or by group).

Print Menu Commands

[Print To Window](#)

[Print To Printer](#)

[Print To File](#)

[Print Report Definition](#)

[Select Printer](#)

[Set Printer Margins](#)

[Select Records](#)

[Edit Record Selection Formula](#)

[Select Groups](#)

[Edit Group Selection Formula](#)

[Record Sort Order](#)

[Group Sort Order](#)

Window

The Window menu includes commands that let you rearrange icons and windows. It also lists the report windows that are open and includes a command that lets you close all report windows at once, if desired.

Window Menu Commands

[Tile](#)

[Cascade](#)

[Arrange Icons](#)

[Close All](#)

Help

The Help menu includes a command that takes you to Crystal Reports' main help index, and a command that will give you information about the Crystal Reports version you are using.

Help Menu Commands

[Index](#)

[Print Registration](#)

[System Information](#)

[Technical Support](#)

[About Crystal Reports](#)

Right mouse--button capabilities

When you are working in the Report Editor, you can speed up your work considerably using Crystal Reports' right mouse button capabilities. When the cursor is positioned on a report element (a field, a group field, a formula, etc.) and you Click the right mouse button, Crystal Reports displays a pop--up menu right next to the element.

Name: header.AMOUNT
Change Font...
Change Format...
Change Border and Colors...
Browse Field Data...
Select Records...
Insert Subtotal...
Insert Grand Total...
Insert Summary...
Send Behind Others
Delete Field
Cancel Menu

- The **menu heading** is either the name of the object selected (line, box, etc.), the text if the selection is a text field, the field name if the selection is a field or formula, or a group identifier if the selection is a group.

- The option **Cancel Menu** appears on all menus and simply closes the pop--up menu and returns you to the report.

Unlike Crystal Reports' standard menus that group commands by function (editing, inserting, etc.), these pop--up menus are element--specific: that is, they contain only those commands from Crystal Reports' primary menus that are available for use with the selected element.

The pop--up menus are valuable because:

- they display the name and source (alias) of the element at the top of the menu so you can identify the elements on your report with a single mouse click,
- they appear right next to the selected element making them quicker and easier to access than Crystal Reports' main menus,
- they contain only the commands you need; you don't need to search for commands on a more comprehensive menu,
- they make it easier to learn Crystal Reports because:
 - they eliminate the need to remember where to find a command,
 - because you're dealing with only a compact list of commands, they make it easier to pick the right one, and
- they *spotlight* the things you can do with an element making it an easier system to use when you are under pressure or distracted.

To use the right mouse button menus:

1. Position the cursor on the element of interest.
2. Click the right mouse button. The pop--up menu appears.
3. Select the command of interest from the pop--up menu. These options work exactly like the corresponding options that appear on Crystal Reports' primary menus.

NOTE: *If you have swapped left/right mouse buttons via the Control Panel, the left mouse button will activate the pop--up menus.*

Order of precedence

When entering formulas that contain different kinds of operators, it is important to consider order of precedence, the order in which Crystal Reports performs the operations in your formula.

You learned simple order of precedence in high school math: when performing calculations, do multiplication and division first, then addition and subtraction. Thus:

$$5 + 10 \times 3 = 35$$

The calculation 10×3 is performed first to get 30. 30 is then added to 5 to arrive at the final answer.

Now if your intention is to add 5 to 10 and then multiply the sum by 3, you have to modify the order of precedence with parentheses. You can do that thus:

$$(5 + 10) \times 3 = 45$$

It's clear that parentheses have a higher precedence than the add, subtract, multiply, and divide operators. They redirect the order of calculation.

You learned all of this in school and Crystal Reports follows the same rules of precedence. But Crystal Reports uses many additional operators, and it's important for you to understand the precedence Crystal Reports assigns to each so you can write your formulas to perform as expected.

- **In the following list, Crystal Reports performs the top level operations first, then the second level, then the third, and so forth.**
- **When it encounters two or more operations that are on the same level, it performs them left to right.**

Level 1

Parentheses, Array, If Then Else

Level 2

Functions, Subscript

Level 3

+ sign in front of value, Negate, Dollar, Not

Level 4

Multiply, Divide, Percent

Level 5

Add, Subtract

Level 6

To

Level 7

Less than, Greater than, Greater than or equal, Less than or equal, In

Level 8

Equal, Not equal

Level 9

And

Level 10

Or

Precedence Examples

Example 1

If 24 in $[(7--1) * 4, 7-- 1 * 4]$ then

"Hit"

else

"Miss"

This formula consists of the following components:

Order of appearance	Order of precedence
----------------------------	----------------------------

if--then--else operator	Parentheses
In Array operator	Make Array operator
Make Array operator	If--then--else operator
Parentheses	Multiply operator
Subtract operator	Subtract operator
Multiply operator	In array operator

- The calculation in the parentheses is done first. That redirects the order of calculation so that $(7-1)*4 = 24$ while $7-1*4 = 3$.
- Crystal Reports makes the array next. The array consists of two values: 24 and 3.
- Finally, the If then else operator uses the calculated values in the array as the *If* condition.

Example 2

Average([ToNumber("12345"[3 to 4]), ToNumber("2468"[2 to 3]))]

This formula consists of the following components:

Order of appearance	Order of precedence
----------------------------	----------------------------

Average	Parentheses
Parentheses	ToNumber
ToNumber	Subscript
Subscript	Average

- This calculation uses the function ToNumber to convert the strings "12345" and "2468" to numbers.
- Once converted, it uses the Subscript operator to pull out the 3rd and 4th digits in the first number (34) and the 2nd and 3rd digits in the second (46).
- These two numbers are then averaged to arrive at the number 40 ($80/2 = 40$).
- The Average function is on hold to the very end because the rest of the calculations take place within parentheses which gives them primary precedence.

Example 3

ToText(abs({file.quota}--{file.sales})/{file.quota} * 100) + "%"

This formula consists of the following components:

Order of appearance	Order of precedence
----------------------------	----------------------------

ToText function	Parentheses
Parentheses	Abs function
Abs function	Divide operator
Divide operator	Multiply operator
Multiply operator	ToText function
Concatenate operator	Concatenate operator

- The work inside the parentheses is done first. If there are parentheses inside parentheses, the work in the innermost parentheses is done first. Thus the subtraction of {file.sales} from {file.quota} is performed first.
- The Abs function is performed next because it is inside the primary parentheses and because it takes precedence over the divide and the multiply operators that are also inside the parentheses.
- Once the absolute value of the difference between {file.quota} and {file.sales} is calculated, that value is divided by {file.quota} and the result is multiplied by 100. (The divide and multiply operators

have equal precedence so they are used in the order they appear from left to right.)

- The result of this calculation is then converted to text using the ToText function. Now we're outside the parentheses so the ToText function takes precedence over the Concatenate operator (+).
- Finally, the percentage character "%" is concatenated to the calculated value which has been converted to text. This creates one continuous text string.

Concatenated text strings

Concatenated text strings are simply strings of text that are tied together via a formula. Typically the first string exists in one field and the second string exists in another. Alternately, the first string exists in one field and it is combined with text that is typed directly into the formula.

One typical use of a concatenated text string is in the salutation of a form letter. The word "Dear" is typed directly into the formula and it is to be combined with the title from the *{file.Title}* field and the last name from the *{file.Lname}* field. The concatenation operator can be used to tie all three strings together.

When concatenating, there are a few simple things to keep in mind:

- All text that's typed directly into a formula must be enclosed in quotation marks.
- Text that's a value in a field doesn't require quotation marks; referencing the field is sufficient.
- Finally, if a space is to appear between two concatenated strings, the space must be entered within the quotation marks, either at the end of the first string or at the beginning of the second.

Multiple field sorts

When sorting, Crystal Reports first sorts the entries (alphabetic or numeric) in the first field selected, putting them in ascending or descending order as specified. Then it sorts any entries in the second field that can be sorted *without disturbing the sort order of entries in the first field*. It then sorts any entries in the third field that can be sorted *without disturbing the sort order of the entries in the first two fields*. It follows the same pattern for sorting additional fields.

Example

Assume the following data:

#	Acct.	Batch	Source	Ref	Type
1	4900	6	AD	A	1
2	4900	1	AF	+	2
3	8500	6	AB	&	1
4	8500	5	AE	k	1
5	4900	6	AA	&	3
6	8500	4	AC	&	2
7	4900	6	AD	1	4
8	8500	4	AC	A	1
9	9600	1	AA	A	1
10	4900	6	AD		1
11	4900	6	AD	A	2

Sort 1 -- One field

If you tell Crystal Reports to sort the Acct field only, in ascending order, your sorted data will look like this:

#	Acct	Batch	Source	Ref	Type
1	4900	6	AD	A	1
2	4900	1	AF	+	2
3	4900	6	AA	&	3
4	4900	6	AD	1	4
5	4900	6	AD		1
6	4900	6	AD	A	2
7	8500	6	AB	&	1
8	8500	5	AE	K	1
9	8500	4	AC	&	2
10	8500	4	AC	A	1
11	9600	1	AA	A	1

All the values in the Acct field have been sorted, and the rows of data have been moved into new positions according to the order of values in the Acct field. Note that there is no apparent sorting yet of the data in the other fields.

Sort 2 -- Two field

If you tell Crystal Reports to sort first on the Acct field and then on the Batch field, your sorted data will look like this:

#	Acct	Batch	Source	Ref	Type
1	4900	1	AF	+	2
2	4900	6	AD	A	1
3	4900	6	AA	&	3

4	4900	6	AD	1	4
5	4900	6	AD		1
6	4900	6	AD	A	2
7	8500	4	AC	&	2
8	8500	4	AC	A	1
9	8500	5	AE	k	1
10	8500	6	AB	&	1
11	9600	1	AA	A	1

Note how the Batch entries for Acct 4900 (Rows 1--6) and for Account 8500 (Rows 7--10) are now sorted numerically. Note too that the remaining three fields have not yet been sorted (for example, Rows 2--6 in the Source field are out of alphabetical order).

Sort 3 -- Three field

Now, if you tell Crystal Reports to sort on the Acct field, then on the Batch field, and then on the Source field, Crystal Reports sorts the Source field alphabetically for each unique Account/Batch combination.

#	Acct	Batch	Source	Ref	Type
1	4900	1	AF	+	2
2	4900	6	AA	&	3
3	4900	6	AD	A	1
4	4900	6	AD	1	4
5	4900	6	AD		1
6	4900	6	AD	A	2
7	8500	4	AC	A	1
8	8500	4	AC	&	2
9	8500	5	AE	k	1
10	8500	6	AB	&	1
11	9600	1	AA	A	1

The values in the first three fields are now sorted. The sorting process continues in the same way for additional sort fields.

Paper size, orientation, etc.

You can use Crystal Reports with a variety of paper sizes. You select paper sizes via the printer configuration resources that are accessed through the Print|Select Printer command.

How to change the paper size, orientation, etc.

1. Select Print|Select Printer.
2. When the Print Setup dialog box appears, activate the printer you want to use if it is not already the active printer. Your paper size options are directly related to the printer you have selected. For example, the HP LaserJet driver (PCL) offers a choice of letter, legal, executive or A4 paper sizes whereas the PostScript printer driver lets you choose from letter, legal, note, A4, B5, letter small, and A4 small paper sizes.
3. Select either Portrait or Landscape orientation by clicking on the appropriate radio button in the Orientation box.
4. Select the paper size desired and its source from the scroll lists in the Paper box.
5. Click OK when finished.

How to identify the "top" groups

A group is a set of records that are related to each other in some way. In a customer list, for example, a group could consist of all those customers living in the same ZIP code, or in the same state. In a sales report, a group could consist of all the orders placed by the same customer, or all of the orders generated by a specific sales rep. Crystal Reports allows you to group data in a variety of ways (see [Grouping data with Crystal Reports](#))

One of the reasons you create reports may be to identify "top" groups: the best sales reps (in a sales report), the biggest customers (in an order report), the states with the most customers (in a customer report), etc. Identifying these "top" groups is easy with Crystal Reports following these steps:

- create the report,
- group the data and summarize the data in each group, and
- sort the summarized groups.

Creating the report

You create the report (activate the database(s), insert the fields, etc.) following the steps discussed under [Creating a report](#).

Grouping and summarizing the data

You group and summarize the data (sum, average, or count the values in each group, calculate the variance or standard deviation, or determine the maximum or minimum value in the group) following the steps discussed in [Grouping data with Crystal Reports](#).

Sorting the summarized groups

You sort the summarized groups using the steps discussed for the [Print|Group Sort Order](#) command.

Examples

An example can help to clarify this process.

Let's assume that you want to identify and rank the states/provinces in which you have the most customers. Your customer database (for which you set the alias *company*) has the following fields:

FIELD	DESCRIPTION
CUSTNUM	The customer number
CONAME	The customer name
ADDRESS	The street address
CITY	The city
STATE	The state or province
ZIP/POSTAL	The ZIP code or Canadian Postal code

To create the report

1. First, you create the report. Let's assume that your report contains each of these fields, side by side on a single line in the Details section of the report, like this:
CUSTNUM CONAME ADDRESS CITY STATE ZIP/POSTAL

To group and summarize the data

2. Now, you group and summarize the data. We're interested in "customers by state" so we'll start a new group in the CONAME field every time the state changes. To do that:
 - a. Select the *{company.CONAME}* field.
 - b. Select Insert|Summary. The Insert Summary dialog box appears.
 - c. Select Count in the top scroll box (to count the customers in each group).
 - d. Select *company.{company.STATE}* as the sort and group by field. This tells Crystal Reports to sort the data by state, and then to begin a new group each time the state changes.
 - e. Leave the Sort Direction as the default, in ascending order.
 - f. Press OK when finished.

To this point, Crystal Reports has sorted the data by state and created a new group whenever the state changes. The groups are currently in ascending alphabetical order by state: the group containing all the customers from Alaska comes before the group containing all the customers from Colorado.

To sort the groups

3. To complete the process and identify the "top 10" states for customers, select **Print|Group Sort Order**. The Sort Order dialog box appears.

The Summary Fields box in the dialog box lists all the groups currently established on your report. Since you've only established one group, it's the only one listed in the box. It's listed this way:

Group #1: company.STATE

Count of company.CONAME

Translated this means, the *{company.CONAME}* field is grouped and counted every time the value in the *{company.STATE}* field changes.

4. Select this as the sort group by clicking on *Count of company.CONAME*. That group appears in the Sort Fields box, and the Sort Direction options become active.
5. We want to sort the groups so that those with the highest counts appear first on the list and those with the lowest counts appear last, so choose Descending.
6. Click OK when finished. When you print your report, the state with the very highest number of customers (the highest count) is listed first, then the state with the next highest number of customers, then the state with the third highest, etc.

NOTE: When you sort by group, nothing happens to the sort order of the records within a group; only the relative positions of the groups themselves change.

7. If you want to actually number the groups at this point, select **Insert|Group Number Field** and place the group number field where you want it to appear. The first group (the group with the most customers) will be given the number 1, the next group the number 2, etc.

This same basic process can be used with most reports.

See Also

[Sorting report data by group](#)

How to do a self-join using Crystal Reports

There may be times in which all the information you need for a report is in a single database, but you need to evaluate the data in a way that isn't possible with a single copy of the database. For example:

- in an employee database that lists employees by name and number and the manager for each employee by number only, you may want to generate a report that shows the managers' names as well; and
- in the same employee table, the salaries are listed for each employee, and you want to determine if there are any employees making more than their managers.

These are specialized situations that call for specialized tools. A self-join is the tool you use in situations such as this.

What is a self-join

In a self join, a database is linked to itself in such a way as to provide the appearance of two different databases. Once the link is made, you can relate data in one copy of the database to data in the other copy, just as if you were using two separate databases.

What you need to setup a self-join

In order to do a self-join:

- your database must have two fields that contain the same data or subsets of the same data, and
- the fields must be the same size and have the same data type.

You use these two fields as linking fields, one from the first copy of the database and the other from the second copy. Thus you setup a relationship between the two fields (and the other data in the databases) that you couldn't do using a single copy of the database.

Some examples will help to illustrate the self-join concept. If you want to reproduce these examples yourself using Crystal Reports, you will find the database **EmpData.mdb** located in the CRW directory (or the directory in which you specified that Crystal Reports files were to be placed during installation).

Example

The employee database (called EmpData.mdb) contains data similar to this:

EmpNum	Name	Salary	MgrNum
10032	Rudolph	115000	10032
12345	Smith	35000	13344
13344	Jenkins	80000	10032
23457	Mendell	84600	13344
24689	Bosworth	42500	44444
33333	Bohrman	53250	44444
44444	Randall	90000	10032

The following observations can be made about this data:

- Each employee has a manager, but the manager is shown by employee number only, not by name.
- The *{file.EmpNum}* field and the *{file.MgrNum}* fields are identical: they are both the same size, have the same data type, and contain the same kind of information (employee numbers).
- Employee 10032 (Rudolph) is probably the CEO since the data shows Rudolph's own employee number as that of Rudolph's manager.
- Some employees may be making more than their managers.

In looking at this data, you want to do the following two things:

1. You want to identify each employee's manager by name.
2. You want to identify those employees (if any) who are earning more than their managers.

You can do both of these using a self-join.

Setting up a self-join

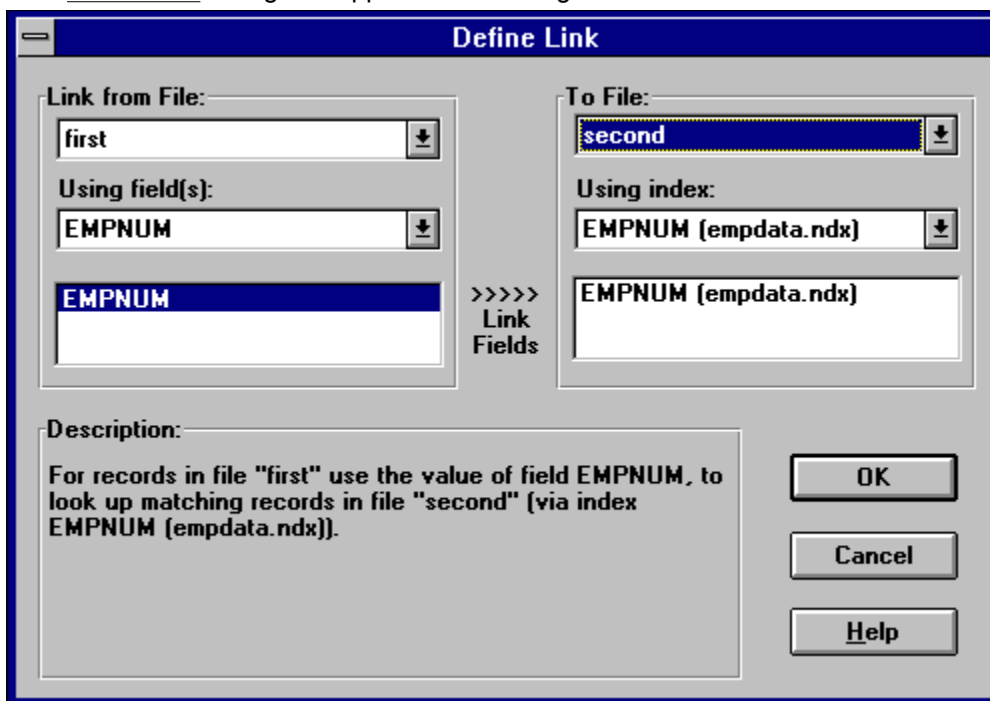
To set up a self-join you will follow these steps:

- You start a new report, select EmpData.mdb as the first database, and assign it one alias (first).
- You activate EmpData.mdb again, this time as the second database, and assign it a different alias (second).
- You link the two databases using *{first.MgrNum}* as the link field in the first database and *{second.EmpNum}* as the link field in the second. By doing this you are relating the employee number for each manager as manager with the employee number for each manager as employee.
- Finally, you will build your report drawing the data you need from both copies of the EmpData database.

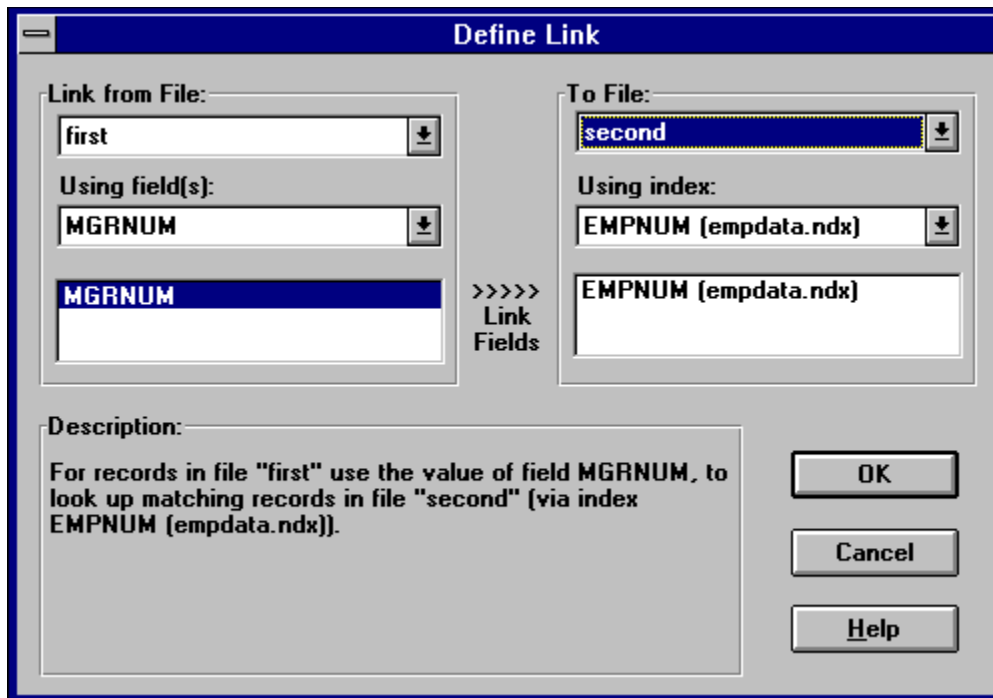
Here are the actual steps:

To activate and self-join two copies of the database

1. Select File|Options and set the Use Default Alias switch to Off (no check mark).
2. Select File|New Report. The Choose Database File dialog box appears.
3. Select C:\VB\REPORT\EmpData.mdb. The Alias dialog box appears.
4. Type in *first* as the alias for this first copy of the EmpData database, and Click OK when finished. The Report Editor appears.
5. Select Database|Add File to Report. The Choose Database File dialog box appears again.
6. Select C:\VB\REPORT\EmpData.mdb again. The Alias dialog box appears.
7. Type in *second* as the alias for this second copy of the EmpData database, and Click OK when finished. The File Links dialog box appears. Click the New button to establish a new link and the Define Link dialog box appears. The dialog box will look like this:



8. We must link the first database to the second database, so Click the scroll arrow on the To File box and choose the second file.
9. The program suggests EmpNum as the link field and has entered EmpNum in the Link Fields boxes. In many cases, this would be fine, but in the current case we need to set up a new link from field. Double-Click EmpNum in the left hand Link Fields box and the field name disappears.
10. Click the scroll arrow on the Using field(s) scroll box. A list of available fields appears.
11. Click MgrNum to select it as the Link From field and the program enters the name MgrNum in the Link Fields dialog box The dialog box should now look like this:



12. We want to use EmpNum (the indexed field) as the link field in the second database, so leave the Link Fields settings in the To File section of the dialog box untouched.

13. Click OK when finished and the File Links dialog box appears. Take a moment to review your links, and then Click OK to return to the Report Editor. You have now activated two copies of the EmpData database using *{first.MgrNum}* in the first database and *{second.EmpNum}* as your two linking fields.

To create the report using the databases

1. Select Insert|Database Field if the Database Field dialog box is not already on the screen. The Database Field dialog box appears.

2. Select and place side by side the following fields from the active databases:

{first.EmpNum}

{first.Name}

{first.Salary}

{second.Name}

{second.Salary}

Print to window and your report data should now look like this (without the column headings):

Employee#	Name	Salary	Manager	MgrSalary
10032	Rudolph	115,000	Rudolph	115,000
12345	Smith	35,000	Jenkins	80,000
13344	Jenkins	80,000	Rudolph	115,000
23457	Mendell	84,600	Jenkins	80,000
24689	Bosworth	42,500	Randall	90,000
33333	Bohrman	53,250	Randall	90,000
44444	Randall	90,000	Rudolph	115,000

The data now shows the name of each manager along with the manager's salary. All that remains is to identify those employees who are making more than their managers. Here are two ways to do that:

- You can insert a "flag" formula to flag all employees who have a higher salary than their managers.

- You can create a record selection formula that includes in the report only those employees who make more than their managers.

To insert a flag formula

1. Select Insert|Formula Field. The Insert Formula dialog box appears.
2. Type in the name you want to use to identify the formula. The Formula Editor appears.
3. Enter the following formula:

```
If {first.Salary} > {second.Salary} then
    "Emp$>Mgr$"
else
    ""
```

« This formula tells Crystal Reports to see if the value in *{first.Salary}* (the employee's salary) is greater than the value in *{second.Salary}* (the manager's salary). If it is, print the text string "Emp\$>Mgr\$". If it isn't greater (that is, if the employee's salary is less than the manager's salary), print nothing (as signified by the empty string ""). »

4. Select Accept when done, and when the rectangular placement cursor appears, position the cursor to the right of the *{second.Salary}* field and Click the left mouse button to place it.
5. Print to Window and your data should look like this (without the column headings):

Employee#	Name	Salary	Manager	MgrSalary	Flag
10032	Rudolph	115,000	Rudolph	115,000	
12345	Smith	35,000	Jenkins	80,000	
13344	Jenkins	80,000	Rudolph	115,000	
23457	Mendell	84,600	Jenkins	80,000	Emp\$>Mgr\$
24689	Bosworth	42,500	Randall	90,000	
33333	Bohrman	53,250	Randall	90,000	
44444	Randall	90,000	Rudolph	115,000	

Using this method, all records print, but the flag identifies the record in which the employee is making more than the manager (the record for Mendell).

To set up a record selection formula

1. Select Print|Edit Record Selection Formula. The Formula Editor appears.
2. Enter the following formula:

```
{first.Salary} > {second.Salary}
```

3. Click the Accept button when finished. No rectangular placement cursor appears because you have just entered a record selection formula (which selects records for printing), not a report formula (which creates a field on the report).
4. Print to window and your data should look like this (without the column headings):

Employee#	Name	Salary	Manager	MgrSalary
23457	Mendell	84,600	Jenkins	80,000

Using this method, the only record to print is the record that satisfies the selection formula, that is, the record for Mendell. Mendell is the only employee making more than his/her manager.

Outer joins

In working with multiple databases or tables, you may find yourself setting up a one--to--many link in which some records in the master file find no match in the detail file. In this situation, Crystal Reports automatically does an outer join, which means that it includes all records from both files, even if there isn't a valid link.

Some further explanation will help to clarify this concept.

In the databases that follow, the *Dept* database is a listing of departments in a company, and the *Emp* database is a listing of employees and the departments to which they are assigned. The following things can be said about this data:

- any department can have no employees, one employee, or several employees, that is, any record from the Dept database can be matched with zero, one, or many employee records using DepNum as the linking field (that is, using *{dept.DepNum}* to lookup matching values in *{emp.DepNum}*).
- thus linked, the Dept database is the one (the master) database
- all employees are assigned to one of the departments in the Dept database; each employee is assigned to one and only one department.
- the Emp database is the many (the detail) database
- no employees are currently assigned to the Shipping department (DepNum 03)

Dept database

DepNum	DepName
01	Manufacturing
02	Sales
03	Shipping
04	Accounting

Emp database

EmpNum	EmpName	DepNum
1007	Smith	02
1118	Jones	02
1234	Brown	01
1333	Joyce	04
1456	Winslow	01
1625	Arnold	02
1888	Sanders	01
1904	Mettler	01
1956	Samuels	04
1987	Johnson	01

An outer--join in action

If you activate both databases, link them via the DepNum field (using the values in *{dept.DepNum}* to lookup values in *{emp.DepNum}*), and print a report using the fields *{dept.DepNum}*, *{dept.DepName}*, *{emp.EmpNum}*, and *{emp.EmpName}*, you get the following data:

DepNum	DepName	EmpNum	EmpName
01	Manufacturing	1234	Brown
01	Manufacturing	1456	Winslow
01	Manufacturing	1888	Sanders
01	Manufacturing	1904	Mettler
01	Manufacturing	1987	Johnson

02	Sales	1007	Smith
02	Sales	1118	Jones
02	Sales	1625	Arnold
03	Shipping		
04	Accounting	1333	Joyce
04	Accounting	1956	Samuels

While only ten employees exist in Emp, the report lists eleven records, one record for each employee and one record for the department (Shipping) to which no employee is currently assigned. In using the value of the DepNum field in the Dept database to lookup matching records in the Emp database, the following things happen:

- For DepNum 01 it prints data from the Dept database record, and it finds and prints data from all matching records in the Emp database (5 of them)
- For DepNum 02 it prints data from the Dept database record, and it finds and prints data from all matching records in the Emp database (3 of them)
- For DepNum 04 it prints data from the Dept database record, and it finds and prints data from all matching records in the Emp database (2 of them)
- For DepNum 03 it finds no matching records so it prints data only from the 03 record in the Dept database.

NOTE: To print only those records for which there is a match (for which a department has an employee assigned to it), enter the following as the selection formula using the Print/Edit Record Selection Formula command.

not IsNull({emp.EmpNum})

This prints only those records that don't have a null value in the EmpNum field.

A many--to--one link

If you were to link both databases in the opposite direction (so Crystal Reports uses the value of {emp.DepNum} to lookup matching values in {dept.DepNum}, you set up a many--to--one link. Emp becomes the master database and Dept becomes the detail database. In this case, the report will list only 10 records, one for each employee in the Emp database.

- For each value in {emp.EmpNum}, it prints data from the Emp database record, and it finds and prints data from the one record that matches it in the Dept database (data is ultimately printed from a total of 10 matches).
- Since there is no value in the Emp database that could match with the Shipping department (03), that record (Dept, 03) is ignored and doesn't print.

With a many--to--one link, your data will look like this:

DepNum	DepName	EmpNum	EmpName
01	Manufacturing	1234	Brown
01	Manufacturing	1456	Winslow
01	Manufacturing	1888	Sanders
01	Manufacturing	1904	Mettler
01	Manufacturing	1987	Johnson
02	Sales	1007	Smith
02	Sales	1118	Jones
02	Sales	1625	Arnold
04	Accounting	1333	Joyce
04	Accounting	1956	Samuels

There is no reference anywhere in the report to Dept 03, Shipping.

Records Counter

Whenever you print your report (to a preview window or to the printer), Crystal Reports displays a record counter that gives you a "play-by-play" of what is going on. The counter includes the following counts:

Heading	Definition
Read	The number of records actually processed.
Selected	From the records processed, the number of records selected for inclusion in the report.
Total	The total number of records to be processed (estimated).
%	The number of records actually processed as a percentage of the total number of records to be processed.

Keep in mind the following when monitoring the Records Counter:

- The default for Total is the start size of the database (in the case of single database reports) and an estimate of the total (in the case of multiple database reports).
- The total value will typically increase when printing reports based on one-to-many links
- The Total will typically decrease when printing reports based on a dBASE file from which you deleted records but which you haven't yet packed.
- Record selection formulas typically generate a Selected value that is lower than the total value.
- Group selection formulas do not affect the Selected value. Thus, if you have a group selection formula but not a record selection formula, the Selected and Total values will be the same at the end of processing. The number of records actually included in the report, however will be lower than the Selected value as a result of groups of records excluded via the group selection formula.

Inserting page headers and footers

In many cases, you may want to include information at the top and bottom (page footer) of each page of your report.

- At the top of the report (page header) you may want to include such things as the report title, the report date, the range of dates covered by the report, etc.

- At the bottom of the report (page footer) you may want to print the page number, the author's name, "Confidential," etc.

Crystal Reports makes it easy for you to include such header and footer information.

To insert page headers and footers

You insert page headers and footers by placing the desired information in the appropriate section of the report editor.

- header information goes in the Page header section

- footer information goes in the Page footer section

- Any information you place in these sections prints on each page of the report (unless you take special steps to prevent some printing).

- You can use text, fields, or formulas in these sections just as you can in the Details section.

To format page headers and footers

You can format each element in a header or footer in the same way as you would format that element if it appeared in the details section:

- you can change the font for text, fields, or formulas (see [Format|Font](#)),

- you can center the values horizontally on the page, center them over your report data (see [Centering text, field values](#)), or align them flush left, centered, or flush right within the space allotted for them (see [Format|Field](#))

- you can change the way dates, numbers, and currency appear when they print (see [Format|Field](#)), and

- you can suppress any blank lines that occur in the section (see [Format|Section](#)).

To format a header or footer element, select the element and then select the formatting option of interest.

Inserting a header that appears only on the first page

Sometimes you may want a header to appear on the first page of the report but not on any of the inside pages. You do this by inserting the header in an [if--then--else formula](#) that prints only if the page number is one (1). Here are two examples:

For a one--line header

```
If PageNumber = 1 then
```

```
    "Customer Report"
```

```
else
```

```
    ""
```

« prints the string "Customer List" on the first page, and prints nothing (as designated by the [empty string ""](#)) on the remaining pages.»

Place the completed formula in the Page Header section of your report.

NOTE: You don't have to have a page number field in your report to use the PageNumber function in a report formula. Crystal Reports determines the page number internally rather than from its external display on your report.

For a multi--line header

To enter a multi--line header that appears only on the first page, you set up an if--then--else formula (similar to that above) for each line of the header. For example, to create a header that prints

"Customer Report" on the first line and the print date immediately below it, you set up two formulas:

- The first formula is a duplicate of the formula for one--line headers above.

- The second formula is as follows:

```
If PageNumber = 1 then
```

```

PrintDate
else
Date(0,0,0)
« prints the print date on the first page, and prints nothing [as designated by the empty date
Date(0,0,0)] on the remaining pages. »

```

Inserting a footer that appears on all pages but the first

Sometimes you may want a footer for your report, but you may not want the footer to appear on the first page. You do this by inserting the footer in an if--then--else formula that prints only if the page number is something other than one (1). Here are two examples:

For a one--line footer (page number only)

```

If PageNumber <> 1 then
  ToText(PageNumber)
else
  ""

```

«prints the page number (using the PageNumber function) on all pages but the first, and prints nothing (as designated by the empty string "") on the first page.»

NOTE: The ToText function is used to convert the page number to a string so that we can then print an empty string (nothing) on the first page. Were we to use PageNumber as a number in the formula without first converting it, the else part of the formula would have to be a number too as in the formula below (because the then and the else parts of the formula must be of the same data type).

```

If PageNumber <> 1 then
  PageNumber
else
  0

```

With this formula we would then have had to format the formula field to Suppress if Zero to keep anything from printing on the first page.

Place the completed formula in the Page Footer section of your report.

For a multi--line footer

To enter a multi--line footer that appears on all pages but the first, you set up an if--then--else formula (similar to that above) for each line of the footer. For example, to create a footer that prints the page number on the first line and the word "Confidential" immediately below it, you set up two formulas:

- The first formula is a duplicate of the formula for one--line footers above.
- The second formula is as follows:

```

If PageNumber <> 1 then
  "Confidential"
else
  ""

```

« prints the string "Confidential" on all pages but the first, and prints nothing (as designated by the empty string "") on the first page.

NOTE: As a default, Crystal Reports allows three lines for the page header and three lines for the page footer. If you need more lines than that, click the I--beam cursor in the appropriate section and press Enter one time for each additional line you want to add.

See Also

[Creating group headers](#)

Quick Start guide

If you are an experienced Windows user who wants to get right into the program, follow these steps to set up a Crystal Reports report for the first time after you install the program.

1. Start Crystal Reports by double clicking on the Crystal Reports icon in the Program Manager.
2. Select New Report from the File menu.
3. When the Choose Database File dialog box appears, select the first database you want to activate from your report and Click OK when finished.

-- If you want to use data in a SQL table, Click the SQL Server button, choose the server type in the SQL Server Types dialog box when it appears, then Click OK. Select the database you want to activate in the SQL Server Login dialog box when it appears and Click OK, then choose the table of interest from the Choose SQL Table dialog box when it appears and Click OK when finished.

The Crystal Reports Report Editor appears with Page Header, Details, and Page Footer sections set up on your report template. The sections are all blank initially. You create your report by inserting and formatting items in each of these sections.

4. The Insert Database Field dialog box appears on screen with the Report Editor. The Insert Database Field dialog box displays a list of all of the fields in the active database. To speed the entry of multiple fields, the box remains on screen until you Click on the Done button. You can move the dialog box to a new location if you wish.
5. Select the first field you want to appear on the report. A rectangular placement cursor appears.
6. Position the cursor at the point in the Details section where you want your field to appear, and Click the left mouse button to enter it. Crystal Reports marks the field position with a rectangular box. The characters in the box indicate whether the field is text (XXX...), number (555,...), dollar value (\$555,...) date (YYYY--M...), or Boolean (T/F). The number of characters in the box indicate the number of characters allowed for the field in the database from which it came.
7. Repeat Steps 5 and 6 until you have placed all the fields you want to place.
8. To create a title, select Insert|Text Field, type in the information you want to appear, Click Accept when finished, and position the field where you want it in the Page Header section. You can also insert database fields or special fields in that section from the insert menu.
9. To see how your results will print, select Print To Window from the Print menu. Close out the window when you are finished with your review.
10. If you want to:
 - change the placement or width of a field,
 - format the field,
 - insert a subtotal or grand total for a field, or
 - delete a field,Click the field box for that field. Black handles appear on the right and left sides of the field box to indicate that it has been selected.
 - To change the placement of the field, drag the field box to its new position using the mouse or the arrow keys. The arrow keys move the field box one grid position each time you press them.
 - To change the width of the field, drag the right or left handle using your mouse or use a Shift--Arrow combination on your keyboard.
 - To format or subtotal the field, Click the right mouse button while the cursor is inside the field. A pop--up menu appears listing your various options.
 - To change the font, select Change Font and refine your selection using the Font dialog box when it appears.
 - To change the format (alignment within field; number, currency, or date display; etc.) select Change Format and refine your selection using the Field Format dialog box when it appears.
 - To insert a subtotal, select Insert Subtotal and refine your selection using the Insert Subtotal dialog box when it appears. In this dialog box you select the sort and group by field, the condition that triggers a new subtotal whenever the field's value changes, and the sort direction: Ascending (A to Z, 1 to 9) or Descending (Z to A, 9 to 1).

NOTE: The program automatically sorts the data (based on the field that triggers the subtotals) before it subtotals. You don't have to manually enter a subtotal sort.

- To insert a grand total (or a grand total average, a grand total count, etc.), select Insert Grand Total.
 - To delete the field, select Delete Field.
- 11.If you want to create a formula to make data calculations or comparisons, select Formula from the Insert menu. Enter a name for your formula in the Insert Formula dialog box, and enter the formula itself in the Formula Editor when it appears. Enter fields, operators, and functions by selecting them from their respective boxes. You can get complete information on each available Function and Operator via the Help button, and you can check your formula syntax via the Check button. Entering a Crystal Reports formula is similar to entering a formula in a spreadsheet cell. When finished editing, Click Accept and place the formula just like you do a database field.
 - 14.To change the sort order, select Record Sort Order from the print menu. Select the field(s) you want Crystal Reports to use for sorting the report data.
 - 15.To change the sort and group by field, select Group Section from the Edit menu. Select the group section of interest from the list that appears in the Edit Group Section (sections) dialog box, and select the new trigger field from the Edit Group Section (edit) dialog box when it appears.
 - 16.If you want to limit your report to specific records (for example, the records of California customers that have YTD sales greater than \$10,000), Click the first field on which you want your selection to be based (in this case the State field) and choose Select Records from the Print menu or the right mouse button pop--up menu. Answer the questions that appear in the Select Records dialog box and Click OK when finished. If your selection is based on more than one field, repeat the process with the remaining field(s) until you have completed entering your selection specifications.
 - 17.When finished, you can print your report by selecting Print To Printer from the Print menu.
- That's it. It's that easy to build a report with Crystal Reports.

Dates stored in text or number fields

Crystal Reports allows the use of date fields (fields specific to the date data type) for storing dates. Date fields allow for storing the date in a month/day/year or similar format.

Some users, however, prefer to store dates in text or number fields. In these cases they store the date as a serial or date number (some number of days since a base date).

Crystal Reports allows you to work with either type of date entry.

- Dates stored in date fields require no conversion; they are stored as dates and can be used directly as dates.
- Dates stored in number or text fields, however, must be converted to report dates before they can be used.

Converting a date number (number field) to a report date

To convert a date number stored in a number field to a report date, use the following formula:

Date(yyyy,mm,dd) + DateNum

« where (yyyy,mm,dd) is the base date in year, month, day format, and DateNum is the date number (the number of days since the base date). »

What Crystal Reports is doing in this situation is converting the base date to a report date using the Date function.

Then, once the date is converted, it is adding the number of days since the base date to the base date to arrive at the desired report date.

Converting a date number (text field) to a report date

To convert a date number stored in a text field to a report date, use the following formula:

Date(yyy,mm,dd) + ToNumber(DateNum)

« where (yyy,mm,dd) is the base date in year, month, day format, and DateNum is the date number (the number of days since the base date). »

This formula works in the same way as the previous formula (for converting numbers to dates), but with one additional step. The ToNumber function converts the number stored as text to an actual number that can be added to the base date. Numbers stored as text cannot be used in calculations without first being converted to numbers via the ToNumber function.

Formatting numbers stored in text fields

Employee numbers, customer numbers, ZIP codes, and other similar numbers are often stored in text fields. When a number is stored in a text field, its data type may be unclear to us, especially if you are working with unfamiliar data. Only when you select the Format|Field command does the data type become readily apparent.

The Format|Field command is the command you use for changing the format of a selected field. It presents a set of options that are specific to the data type of the selected field. If a number is stored in a text field it is considered to be text, even though it looks like a number. Thus, the Format|Field command presents only text formatting options for such a number. You may be unsure how to proceed when you want to format the number as a number, not as text.

How to format a number stored in a text field

1. If you want to format a number stored in a text field as a number, you first have to convert it to a number (that is, to a field with a numeric data type). To do this, replace the field in your formula with a formula that converts the text field to a number field. For example, if your text field is named *{employee.EmpNum}* and you want to convert it to a number field, replace the field in your report with the following formula:

ToNumber(*{employee.EmpNum}*)

2. Finally, to format the formula, select the formula and select the Format|Field command. This time, because the field is now a number data type, the Format Number button appears at the bottom of the Field Format dialog box.
3. Click Format Number and format the number using the formatting options available in the Format Number dialog box that appears.

See Also

[Crystal Reports data types](#)

[Index to formula topics](#)

How to create aging reports

You may wish to create an aging report (a report in which your receivables are broken down by the time elapsed since a specific activity date (the invoice date, payment due date, etc.). In creating such a report, you need to have Crystal Reports evaluate the activity date and decide which aging category it belongs in.

To create an aging report, you use if--then--else formulas to categorize the activity dates, and you use the aging ranges Crystal Reports has included as date range functions to build the if--then--else formulas. To see how this is done, assume the following data:

Invoice	Date	Amount
1748	01/29/92	3442
1532	01/10/92	8346
3417	04/03/92	2454
1234	12/15/91	13323
1850	02/10/92	5224
3621	04/15/92	8835
1974	02/21/92	1222
2392	03/27/92	5565
1346	01/03/92	2245
2076	03/01/92	3424

Assume, too, that you want your aging report to look like this:

Invoice	Date	0--30	31--60	61--90	91+
1234	12/15/91				13323
1346	01/03/92				2245
1532	01/10/92				8346
1748	01/29/92			3442	
1850	02/10/92			5224	
1974	02/21/92			1222	
2076	03/01/92		3424		
2392	03/27/92	5565			
3417	04/03/92	2454			
3621	04/15/92	8835			

The process for building an aging report

To build such an aging report using the example data, here are the steps to follow:

1. Insert two fields (*{file.Invoice}* and *{file.Date}*.) in the Details section of the report.
2. Instead of entering the *{file.Amount}* field directly in the Details section, build four if--then--else formulas, one for each of the aging columns, and place those formula fields in the Details section. When finished, the details section of the Report Editor should show the fields and formula fields as follow:

c:\aging.rpt					
Page header					
Details	Invoice Date	@0-30	@31-60	@61-90	@91+
Page footer					

The formula for a given column (the @ sign identifies the field as a formula field) will print the *{file.Amount}* value in the column *if and only if* the *If* condition of the formula is met. If the condition is not met, it is set to print zero (0). This can result in a lot of zeros taking away from the look of the report, but since the data type of the *then* part of the formula is a number, the data type of the *else* part of the formula must be a number too. Hence, the zero value (a number) is used to indicate no value.

3. To prevent these extraneous zeros from printing, format each of the formula fields using Format|Field|Format Number|Suppress if Zero. Thus, if the *If--then--else* condition is not met (that is, if *{file.Amount}* doesn't belong in that column), nothing will print.
4. To sort the data so it appears in chronological order, do one of the following:
 - if you don't want the data grouped, use Print|Record Sort Order and add *{file.Date}* as a sort field, or,
 - if you want the data grouped, select Insert|Group Section, and select the sort and group by field, the condition (if you selected a date field) and the sort direction. For example, if you want the data sorted and grouped by month, select Insert|Group Section, select *{file.Date}* as the sort and group by field, select *monthly* as the Condition, and *in ascending order* as the Sort Direction. Your data will appear in ascending chronological order, grouped by month.
5. If you want each of the aging columns totaled, Click the formula field for the first column, select Insert|Grand Total, select *sum* as the grand total operation, and repeat the process for the formula field in each of the remaining columns. This will create a Grand Total section at the end of the report and put a grand total for each aging column in that section.
6. For creating the rest of the report (headers, footers, etc.), see the various topics in Creating a report. Use these steps as a guide for building an aging report using your own data.

Aging report formulas

The aging report uses similar formulas for each column; only the aging date ranges change. For clarity, we'll use formulas that have the same names as the aging column headings. Use the following formulas as suggestions for creating your own:

@0--30

```
If {file.Date} in Aged0To30Days then
    {file.Amount}
else
    0
```

@31--60

```
If {file.Date} in Aged31To60Days then
    {file.Amount}
else
    0
```

@61--90

```
If {file.Date} in Aged61To90Days then
    {file.Amount}
else
    0
```

@91+

```
If {file.Date} in Over90Days then
    {file.Amount}
else
    0
```

You can build these formulas quickly using the Insert|Formula command.

Building aging formulas quickly

For efficiency in building four similar aging formulas, adapt the following procedure to your data and reporting needs:

1. Select Insert|Formula Field. The Insert Formula dialog box appears.
2. Type in the name of the first formula, 0--30, and Click OK when finished. The Edit Formula dialog box (the Formula Editor) appears.
3. Type the first formula into the Formula Editor.
4. Copy the entire formula to the Clipboard using the Windows' Copy command (Ctrl+Insert). Leave the copy in the formula for the time being.
5. Click the Accept button to accept the first formula, and then place it where you want it when the rectangular placement cursor appears.
6. Select Insert|Formula again. The Insert Formula dialog box appears.
7. Type in the name of the second formula, 31--60, and Click OK when finished.
8. Paste the first formula (from the Clipboard) into the Formula Text box in the Formula Editor when it appears.
9. Replace the aging range in the formula (in this case, Aged0To30Days) with the aging range of the next formula (in this case, Aged31To60Days),
10. Accept the modified formula, and place it where you want it.
11. Repeat Steps 7 through 10 two more times.
 - The first time, name the formula 61--90, and replace the aging range in the first formula (that you paste again from the Clipboard) with the aging range of the third formula (Aged61To90Days).
 - The second time, name the formula 91+, and replace the aging range in the first formula with the aging range of the fourth formula (Over90Days).

See Also

[Index to formula topics](#)

Paradox secondary index files

Crystal Reports Version 1.1 supports Paradox secondary index files (.x??, .y??) in addition to Paradox .px index files. When you select a secondary index via the New Index button, the selected index will show up in the Using index list.

NOTE: You may have to Click the scroll arrow on the Using index scroll box to reveal the new index.

Using memo fields with Crystal Reports

Paradox IV, dBASE, and Btrieve all allow the use of memo fields, fields that can contain large blocks of text or mini--documents. While earlier versions of Crystal Reports allowed a limited use of memo fields, Versions 1.1 and newer offer comprehensive memo field support.

- You can place a memo field in your report as you would any other field and the entire memo field will print (earlier versions printed only the first 80 characters).
- By default, Crystal Reports allots a space 20 characters wide for each memo field.
 - You can expand or narrow a memo field in the same way you expand or narrow any field (by dragging one of the handles on the field box, or by using the Shift--Right Arrow or Shift--Left Arrow combination).
 - The program will word--wrap within the space allotted if you have activated the *Print on multiple lines* option in the Format Memo dialog box. If you expand or narrow the field, word wrap will adjust to the available space (where possible), again, if the Print on multiple lines option is activated.

- If your memo field includes return characters, Crystal Reports accepts and interprets them to provide line breaks in the report memo field where they occurred in the original (where possible)

NOTE: You can limit the number of lines on which your memo fields print using the Format Memo dialog box.

NOTE: You cannot select memo fields in record or group selection formulas.

NOTE: If records contain two or more memo fields, Record B doesn't begin to print until the longest memo field in Record A is done printing

The Status Bar

The status bar at the bottom of the report window displays valuable information to help you use Crystal Reports more efficiently:

Button bar functions

When the cursor is over a Button Bar button, the Status Bar displays a short description of the button's function. For example, the following Status Bar entry (right side of Status Bar) appears when the cursor is over the Insert Summary button:



Menu command descriptions

When you highlight a menu command, the Status Bar displays a short description of the command. For example, the following Status Bar entry (right side of Status Bar) appears when you highlight the Database|Verify on Every Print command:



To highlight a menu command, Click the menu name and move to the command using the Down Arrow key.

Current selections

When you select or place a graphic, field, text field, graphic line or box, special field, or formula, the status bar displays the name of the item selected. It displays:

- the file name for a graphic,
- the alias and field name for a field,
- the text in a text field,
- the words Line for a line and Box for a box,
- the field type for special fields (PrintDate, RecordNumber, etc.) and
- the formula name for a formula.

Graphic coordinates

When you select or create a bit-mapped graphic, a graphic box, or a graphic line, the program displays the coordinates for the left, right, top, and bottom sides of the graphic element. For example, the following Status Bar entry (left side of Status Bar) shows the coordinates for the selected graphic (arches.bmp).



See Also

[Graphic elements and the Status Bar](#)

[Using the status bar when positioning a graphic element](#)

Resizing sections

The Report Editor first appears with default section sizes.

You can expand or reduce report sections by dragging the lines that separate the sections. When you position the I-beam cursor over one of those lines, the cursor changes to a double--arrow resizing cursor. Once that cursor appears, you can resize as needed.

Alternately, to expand a report section, you can Click the section of interest and press Enter as many times as needed. Once you've expanded a section, you can reduce by deleting unneeded lines with the Backspace key.

A to B, A to C reports

An A to B, A to C report is a multiple--database report in which the A database is linked to the B database and the A database is also linked to the C database. The report breaks down data so that for each record in the A database, matching records in the B database are printed first and matching records in the C database are printed last.

The A to B, A to C format can be used for:

- order reports in which orders may contain both parts and services,
- accounting reports in which each customer (client, department, etc.) can generate both orders and credit memos,
- inventory reports in which each part number can show shipments out to customers, and shipments in from suppliers,
- and for a variety of other similar reporting needs.

Here is a typical A to B, A to C report:

In this report:

- data is organized by customer and within each customer listing
 - all of the orders are presented together,
 - all of the credits are presented together,
 - the orders for each customer are totaled, and
 - the credits for each customer are totaled.

To create an A to B, A to C report

In order to create an A to B, A to C report you need to do the following:

- select and link the databases (tables),
- select the correct lookup option,
- set up report fields and field titles,
- set up subtotals and subtotal labels,
- set up conditional subtotals and subtotal labels (optional), and
- print the report.

This section takes you step--by--step through this procedure, using the following data to create an example report:

Table A -- customer table

NAME	NUMBER
Jones	1
Smith	2
Carter	3

Table B -- orders table

ORDER	CUSTOMER	DATE	AMOUNT
1	1	10--12--92	10.00
2	1	10--13--92	12.00
3	2	10--14--92	20.00
4	2	10--12--92	30.00
5	3	10--14--92	45.00
6	3	10--16--92	24.00

Table C -- credits table

CRNOTE	RMA	CUST	AMOUNT
1	CR1234	1	10.00
2	CR3456	2	23.00
3	CR4567	2	45.00

The database (a_to_b.mdb) holding these three tables is installed in the \VB\REPORT directory (or other directory you specify) when you install Crystal Reports sample data, and can be used for creating this example report.

NOTE: This tutorial does not take you through all the fine points of report creation (spacing, resizing fields, etc.). It is meant instead to give you general concepts for creating A to B, A to C reports. Your finished report will work correctly, but you will need to adjust the layout, formatting, and field titles to suit your needs.

Selecting and linking the tables

To select and link the tables:

1. Select File|New Report. The Choose Database File dialog box appears.
2. Select the database containing the three tables and Click OK when finished.
In our example, that database is a_to_b.mdb. The Report Editor appears.
3. Select Database|File Links. The File Links dialog box appears.
4. Click New to establish a new link between tables.
5. Link table A to table B.

In our example you link the *NUMBER* field in table A (cust) with the indexed field *CUSTOMER* in table B (orders).

6. Click OK when finished and the File Links dialog box appears again. The link you just created is displayed in the File Links box and explained in the Description box.
 - If you want to modify the link, Click the Update button. Crystal Reports returns you to the Define Link dialog box where you can make your modifications.
 - If the link is satisfactory, Click New again to establish our second (A to C) link.

7. The Define Link dialog box appears again.

8. Link table A to table C.

In our example you link the Number field in table A (cust) with the indexed field Cust in table C (credits).

This time, when you Click OK and the File Links dialog box appears, the Options button is active because you have linked two lookup tables (B and C) to a primary table A.

The critical step -- selecting the correct link option

Even though the tables are linked correctly, there is one final and critical linking step. You must select the correct procedure for the program to use when looking up records in the B and C tables that match records in the A table. Since you want your report printing first the orders for each customer and then the credits, you will select the method that first finds all the matching records (orders) in the B table and then all the matching records (credits) in the C table. You make your selection via the Options button.

To select the correct link option

1. Click the Options button and the File Link Options dialog box appears.
2. Select the second option, *Look up all of one file, then all of the other*, and Click OK when finished to return to the File Links dialog box.
3. Click OK in that dialog box to return to the Report Editor with the Insert Database Field dialog box displayed. when you set up and then print your report, the program will first find all matching records in the orders table and then all the matching records in the credits table.

Setting up report fields and field titles

Now that the links are in place, you set up your report by entering report fields and subtotals.

- To set up the report in our example, enter the following fields from left to right in the Details section of the Report Editor:

cust.NAME
orders.ORDER
orders.AMOUNT
credits.RMA
credits.AMOUNT

Leave ample space between the fields.

NOTE: Unless you have inactivated the Insert Detail Field Titles switch in the Options dialog box, Crystal Reports will automatically insert the field titles in the Page Header section of the Report Editor.

Setting up and labeling subtotals

In most A to B, A to C reports, you will have fields that always contain values, and you want to subtotal these fields for each customer (client, order, etc.) In our example, orders.AMOUNT is such a field. Since we want an order subtotal to print for every customer, we'll set it up so the program subtotals orders.AMOUNT every time cust.NAME changes. To do this:

1. Click the orders.AMOUNT field in the Report Editor, and Click the right mouse button to call up the menu.
2. Select Insert Subtotal and the Insert Subtotal dialog box appears.
3. In the top scroll box, select cust.NAME to sort the report by customer name and to generate the subtotal every time the customer name changes.
4. *In ascending order*, the sort direction in the second scroll box, is fine, so leave it as it is.
5. Click OK when finished to return to the Report Editor. Crystal Reports creates a group section in the Report Editor and enters the subtotal in that section.
6. To label the subtotal, select Insert|Text Field. The Edit Text Field dialog box appears.
7. Enter the subtotal label, Order total, and Click Accept when finished. The rectangular placement cursor appears.
8. Position the cursor to the left of the subtotal value and Click the left mouse button to place it.

Setting up and labeling conditional subtotals

In some A to B, A to C reports, you will have a field that sometimes contains values and sometimes does not (credits, returns, etc.). When you have a field such as this, you may want to print a subtotal and label only when there are values in the field.

In our example, credits.AMOUNT is such a field. If the customer has credits, you want to subtotal the credits and label the subtotal, but if the customer doesn't have any credits you don't want the zero subtotal and the label to print. To accomplish this, you create a conditional formula for the subtotal and another conditional formula for the label.

The formula for the subtotal:

Use the following formula to print a credits subtotal only when there are credits for the customer:

```
if IsNull(Sum({credits.AMOUNT},{cust.NAME})) then  
    0  
else  
    Sum ({credits.AMOUNT},{cust.NAME})
```

- If there are credits, the formula totals the credits and prints the total.
- If there are no credits, the formula returns a zero.

You can modify this formula easily for use with your data.

To enter the subtotal formula

1. From the Report Editor, select Insert|Formula Field. The Insert Formula dialog box appears.
2. Type in the name you want to use to reference the formula and Click OK. The Formula Editor

appears.

3. Enter the formula.
4. Click Accept when finished. The rectangular placement cursor appears.
5. Position the formula field box in the GF1 section, immediately below the credits.AMOUNT field, and Click the left mouse button to place it.

Suppressing zero values

To keep the zero value from printing, activate the Suppress if Zero switch in the Format Number dialog box. To activate the switch:

1. With the formula field selected, Click the right mouse button to call up the menu.
2. Select Change Format and the Field Format dialog box appears.
3. Click the Format Number button at the bottom of the dialog box and the Format Number dialog box appears.
4. Click the Suppress if Zero check box to activate that option and Click OK when finished to return to the Field format dialog box.
5. Click OK there to return to the Report Editor.

The formula for the label

Use the following formula to print a credits subtotal label only when there is a credits subtotal for the customer:

```
if IsNull (Sum ({credits.AMOUNT},{cust.NAME})) then  
  
else  
    Credit total
```

- If there is a credit total, this formula prints the label Credit total.
- If there is no credit total (because there are no credits), the formula prints an empty string (), that is, it prints nothing.

You can modify this formula easily for use with your own data.

To enter the subtotal formula

1. From the Report Editor, select Insert|Formula Field. The Insert Formula dialog box appears.
2. Type in the name you want to use to reference the formula and Click OK. The Formula Editor appears.
3. Enter the formula.
4. Click Accept when finished. The rectangular placement cursor appears.
5. Position the formula field box in the GF1 section, immediately to the left of the credits subtotal formula, and Click the left mouse button to place it. You may have to move some fields to make room for the new formula.

Printing the report

When finished setting up the report, print it to the print window to review your work.

Change fonts, add borders, adjust spacing, and make other field formatting changes as necessary .

When satisfied with the results, print your final copy.

NOTE: If you do not use secondary indexes with your databases, the report will not contain all of your data.

Cropping graphics

Cropping refers to cutting away those portions of your graphic that you don't want to print. If, for example, when you scanned your company logo from a letterhead you also scanned in some extraneous material (company address, corporate officers, etc.), you will probably want to sanitize the logo before you use it. Using Crystal Reports' cropping capability, you can easily cut away the extraneous material leaving only the logo to print.

There are two ways to crop a graphic:

- using the mouse, and
- using the dialog box.

Cropping using the mouse

Using the mouse is the easiest way to crop a graphic. It doesn't require any guesswork and you see your results immediately on screen.

You crop by dragging the resizing handles while depressing the Shift key.

- When you drag the top handle down, you cut off part of the top part of the graphic.
- When you drag the bottom handle up, you cut off part of the bottom part of the graphic.
- When you drag the right side handle to the left, you cut off part of the right side of the graphic.
- When you drag the left side handle to the right, you cut off part of the left side of the graphic.
- When you drag one of the corner handles into the graphic, you cut off part of two sides of the graphic at once (the top and a side, or the bottom and a side).
- When you drag any of the handles away from the graphic (dragging the top handle up, the left handle to the left, etc.) you expand the frame and put white space between the graphic and the frame.

To crop a graphic using the mouse

1. Select the graphic you want to crop. Sizing handles appear on the graphic.
2. With the Shift key depressed, crop your graphic by dragging the appropriate sizing handle(s).
3. When finished, release the Shift key, resize the graphic if needed, and move the cropped graphic into place.

NOTE: Resizing a graphic does not undo the cropping. It simply resizes that portion of the graphic that remains after cropping.

Cropping using the dialog box

When you crop a graphic using the dialog box, you specify (in inches or centimeters) the piece of the graphic that Crystal Reports is to cut from the top, bottom, right, and/or left side.

NOTE: This method of cropping can be particularly useful if you want to take a specific sized piece off each side of your graphic. For example, if you want to cut exactly one inch off all four sides of your graphic, you can do it more quickly and accurately with the dialog box than the mouse.

To crop a graphic using the dialog box:

1. Select the graphic you want to crop and select Format|Graphic to call up the Graphic Format dialog box. (Alternately you can Double Click the graphic to call up the dialog box or select the graphic and then select Change Format from the right mouse button menu.)
2. In the Cropping box, enter the amount you want to crop from the Top, Left, Bottom, and/or right sides of your graphic.
 - Enter positive numbers to cut parts off your graphic.
 - Enter negative numbers to expand the frame, leaving white space between the frame and the graphic.

NOTE: All cropping settings apply to the size of the original graphic. If the graphic has been resized before cropping, make certain you use the Original Size settings as guidelines when entering your new cropping instructions. As a general rule, when you are going to crop and resize a graphic, crop the graphic first, and then resize it.

3. Click OK when finished. Crystal Reports returns you to the Report Editor with the Graphic cropped to your specifications.

NOTE: While there are many options in the Graphic Format dialog box, to crop a graphic you only need to concern yourself with the cropping instructions. Crystal Reports automatically maintains the scale and adjusts the absolute size of the graphic so it will display and print to your specifications.

- To restore a cropped graphic to its original size and shape, change all of the Cropping of original settings to 0.00.
- To restore a resized graphic to its original size and shape, change both Scaling settings to 100%.
- To restore a cropped and resized graphic to its original size and shape, change both the cropping and the scaling settings as described above.

Creating, moving, and formatting lines

Crystal Reports enables you to create freeform lines that you can use to highlight field data, blocks of data, or entire sections of your report. (For a discussion of the differences between lines and borders, see [Insert|Line](#).)

To create a line

1. Click Insert|Line. A pencil cursor appears.
2. Set the tip of the cursor (the pointed end) where you want the line to begin and drag the cursor horizontally or vertically with the left mouse button depressed. The line appears as you drag the cursor.
3. Release the mouse button when the line is the length you want it.

NOTE: *To format the line (set line style, width, and color), you use the [Format|Line command](#).*

Moving a line

You can move a graphic line using the mouse, or with the keyboard using the arrow keys.

To move a line using the mouse:

1. Click the line to select it.

NOTE: *When selecting a line or other graphic, the mouse cursor must be an Arrow. Make sure the cursor changes to an arrow before you attempt to select a line.*

2. Drag the line where you want it. Make sure to keep the left mouse button depressed as you move it.
3. Release the mouse button once your line is in position.

To move a line with the arrow keys

1. Click the line to select it.
2. Use the arrow keys to move the line up, down, right, or left and position it where you want it.

NOTE: *Crystal Reports displays line coordinates in the Status Bar to help you adjust the size and position of a line. Using the status bar readings, you can easily place a line at a specific location on your report, or align two or more graphic elements with each other.*

Formatting a line

Crystal Reports allows you to specify the style, width, and color for each graphic line you include in your report. You enter your line formatting specifications in the [Line Format dialog box](#).

To format a graphic line.

1. Select the line of interest and then select Format|Line. (Alternately, you can Double Click the line or select Change Format from the right mouse button menu.) The Line Format dialog box appears.
2. Enter your formatting instructions for the line.
3. Click OK when finished. Crystal Reports returns you to the Report Editor with the line formatted to your specifications.

Resizing a line

Once you have created a line, you can adjust its length using either the mouse or the keyboard arrow keys.

To resize a line using the mouse

1. Select the line you wish to resize.
2. Move the mouse so that the cursor is over one of the square sizing handles at the endpoints of the line.

NOTE: *When the mouse cursor is over one of the sizing handles, it changes to a double headed arrow (the Resizing cursor).*

3. Drag the handle until the line is the length you want.

To resize a line using the arrow keys:

1. Using the mouse, select the line you want to resize.
2. While holding down the Shift key, press:
 - the Right Arrow key to lengthen a horizontal line,
 - the Left Arrow key to shorten a horizontal line,
 - the Down arrow key to lengthen a vertical line, or
 - the Up arrow key to shorten a vertical line.

Creating, moving, and formatting boxes

Crystal Reports enables you to create freeform graphic boxes that you can use to highlight field data, blocks of data, or entire sections of your report. (For a discussion of the differences between boxes and borders, see [Insert|Box](#).)

You can also use graphic boxes by themselves, as stand--alone graphic elements, to add visual interest to your report.

To create a box

1. Click Insert|Box. A pencil cursor appears.
2. Set the tip of the cursor (the pointed end) where you want to anchor one corner of the box and drag the cursor towards the opposite corner with the left mouse button depressed. The box appears as you drag the cursor.
3. Release the mouse button when the box is the size you want it.

NOTE: To format the box (set line style and width, line color, etc.), you use the [Format|Box command](#).

Moving a box

You can move a graphic box using the mouse, or with the keyboard arrow keys.

To move a box using the mouse

1. Click the box to select it.
NOTE: You can select a box only with an arrow cursor. Position the I--beam near the box edge until it changes to an arrow and then Click the edge of the box (not the center) to select it.
2. Drag the box where you want it. Make sure to keep the left mouse button depressed as you move it.
3. Release the mouse button once your box is in position.

To move a box with the arrow keys

1. Click the box to select it.
2. Use the arrow keys on the keyboard to move the box up, down, right, or left until it is in the position that you want.

NOTE: Crystal Reports displays box coordinates in the Status Bar to help you adjust the size and position of a graphic box. Using the status bar readings, you can easily place a box at a specific location on your report, or align two or more boxes with each other.

Formatting a box

Crystal Reports allows you to change:

- the box style (the kind of line that outlines the box: single solid line, single dashed line, etc.),
- the width (thickness) of the line that outlines the box,
- the color of the line that outlines the box, and
- the fill for the box (whether the box is filled with a color or empty).

You enter your box formatting specifications in the Box Format dialog box.

To format a box.

1. Select the box of interest and then select Format|Box. (Alternately, you can Double Click the box or select Change Format from the right mouse button menu.) The [Box Format dialog box](#) appears.
2. Enter your formatting instructions for the box.
3. Click OK when finished. Crystal Reports returns you to the Report Editor with the box formatted to your specifications.

Resizing a box

Once you have created a box, you can adjust its size using either the mouse or the keyboard arrow keys.

To resize a box using the mouse

1. Select the box you wish to resize.
2. Move the cursor over one of the square sizing handles.

NOTE: When the cursor is over one of the sizing handles, it changes to a double headed arrow (the resizing cursor).

3. Drag the handle until the box is the size you want:

- If you want to change the height of the box, drag the handle at the top or the bottom.
- If you want to change the width of the box, drag the handle at the right or the left side.
- If you want to change both the height and the width at the same time, drag one of the handles at the corners of the box.

To resize a box using the arrow keys:

1. Using the mouse, select the box you want to resize.
2. While holding down the Shift key, press:
 - the Right Arrow key to make the box wider,
 - the Left Arrow key to make the box narrower,
 - the Down arrow key to make the box taller, or
 - the Up arrow key to make the box shorter.

Using boxes to highlight data

Boxes can be used to highlight data in a variety of ways. For example, they can be used to highlight:

- fields,
- rows,
- columns,
- groups of data, and
- memo fields.

Each of these highlighting assignments requires a slightly different technique, but all can be accomplished easily with Crystal Reports.

NOTE: You can select and/or move a graphic box only by its border. Your cursor turns into an arrow when it is positioned correctly for selecting and/or moving a graphic box.

While you can use borders to create certain kinds of boxes, there are many times when using a graphic box is more appropriate. (For a discussion of the differences between boxes and borders, see [Insert|Box](#).)

To put a box around individual field values

1. Select [Insert|Box](#) (or Click the Insert Box button on the [button bar](#)). The Pencil Cursor appears.
2. Draw a box around the field of interest, being careful to keep the entire box in the section in which the field resides. For example, to draw a box around a field in the Details section, keep the entire box in the Details section. The box can exactly match the field box outline or it can be bigger or smaller (as long as it doesn't overlap other fields), but it must remain within the same section as the field you're highlighting. If the box extends into other sections you may get an unwanted effect.

To put a box around individual rows

1. Select [Insert|Box](#) (or Click the Insert Box button on the [button bar](#)). The Pencil Cursor appears.
2. Draw a box around the row of interest, being careful to keep the entire box in the section in which the row resides. For example, to draw a box around a row in the Details section, keep the entire box in the Details section. The box can exactly enclose the row or it can be bigger or smaller, but it must remain within the same section as the row you're highlighting. If the box extends into other sections you may get an unwanted effect.

To put a box around two or more rows

1. Select [Insert|Box](#) (or Click the Insert Box button on the [button bar](#)). The Pencil Cursor appears.
2. Draw a box around the rows of interest.
 - Be careful to keep the entire box in the section in which the rows reside.
 - Be careful also not to overlap any rows you don't want to be included in the box.
For example, to draw a box around two rows in the Details section, keep the entire box in the Details section. The box can exactly enclose the rows or it can be bigger or smaller (as long as it doesn't overlap other rows), but it must remain within the same section as the rows you're highlighting. If the box extends into other sections you may get an unwanted effect.

To put a box around individual columns in a row/column report

This section assumes that the column of data you want to enclose is in the Details section since any fields you put in the Page Header or Page Footer section print only one value per page.

To put a box around individual columns:

1. Select [Insert|Box](#) (or Click the Insert Box button on the [button bar](#)). The Pencil Cursor appears.
2. Draw a box around the field of interest, beginning the box in the Page Header section and ending the box in the Page Footer section. The box must span all three report sections to get the desired effect. The box can be as large or as small as you want it provided it spans the three sections and doesn't overlap any other fields. When you print, Crystal Reports prints a box around the column selected.

NOTE: If you hide either the Page Header section or the Page Footer section, you will get an incomplete box.

To put a box around two or more columns in a row/column report

This section assumes that the columns of data you want to enclose are in the Details section since any fields you put in the Page Header or Page Footer section print only one value per page.

To put a box around two or more columns:

1. Select Insert|Box (or Click the Insert Box button on the button bar). The Pencil cursor appears.
2. Draw a box around the fields of interest, beginning the box in the Page Header section and ending the box in the Page Footer section. The box must span all three report sections to get the desired effect.
The box can be as large or as small as you want it provided it spans the three sections and doesn't overlap any other fields. When you print, Crystal Reports prints a box around the columns selected.

NOTE: If you hide either the Page Header section or the Page Footer section, you will get an incomplete box.

To put a box around groups of records

This section assumes that you have already grouped your data.

To put a box around groups of data:

1. Select Insert|Box (or Click the Insert Box button on the button bar). The Pencil cursor appears.
2. Draw a box around the data of interest:

The box should begin in the Group Header section, enclose the field(s) of interest in the Details section, and end in the Group Footer section. The box must span all three sections to get the desired effect. When you print, Crystal Reports prints a box around the grouped data you selected.

NOTE: To include the group value in the box (the subtotal, count, etc. for the group), make sure you enclose that value in the box when you draw it. If you don't want to include the group value in the box, don't enclose it in the box. You must still draw the box so it ends up in the group footer section nonetheless.

To put a box around memo field values

1. Select Insert|Box (or Click the Insert Box button on the button bar). The Pencil Cursor appears.
2. Draw a box around the memo field of interest, making certain that:
 - the entire box is in the section in which the field resides,
 - the top of the box is vertically above the top of the field, and
 - the bottom of the box is vertically below the bottom of the field.

When you print, the program draws the box around the selected memo field.

NOTE: You may have to expand the Details section somewhat in order to draw the box without having the box extend into another report section.

How to create a table

You can create attractive tables for your report quickly and easily using Crystal Reports' box and line drawing functions. A short example will demonstrate the basic principles involved.

NOTE: If you want to reproduce this example yourself using Crystal Reports, you will find the database from which the data is drawn (crystal.mdb) located in the CRW directory (or the directory where you installed Crystal Reports sample data).

To create the example table

1. Using *crystal.mdb*, place the following fields side by side in the Details section and resize the fields to get the look you want:

detail.ORDERNUM

detail.QTY

detail.ITEMNUM

detail.PRICE

Leave a little room between the fields so you can enter table lines.

2. Create the following formula and name it EXTEND:

```
{detail.QTY}*{detail.PRICE}
```

See [Formulas -- an overview](#) if you need instructions on creating formulas.

3. Place the formula in the Details section to the right of the detail.PRICE field.
4. Subtotal the formula EXTEND so it prints a subtotal whenever the value in detail.ORDERNUM changes.
5. Draw a single box around all the data in the Details section. This will place a box around each row of data that appears in the Details section of your report. (For information on drawing graphic boxes, see [Creating, moving, and formatting boxes](#).) *Make sure the box does not extend into the Group Header or Group Footer sections.*
6. Draw vertical lines between each of the fields in the Details section. Each line should extend exactly from the top to the bottom of the graphic box you drew in Step 2. (For information on drawing graphic lines, see [Creating, moving, and formatting lines](#).)
7. Draw a single graphic box around the subtotal data.

NOTE: Make certain that the right edge of the box aligns with the right edge of the graphic box you drew in Step 5, and make certain that the left edge of the box aligns with the vertical line you drew between the last (rightmost) two fields (Step 6).

To include column headings in your table:

8. Use the column headings that the program generated automatically or enter new headings in the Page Header section using the [Insert|Text Field](#) command.
9. Position and size the headings to get the look you want..
10. If you are using the program--generated headings, select all of the headings by Clicking them one at a time while holding down the Shift key.
11. Select [Format|Font](#), and then Click the Underline checkbox in the Effects section of the Font dialog box to turn the underlining off.
12. Draw a single graphic box around all of the headings. Make certain that:
 - the right edge of the box aligns with the right edge of the graphic box you drew in Step 5,
 - the left edge of the box aligns with the left edge of the graphic box you drew in Step 5, and
 - the box does not extend into any other sections of the report.
13. Draw vertical lines between each of the heading text fields. Each line should extend exactly from the top to the bottom of the graphic box you drew in Step 12, and each line should be directly above the corresponding line you drew between fields in Step 6. You can use the Status Bar coordinates to make sure the lines are directly above each other.
14. All that remains is getting rid of the big gap between the headings and the rest of the table. We get rid of this gap by hiding the group header section for the subtotal group. In the gray area at the left of the

Report Editor, Click the #1: ORDERNUM -- A section, Click the right mouse button, and select Hide from the pop--up menu that appears. Crystal Reports removes the section from the Report Editor.

NOTE: *The methods described in this tutorial are not the only methods you can use for creating tables. They were presented in order to familiarize you with some basic techniques. You may find that you can build tables with fewer boxes and lines by experimenting with techniques outlined in Using graphic boxes to highlight data.*

NOTE: *Your report prints as one table. To break it into individual tables for each order number, Click the Group Footer section (the subtotal section) and press Enter one time. This puts a space after each subtotal and breaks the table apart at the same time.*

If you break the table up this way and want to have column headings with each table, create the headings using text fields, unhide the group header section (reversing Step 14) and place the text fields in that section. Draw lines and boxes around these fields as described in Steps 12 and 13.

NOTE: *If you plan to make font formatting changes , try to make those changes before you create the table. If you change font size or make other changes once you have the table in place, you may have to replace and resize lines and resize boxes to accommodate your changes.*

Graphic elements and the Status Bar

Crystal Reports displays coordinates in the Status Bar whenever you are working with lines, boxes, or other graphics. These coordinates can help you adjust graphic position and size, and align one graphic figure with another.

NOTE: A graphic element must be selected in order for the graphic coordinates to appear in the Status Bar.

Reading the Status Bar coordinates

Crystal Reports displays four coordinate values for the selected graphic element:

L(eft)	The position of the left side of the graphic element relative to the left margin of the report.
R(ight)	The position of the right side of the graphic element relative to the left margin of the report, or,
T(op)	The position of the top of the graphic element relative to the top margin of the report, or, if the top of the element is in a different section than that displaying the top margin, the position of the top of the graphic element relative to the top of the section in which the top of the element appears.
B(ottom)	The position of the bottom of the graphic element relative to the top margin of the report, or, if the bottom of the element is in a different section than that displaying the top margin, the position of the bottom of the graphic element relative to the top of the section in which the bottom of the element appears.

NOTE: R and L values will be identical if the element is a vertical line.

NOTE: T and B values will be identical if the element is a horizontal line.

NOTE: Coordinates are expressed in either inches or centimeters, depending on your Measurement settings in the International section of the Windows Control Panel. (For more information on the Windows Control Panel, please refer to the documentation that came with your Windows software.)

NOTE: When you have fields and bit-mapped graphics stacked together and you want to move the graphic out of the way to see the field better but be able to reposition it exactly when finished, you can do the following:

- **before you move the graphic, note its position from the status bar,**
- **move the graphic out of the way and work with the field, and, when finished,**
- **reposition your graphic by the numbers using the status bar as your guide.**

Using the Status Bar when positioning a graphic element

You can position an element by the numbers by monitoring the status bar coordinates while you move the graphic into position.

To position a graphic element by the numbers

1. Select the graphic element you want to position. The coordinates for the graphic appear on the Status Bar.
2. Drag the graphic to the approximate place you want it to appear.
3. Let up on the mouse button and read the coordinates.
4. Select the graphic again and move it as needed.
5. Let up on the mouse button again and read the coordinates.
6. Repeat Steps 4 and 5 until you have the graphic exactly where you want it.

NOTE: To make fine adjustments while using the coordinates on the Status Bar, you may find it easier moving your graphic element with the arrow keys instead of the mouse.

NOTE: You can also resize, reproduce, and align graphic elements easily using the Status Bar coordinates as your guide.

Mailing labels and label type items

Using Crystal Reports with your printer, you can easily create:

- address labels,
- shipping labels,
- audiotape and videotape labels,
- diskette labels,
- file folder labels,
- rotary file cards,
- postcards,
- name badges,
- and a host of related items that come mounted for printing in laser, ink jet, or dot matrix printers.

These items:

- come in a variety of shapes and sizes,
- are mounted on single sheet and/or tractor feed paper, and
- are laid out on the carrier paper in a number of different configurations.

Despite this diversity, Crystal Reports enables you to set up and print your data on virtually any of these label-type items quickly, and with a minimum of effort.

Creating label type items the process

There is a three-fold process to creating mailing labels:

- setting the paper size,
- specifying label size and layout, and
- setting up the label stock in your printer.

Setting the paper size

Paper size refers to the size of the carrier paper.

- If you are using laser labels, your paper size will generally be standard letter size, 8 1/2 by 11 inches.
- If you are using dot matrix labels, your paper size may also be the standard 8 1/2 by 11 inches, but it could also be any of a number of irregular paper sizes (4 1/2 by 6 inches, 4 1/2 by 12 inches, etc.)

You set the paper size (if different than the current default) via the Print|Select Printer menu option. If you need to specify a new user-defined paper size, you do that via the Printer section in the Windows Control Panel.

NOTE: On dot matrix labels, the part of the carrier paper that includes the tractor holes should not be included in the paper size width setting. As a rule of thumb, measure the entire width of the carrier paper (including the tractor holes) and then subtract 3/4". Enter the resulting amount as your paper size.

Specifying label size and layout

Labels come in a variety of shapes and sizes and are mounted in a number of different layouts. You specify the label size, layout, and other printing parameters via the File|New Mailing Labels Report command.

Setting up the label stock in your printer

Crystal Reports assumes that your label stock is set up for printing. If you need help with this aspect of the process, please consult the manual that came with your printer.

General instructions for creating label-type items

This section provides step-by-step instructions for creating label-type items. The information is general in nature so as to provide guidelines for the entire range of potential uses. You can set up most popular Avery labels simply by selecting the label number of interest from the Choose Mailing Label Type scroll list in the Mailing Labels dialog box.

To create the items

1. Select File|New Mailing Labels Report. The Choose Database File dialog box appears.
2. Using this dialog box, select the database that contains the data you want to use for your mailing labels. The Mailing Labels dialog box appears.
3. Using this dialog box, select the Avery label number of interest, or select User Defined Label and then set the page margins, label size, gaps, and printing direction.

NOTE: The margins, label size, and gap information you provide in the Mailing Labels dialog box tell Crystal Reports:

- where the labels are positioned on the carrier paper, and
- where it should begin printing the first line on the label (provided you want anything printed on the first line).

You tell the program where you want the data to appear on the label by positioning the data where you want it to appear using the Label Editor

NOTE: Not all settings apply to all labels. For example, if you're using a label that is 15/16 inch high with a 1/16 inch horizontal gap between labels, you don't have to worry about gaps. The gaps are so insignificant that you can set your label height to the full one inch. On a laser label with a top margin of 1/3 inch and a horizontal gap of 3/16 inch, however, the margins and gaps are significant and must be entered in order to assure proper data placement on all the labels.

4. Select OK when you're finished setting up your label specifications and the Label Editor appears along with the Insert Database Field dialog box.
 - If you are printing to labels mounted on standard 8 1/2 x 11 inch paper (not counting the dot matrix tractor carrier strips), proceed to Step 13.
 - If you are printing to tractor feed labels and your paper size is different than the standard 8 1/2 x 11 paper, proceed to the next step.
5. Open the Windows Control Panel and Double Click the Printers icon. The Printers dialog box appears.
6. With your printer highlighted in the Installed Printers scroll list, Click the Setup button. The Setup dialog box for your printer appears.
7. Click the arrow on the Paper Size scroll box. The Paper Size scroll list appears.
 - If your paper size is listed, select it and Click the OK button. That returns you to the Printers dialog box. Click the Close button, and then Exit the Control Panel and return to the Report Editor. Go directly to Step 13.
 - If your paper size is not listed, select User Defined Size. The User Defined Size dialog box appears.
8. Set up your paper size using the options in this dialog box.

Dialog box options

- | | |
|----------|--|
| Unit box | Select 0.1 mm if you are setting up a metric paper size, or select 0.01 inch if your paper size is measured in inches. The Width Range and Length Range figures reflect your choice of millimeters or inches. |
| Width | Enter the paper width in units. Each unit is either one millimeter (if you selected 0.1 mm) or one one--hundredth of an inch (if you selected 0.01 inch). For example, to set up a page 850 mm wide (if you've set your units to mm), enter 850 in the Width edit box. To set up a page four inches wide (if you've set your units to inches), enter 400 in the Width edit box (1 inch = 100 units). |
| Length | Enter the paper length in the same way you entered the paper width. |

9. Click the OK button when finished, and you return to the Setup dialog box.
10. Click the OK button to return to the Printers dialog box. Once there, Click the Close button, exit the Control Panel, and return to the Label Editor.
11. Using the Insert Database Field dialog box, select the fields you want to include on your mailing labels and position them where you want them to appear on the labels. Make certain that you keep the fields within the boundaries displayed for the sample label.

NOTE: Place fields only on the first (left) label. Crystal Reports uses that one label as an example of how you want your labels printed and it prints your data on all the labels following

that example. If you enter fields on more than one label, you will get overprinting and other unsatisfactory results.

NOTE: *Changing the font, font size, or font style of your data, or using borders will have a significant impact on field placement.*

NOTE: *If the fields appear to extend beyond the right edge of the sample label, you may be able to shorten the length of one or more of the fields so you can fit all of the fields into the available space. See Spacing fields for further information.*

12. Click the Done button in the Insert Database Field dialog box when finished, and then print your labels to the print window for review. (You can, of course, do this at any time during the process.)

13. Go back and make any changes you want and print to the print window until the labels look just right.

NOTE: *If you need to adjust the margins, label dimensions, the gaps, the number of labels across or down the page, or the printing direction, do the following:*

- *Select Format|Section. The Format Section/Sections dialog box appears.*
- *Select Details and Click OK. The Format Section/Formatting dialog box appears.*
- *Click the Label Layout button and the Mailing Labels dialog box appears.*
- *Reset your specifications and Click OK when finished.*

14. Save your mailing labels report. (Again, you can do this at any time during the process.)

15. With your labels set up in the printer, select Print|Print to Printer to do a final print of your mailing labels.

Setting up labels with borders

In setting up most labels, you measure from label edge to label edge to determine label height and width. Then, if you enter label text on the top line and print your label data flush left, Crystal Reports starts printing slightly below the top edge of the label and slightly to the right of the left edge of the label.

When you use labels with borders, however, the borders often appear right where the printing might begin. Thus, if you measure these labels from edge to edge, you stand a good chance of having your text begin on top of a border instead of inside the borders.

When setting up labels that have borders, you have to factor the border into your measurements. As a general rule when working with labels with borders, treat the white space inside the border as if it alone were the label.

To set up labels with borders:

1. Follow the [general instructions for creating label--type items](#).
2. When you get to Step 3 of those instructions, use the following guidelines for setting up your label in the Mailing Labels dialog box:

NOTE: These are general guidelines only. You may want to adjust the settings to fit your specific needs after you have done some trial printing.

- Set the top margin as the distance from the top edge of the page to the inside edge of the top border,
 - Set the left margin as the distance from the page edge to the inside edge of the left border,
 - Set the label width to the width of the white space between the left and right border,
 - Set the label height to the height of the white space between the top and bottom border,
 - Set the horizontal gap as the distance between the inside edge of the right border of the first label and the inside edge of the left border of the label to its right, and
 - Set the vertical gap as the distance between the inside edge of the bottom border of the first label and the inside edge of the top border of the label below it.
 - Select the Printing Direction setting that fits your needs.
3. If you are printing:
 - to tractor feed labels and the paper size is different than the standard 8 1/2 x 11 paper, complete the general instructions beginning with Step 7.
 - to labels mounted on standard 8 1/2 x 11 inch paper (not counting the carrier tractor holes), complete the general instructions beginning with Step 11

Setting up circular labels

Setting up circular labels is easy to do, but you have to exercise some care in the way you set up your data for printing:

- the shape of the label is limiting.
 - Lines of text at the top and bottom of the label cannot be as long as a line of text in the center of the label. And
- the Crystal Reports Label Editor displays only square and rectangular sample labels, so some judgment and trial printing may be necessary to place the data exactly as you want it.

To set up circular labels:

1. Follow the [general instructions for creating label--type items](#).
2. When you get to Step 3 of those instructions, use the following guidelines for setting up your label in the Mailing Labels dialog box:

NOTE: These are general guidelines only. You may want to adjust the settings to fit your specific needs after you have done some trial printing.

- Measure the distance from the top edge of the paper to the closest point on the top row of labels and enter that value as your top margin.
 - Measure the distance from the left edge of the paper to the closest point on the first column of labels, and enter that value as your left margin.
 - Measure either the vertical or horizontal diameter of a label, and enter that figure as the label width and again as the label height.
 - Measure the smallest distance between two labels across the page and enter that as your horizontal gap.
 - Measure the smallest distance between two labels down the page and enter that as your vertical gap.
 - Select the Printing Direction setting that fits your needs.
3. Select OK when you're finished setting up your label specifications, and the Label Editor appears along with the [Insert Database Field dialog box](#). The outline of a square label appears in the Label Editor. The label outline has sides that numerically match the height and width you set for your label.

NOTE: The label does not appear to be a square in the Label Editor but rather a rectangle that is taller than it is wide. This is necessary to provide room on the screen label to display borders, oversized fonts, etc. Rest assured:

- **that Crystal Reports treats the label numerically as a square,**
 - **that the number of printable lines available on the screen label is correct as if the outline displayed were an exact square, and**
 - **that the program prints the label data to the dimensions of a square.**
4. If you are using labels:
 - with a standard 8 1/2 by 11 carrier paper size (not counting tractor holes), proceed to Step 5 below.
 - with a non--standard carrier paper size (something other than 8 1/2 by 11 not counting the dot matrix tractor strips), complete Steps 10--13 of the general instructions and then proceed to Step 5 below.
 5. Using the [Insert Database Field dialog box](#), select the fields you want to include on your mailing labels and position them where you want them to appear on the labels. Use the following guidelines to help you position your data properly:
 - Using the down arrow key, count the number of lines on the label displayed in the Label Editor. You will know you're on the last line when the insertion point is just above the outline for the bottom of the label (or just above the cross--hatched non--printing area).
 - Divide the number of lines in two to get the approximate middle of your label.
 - Enter your label data using the middle of the label as a guide.
 - You can put your longest label line on the middle line.
 - As you move towards the top or the bottom of the label, make sure your data is progressively shorter than that on the middle line.
 - Be extremely careful entering data on the top or bottom line of a circular label. The shape of the label doesn't allow for much text at either of these points.

Complete Steps 12 -- 15 in the general instructions once you have selected and placed the data fields.

NOTE: For best results when working with circular labels, center the field data where practical.

Multi--column telephone book reports

In a typical report, data flows in a single stream straight down the page. In a telephone book report, however, each page is divided into columns and the data flows from column to column (down the first column, then down the second column, etc.). Data in such a report is normally organized into blocks or details (for example, all the data about a given customer: customer number, company name, address, phone number, etc.). The details flow after one another in some organized fashion (numerically, by customer number; alphabetically by customer name, etc.).

To set up this kind of report:

- activate the database(s) you want to use,
- format the report for multiple column printing,
- set up your details, and
- print the report.

Activating the database(s) you want to use

For complete instructions on activating the database(s) you want to use in your report, see [File|New Report](#).

Formatting the report for multiple column printing

You format a report for multiple column printing using the [Format|Section](#) command.

When you format the report for multiple column printing, you specify:

- the size of each detail (block of data),
- the size of the gaps that you want to appear (horizontally and vertically) between details, and
- the path you want the program to follow when printing your data.

To set up your report for multi--column printing:

1. Select [Format|Section](#). The Format Section (sections) dialog box appears.
2. Since you want your details to appear in multiple columns, highlight the Details section and Click OK to select it. The Format Section (formatting) dialog box appears.
3. Click the Format with Multiple Columns checkbox. This activates the Multi--Column Layout button.
4. Click the Multi--Column Layout button and the [Multi--Column Layout dialog box](#) appears. You use this dialog box to set up a multi--column page.
5. Enter the size of the block you want allocated for each detail. Your specifications will depend to a great degree on how many details you want to fit across and down a page.

To determine detail width:

- start with the page width (for example, 8 1/2 inches),
- subtract the right and left margins you intend to use or the non--printing default margins the program presets for your printer (for example, with half--inch margins, subtract the sum of both margins (one inch) from the page width. You now have a 7 1/2 inch wide working area.)
- subtract any gap (gutter) you want to appear between side--by--side details. (For example, if you are setting up a two column report with a half inch gap between details, subtract 1/2 inch from the working area. Your new working area is 7 inches wide.)

NOTE: Make certain you factor in the correct gap values. Remember that there is one horizontal gap on a two column report, two on a three column report, three on a four column report, etc.)

- Finally, divide your working area by the number of columns you want to appear on your report. (For example, for a two column report, divide 7 by 2 to arrive at a detail width of 3 1/2 inches.)

To determine detail height:

- As a rough rule for estimating detail height, use one sixth (.17) inch for each line in your detail. For example, if you will have four lines of data in each detail, begin with a detail height estimate of .68 inch (four lines times one--sixth inch per line). Increase the size of your per--line estimate if you intend to use large fonts (larger than 10 point), decrease the size if you intend to use small fonts (smaller than 10 point).

NOTE: These methods for estimating detail size are provided only as a starting point for

your work. You may want to put in some trial specifications, print to window and review your work, and then adjust your font size, detail size, gaps, and margins to get exactly the look you want.

Crystal Reports calculates and displays in the Number of Details box the number of complete details it can print across and down the page. Check the numbers displayed against your calculations and, if necessary, change the Detail Size, and/or the Gap Between Labels settings in the Multi--Column Layout dialog box, and/or the margin settings in the Printer Margin dialog box to get the number of details you want to print across and down the page.

6. Enter the printing direction you want the program to use. For a standard telephone book report (values flow down the first column, then down the second, etc.) use Down then Across. If you prefer to have your values flow across the columns (first record in column one, second record in column two), select Across then Down.
7. Enter the gaps you want to appear between details:
 - for the horizontal gap, enter the gap value you used in your calculation of detail width in Step 5, and
 - for the vertical gap, enter whatever value you think is appropriate. One sixth inch (.17 inches) is a good starting value if you're using 10 point fonts. You may want to use a larger gap if you're using a larger font size, a smaller gap if you're using a smaller font size.

NOTE: When you select Format with Multiple Columns, the program automatically activates the Keep Section Together checkbox. With this checkbox activated, the program automatically inserts a column break before a detail if it senses that the normal column break would split the detail data between columns. The column break moves the entire detail to the next column.

Setting up your details

Once you have set up multiple column formatting, the Report Editor appears with the Details section expanded sufficiently to display an outline of your detail. The Insert Database Field dialog box also appears. Using the outline as a guide, enter the fields you want to include on your labels.

Keep all fields within the detail outline. If a field extends beyond a detail outline, you may find the program printing where you want gaps or overprinting an adjacent detail. If a field is too big to fit inside the outline, resize the field or use a smaller font. (For information on resizing fields, see the discussion under Spacing Fields. For information on changing font size, see Format|Font.)

NOTE: The detail displayed contains as many usable lines as your detail specifications allow, based on the default font for the Details section.

NOTE: Place fields only in the outline for the first (left) detail. Crystal Reports uses that one detail as an example of how you want your details printed and it prints your data for all the details following that example. If you enter fields in the outline provided for more than one detail, you will get overprinting and other unsatisfactory results.

NOTE: If you need to adjust the detail dimensions, the gaps, or the printing direction, select Format|Section, select the Details section from the Format Section/Sections dialog box, and Click the Multi--Column Layout button in the Format Section/Formatting dialog box. This takes you to the Multi--Column Layout dialog box where you can make the changes you want.

NOTE: If you need to adjust the page margins, use the Print|Set Printer Margins command and reset the margins to your new specifications.

Bit--mapped graphics concepts

Bit--mapped graphics are the kind of graphics (pictures, logos, etc.) that are generally produced by paint programs and scanners. They are composed by the graphic designer as a pattern of tiny dots (pixels) on screen, and they are printed as a pattern of tiny dots on your report. Even though there are some limitations to what an individual can create with dots, a skilled graphics designer can nonetheless achieve some stunning effects that can add visual impact to your report.

Crystal Reports allows you to use bit--mapped graphics in your reports from a wide variety of sources:

- scanners,
- paint programs,
- video capture cards,
- screen capture programs,
- CompuServe,
- commercial graphics developers, and
- shareware and public domain graphics suppliers.

As long as the graphic is stored in one of the popular graphics formats that work with Crystal Reports, you can use it in your report.

- Most paint, scanner, screen capture, and video capture programs can save graphics in one of the compatible file formats (.bmp, .pcx, .gif, .tif, and .tga).
- Additionally, many programs (paint programs, graphics conversion programs, screen capture programs, draw programs) will allow you to import a graphic in a different format and save it in a format that is compatible with Crystal Reports.
- There are, in fact, many low cost shareware programs or free public domain programs that allow you to easily convert a bit--mapped graphic stored in one format to another.

Crystal Reports was designed for maximum graphics compatibility.

NOTE: When you select a graphic for inclusion in your report, Crystal Reports stores a copy of the graphic in the report file. Any changes you make to the graphic affect the copy; they do not alter the original.

NOTE: When you Click the right mouse button with the cursor over a graphic, a graphic options menu appears with the name and extension of the originating graphic file at the top. The file name is for information only since the graphic in your report is only a copy of the original. That copy is stored as part of the report and no longer has a separate file name. Any changes you make to the graphic affect the copy only; they do not alter the original.

Inserting, moving, and deleting graphics

Crystal Reports enables you to insert, move, and delete graphics with ease.

To insert a graphic

You can insert graphics anywhere you want them to appear on your report.

1. Select Insert|Graphic (or Click the Insert Graphic button on the button bar). The Choose Graphic File dialog box appears.
2. Select the graphic you want to enter in your report, and Click OK when finished. Crystal Reports returns you to the Report Editor, and an outline the size of the graphic appears as an aid in placement.
3. Position the outline where you want the graphic to appear and Click the left mouse button to place it. Crystal Reports displays the graphic where you placed it.

Moving a graphic

You can move a graphic in one of two ways:

- using the mouse, and
- using the dialog box.

Moving graphics using the mouse

Move a graphic with the mouse if you want to determine its final placement visually.

- To move a graphic using the mouse, Click the graphic and, keeping the left mouse button depressed, drag the graphic to the place you want it.

NOTE: You can move the graphic within its current section, or move it to a new section if you wish. The position of the upper left hand corner of the graphic (not the position of the arrow) determines the section in which the graphic will appear.

NOTE: Make sure you don't Click the graphic on the handles. If you do, you will resize the graphic when you drag it.

Moving graphics using the dialog box

Move a graphic using the dialog box if you want the graphic to appear at an absolute position on your report.

1. Select the graphic you want to move and select Format|Graphic to call up the Graphic Format dialog box. (Alternately you can Double Click the graphic to call up the dialog box or select the graphic and then select Change Format from the right mouse button menu.)
2. Click the Position button and the Graphic Position dialog box appears. This dialog box indicates the position of the graphic relative to the top left corner of its section.
 - To position the graphic even with the top left corner (the top flush against the top of the section, the left side flush against the left side of the section), enter the following settings: Top 0.00, Left 0.00.
 - To move the graphic to the right, increase the Left setting. For example, to move the graphic in two inches from the left edge of the section, enter 2.00 for the Left setting (assuming you're working in inches).
 - To move the graphic down in the section, increase the Top setting. For example, to move the graphic down two inches from the top of the section, enter 2.00 for the Top setting.

NOTE: Crystal Reports automatically resizes the section to accommodate the new graphic location.

3. Click OK when finished to return to the Graphic Format dialog box, and Click OK once there to return to the Report Editor. Your graphic will be positioned according to your specifications.

Deleting a graphic

Crystal Reports makes it easy for you to delete a graphic from your report.

To delete a graphic:

1. Select the graphic you want to delete.
2. Select Edit|Clear, press the Delete key, or select Delete Graphic from the right mouse button menu.

Sizing and scaling graphics

Size and *Scaling* are two interrelated options that appear in the Graphic Format dialog box.

- *Size* refers to the absolute length and width of a graphic. If the original graphic is one inch wide, it has an absolute width of one inch. If you double the width of the graphic it has an absolute width of two inches.
- *Scaling* refers to the length and width of a graphic as a percentage of the original length and width. If the original graphic is one inch wide, it has a width scaling value of 100%. If you double the width of the graphic, it has a width scaling value of 200%.
- When you first place a graphic, Crystal Reports presents it in its original size (the size in which it was saved).
 - When you change the size values in the Graphic Format dialog box, Crystal Reports adapts the scaling values to the new height and/or width.
 - When you change the scaling values in that dialog box, the program adapts the size values to the new height and/or width.
 - When you resize the graphic using the mouse, the program adapts the size values and the scaling values in the dialog box to the new height and/or width.

When you select a graphic for placement, Crystal Reports presents an outline that indicates the original size of the graphic (the size in which it was saved). When you place the outline, the graphic replaces the frame. You can then enlarge or reduce the size of the graphic to fit your needs. You have two options for doing this:

- using the mouse, and
- using the Format|Graphic command.

Resizing using the mouse

You can expand or reduce the size of the graphic using a mouse via the sizing handles that appear on the sides and corners of the graphic when you select it. (To select a graphic, you Click it with the left mouse button.)

The sizing handles

The sizing handles provide you with a very straightforward means of resizing your graphic:

- The handles on the right and left sides of the graphic expand or reduce the width of the graphic without affecting the height. For example, if your graphic was a square initially, it becomes a rectangle with the top and bottom becoming longer than the sides (if expanded) or shorter than the sides (if reduced). This kind of sizing results in a graphic that has different proportions than the original.
- The handles on the top and bottom of the graphic expand or reduce the height of the graphic without affecting the width. For example, if your graphic was a square initially, it becomes a rectangle with the sides becoming longer than the top and bottom (if expanded) or shorter than the top and bottom (if reduced). This kind of sizing also results in a graphic that has different proportions than the original.
- The handles on the corners of the graphic expand or reduce the height and width of the graphic equally. If your graphic was originally a square, it remains a square even though it has been resized. This kind of sizing results in a graphic that retains the same proportions as the original.

NOTE: Any time you resize a bit--mapped graphic, there may be some deterioration in quality, particularly in text and in diagonal and curved parts of the graphic. This has nothing to do with Crystal Reports; it is simply in the nature of a bit--mapped graphic. For best results, use the graphic in its original size. If you must resize, try to resize in 100% increments of the original (200%, 300%, etc.).

To resize using a mouse

1. Click the graphic to select it. Handles appear on the sides and the corners.
2. Resize the graphic by dragging on the appropriate handle.

Resizing using the Graphic Format dialog box

You can resize your graphic in two different ways using the Graphic Format dialog box:

- resize a graphic to an absolute size, and
- scale a graphic to a percentage of its original size.

Resizing to absolute size

To resize a graphic to an absolute size:

1. Click the graphic to select it and then select Format|Graphic to call up the Graphic Format dialog box. (Alternately you can Double Click the graphic to call up the dialog box or select the graphic and then select Change Format from the right mouse button menu.)
2. Enter the new height and/or width in the Size box.
3. Click OK when finished. Crystal Reports resizes your graphic to your new specifications.

To resize a graphic as a percentage of its original size

1. Click the graphic to select it and then select Format|Graphic to call up the Graphic Format dialog box. (Alternately you can Double Click the graphic to call up the dialog box or select the graphic and then select Change Format from the right mouse button menu.)
2. Enter the new scale value for the height and/or width in the Scaling box.
3. Click OK when finished. Crystal Reports resizes your graphic to your new specifications.

NOTE: When you change the Size values, the Scaling values won't change while the dialog box is open. Also, when you change the Scaling values, the Size values won't change while the dialog box is open. The changes will appear the next time you open the dialog box.

NOTE: Crystal Reports automatically resizes the appropriate report section to accommodate the resized graphic.

Selecting fields to move, format, etc.

To do many things with a field (change the font, move it, etc.), you first have to select it. Select means to point to the element with the mouse and then to Click the left mouse button to choose the element as the object of the next menu selection. For example, to change font size, you first select the element for which you want to change the font size. Then you select the Font option from the Format menu (or Change Font from the right mouse button menu) to select the new font size. The new font size applies only to the field you selected.

When you select a field, black handles appear on the field box. These handles indicate that the field is selected, and therefore active.

Selecting multiple fields at one time

To select multiple fields at one time, press the Shift key and, while keeping it depressed, Click the various fields you want to select. Handles will appear on each field selected. You can then move or delete the fields as a group. You can also change the font or formatting or add borders for all selected fields.

Selecting text (to delete, change the font, etc.)

To do many things with text (change the font, delete it, etc.), you first have to select it. Select means to highlight the text by dragging the I-beam cursor over it while holding down the left mouse button. Your next action (changing the font, selecting Edit|Cut, etc.) acts upon the text selected.

NOTE: *When text is in a text field, you select it as you would select any field.*

Changing field and text fonts

You can change fonts quickly for any field value or text string in your report using the [Font dialog box](#).

To change fonts for a field value

1. Select the field(s) for which you want to change the font.
 - To select a single field, Click the field.
 - To select multiple fields, hold the Shift key down while you Click the fields. Handles appear on the selected field(s).
2. Select Format|Font or Click the right mouse button and select Change Font from the pop--up menu. The Font dialog box appears.
3. Make the font, style, size, color, and/or effects changes you want and Click OK when finished.

To change fonts for a text string

1. With the left mouse button depressed, drag the I--beam cursor over the text of interest to select it.
2. Select Format|Font or Click the right mouse button and select Change Font from the pop--up menu. The Font dialog box appears.
3. Make the font, style, size, color, and/or effects changes you want and Click OK when finished.

Highlighting fields with borders and drop shadows

Crystal Reports makes it easy for you to highlight your data with borders and drop shadows, and color.

To create borders, drop shadows, and add field color

1. Select the field(s) you want to highlight.
 - To select a single field, Click the field.
 - To select multiple fields, hold the Shift key down while you Click the fields. Handles appear on the selected field(s).
2. Select Format|Border and Colors or Click the right mouse button and select Change Border and Colors from the pop--up menu. The Format Border and Colors dialog box appears.
3. Set up the text color, fill (field color), border, and drop shadow you want.
4. Click OK when finished to return to the Report Editor. The selected fields will be highlighted to your specifications.

NOTE: If you selected multiple fields, the same highlights will be applied to all fields. If you want to highlight different fields differently, you must select and highlight each unique field individually.

Summarizing grouped data

Sometimes you may want to go beyond mere grouping of data. You may want to first group the data and then evaluate or perform calculations on the data in each group. You may want to sum, average, or count the values, calculate the variance or standard deviation of the values, or determine the highest (maximum) or lowest (minimum) value in each group.

- You can sum the data using the Insert|Subtotal command.
- You can sum, average, count, calculate the variance or standard deviation, or determine the maximum or minimum values using the Insert|Summary commands.

NOTE: Not all summary options are available for every data type. For example, you can't sum or average string fields.

How to group and summarize grouped data

1. Select the field you want to group. For example:
 - if you want to group a customer list by state and then count the number of values in each group, select the field that contains the company name, or
 - if you want to group an orders report by customer and then determine the average sized order for each customer, select the field that contains the order amount.
2. Select Insert|Summary. The Insert Summary dialog box appears.
3. In the top scroll box, select the action you want to take on the grouped data. For example:
 - if you want to count the number of values in each group, select Count, or
 - if you want to average the values in each group, select Average.
4. In the next scroll box, select the field that you want to trigger a grouping, whenever its value changes. For example:
 - if you want to group a customer list by state, select the state field, or
 - if you want to group an orders report by customer, select the field that contains the customer name or customer number.
5. In the next scroll box select the sort direction (ascending = A to Z, 0 to 9, descending = Z to A, 9 to 0).
6. If you selected a date or Boolean field in the top scroll box, a third scroll box appears near the bottom of the dialog box. In this scroll box, select the date condition or Boolean condition that finalizes your summary specification.
7. Select OK when finished. Crystal Reports sorts the data, and then groups and summarizes it to your specifications.

How to group and summarize using nesting groups

1. Select the field you want to group. For example:
 - bmc bullet.bmp} if you want to group and count a customer list by state and then, within each state group, group and count the list by city, select the field that contains the company name, or
 - bmc bullet.bmp} if you want to group and sum an orders report by customer and then, within each customer group, group and sum the list by date, select the field that contains the order amount.
2. Select Insert|Summary. The Insert Summary dialog box appears.
3. In the top scroll box, select the action you want to take on the grouped data. For example:
 - bmc bullet.bmp} if you want to count the number of values in each group, select Count, or
 - bmc bullet.bmp} if you want to average the values in each group, select Average.
4. In the next scroll box, select the field that you want to trigger a grouping, whenever its value changes. For example:
 - bmc bullet.bmp} if you want to group a customer list by state, select the state field, or
 - bmc bullet.bmp} if you want to group an orders report by customer, select the field that contains the customer name or customer number.
5. In the next scroll box select the sort direction (ascending = A to Z, 0 to 9, descending = Z to A, 9 to 0).
6. If you selected a date or Boolean field in the top scroll box, a third scroll box appears near the bottom of the dialog box. In this scroll box, select the date or Boolean condition that finalizes your summary

specification.

7. Select OK when finished. Crystal Reports groups and summarizes the data to your specifications.

8. Select the same field you selected in Step 1.

9. Select Insert|Summary. The Insert Summary dialog box appears.

10. Select the action you want to take on the grouped data.

11. This time select the field you want to trigger the second group (the group within the group) whenever its value changes. For example:

- if you want to group and count a customer list by state and then by city, select the city field, or
- if you want to group and sum an orders report by customer and then by date, select the date field.

12. Select the sort direction (ascending = A to Z, 0 to 9, descending = Z to A, 9 to 0).

13. Select OK when finished. Crystal Reports groups and summarizes the data to your specifications.

14. Repeat Steps 8 to 13 for each additional group you want to set up.

NOTE: Group values (subtotals, summaries) and grand totals are automatically formatted to match as closely as possible the formatting of the field they are summarizing.

Logging onto a SQL server

Crystal Reports provides two ways of logging on to a SQL server:

- logging on as part of the report creation process, and
- logging on outside the report creation process.

Logging on while creating a report

You can log onto a SQL server as part of the process of activating a SQL table for use in a report.

Whenever you select [File|New Report](#), [File|New Mailing Labels Report](#), or [Database|Add File to Report](#), the [Choose Database File dialog box](#) appears. You can use this dialog box to select a non--SQL database file for use in your report, but you can also use it as a gateway for logging on to a SQL server and activating a SQL database and table for use in your report.

To activate a SQL database/table during the report creation process

1. To begin the report creation process, do one of the following:
 - if you want to select the first SQL table for use in a report (and no other non--SQL databases or tables are active), select [File|New Report](#).
 - if you want to select the first SQL table for use in a mailing labels report (and no other non--SQL databases or tables are active), select [File|New Mailing Labels Report](#).
 - if you want to select the first SQL table for use in a report (and other non--SQL databases are already active), select [Database|Add File to Report](#). The [Choose Database File dialog box](#) appears.
2. Click the SQL Server button. The [Log On to Server dialog box](#) appears listing the various SQL server types available on your system. Select the server type that you want to log on to and Click OK when finished.
3. A dialog box appears requesting server--specific login information. You use this dialog box to identify yourself and to specify the database you want to activate.

NOTE: If you want to activate multiple databases from the same server, you will need to log on to the server each time you want to activate a database.

Some of the following items will be in the dialog box (depending on the server type requested).

SQL Server

Enter the name of the SQL server you want to log on to.

Database

Enter the name of the database you want to activate in the specified SQL server.

User ID

Enter the name you use to log on to the specified server.

Password

Enter the password you use to log on to the specified server.

Dict Path

When using Netware SQL, enter the path for the data dictionary (.ddf) files.

Data Path

When using Netware SQL, enter the path for the data files.

Enter the requested login information and Click OK when finished. Crystal Reports logs you onto the specified server and takes you to the [Choose SQL Table dialog box](#).

4. The [Choose SQL Table dialog box](#) works in a similar manner to the [Choose Database File dialog box](#). You use the [Choose SQL Table dialog box](#) to select the table you want to activate for use in your report.

Dialog box options

The dialog box contains three smaller boxes and two buttons (in addition to the OK, Cancel, and Help buttons).

SQL Tables box

The SQL Tables box lists all of the tables in the active database. Select the table you want to include

in your report.

SQL Databases box

The SQL Databases box lists all of the databases you have activated. Select the database that contains the table you want to use in your report.

Server Info box

The Server Info box identifies the active server, the active database, and the user who activated them.

Log On Server button

The Log On Server button returns you to the Log On To Server dialog box. You can use this button when you want to activate another database. When you return to the Log On To Server dialog box, select the server type and Click OK, and then enter the name of the database you want to activate and the other requested login information in the server login dialog box when it appears.

Database File button

The Database File button takes you to the Choose Database File dialog box. Once in that dialog box you can activate non--SQL databases for use in your report.

Logging on outside the report creation process

You can log onto a SQL server using the Database|Log On Database Server command when you first call up Crystal Reports (or at any other time while using the program). The Log On Database Server command was created for those times you want to log onto a SQL server to have the server and database activated and standing by for later use in a report. For example, if you want to review or revise an existing report and then create a new report using a SQL table, you might log on to the SQL server and activate a database when you first call up Crystal Reports. Then, when you're finished revising the existing report, you can select a SQL table from the active server/database and create your new report.

To log on, use the Database|Log On Database Server command.

Activating a second table (and additional tables) from a SQL database

When you have already activated one table in a SQL database and you want to activate an additional table from that database, use the following procedure:

1. Select Database|Add File to Report. The Choose SQL Table dialog box appears.
2. Select the table you want to activate and Click OK when finished. The Define Link dialog box appears.

The dialog box is similar to the Define Link dialog box used with non--SQL databases with the following exceptions:

- There is no Using index box. In its place is a Using field(s) box that lists all the fields in the selected table. You create your link by selecting a link field in the Link from File table and a corresponding link field in the To file table.
 - A joins scroll box appears below the Link Fields box. You use this scroll box to specify the kind of join you want the program to make. Since different SQL servers offer different join options, the options that appear in the scroll list will vary from server to server. For an explanation of each of the join options that appear on your list, please see the manual that came with your SQL server.
3. Link your tables using the Define Link dialog box. The File Links dialog box appears. Review your links.
 - If they are not satisfactory, Click the Update button and make your changes in the Define Links dialog box when it reappears. Then Click OK to return to the File Links dialog box.
 - Once your links are satisfactory, Click OK and the program returns you to the Report Editor. The program activates the selected database and returns you to the Report Editor.
 4. Repeat Steps 1--3 for each additional table you want to activate from the active SQL database.

NOTE: If you have logged on to a SQL database and you want to activate a new table but from a different SQL database, Click the Log On Server button in the Choose SQL Table dialog box. This returns you to the Log On To Server dialog box where you can select the server type for the next database you want to activate.

Runtime File Requirements

As a registered user of Crystal Reports, you are allowed to distribute a runtime version of the Crystal Reports print engine with your Visual Basic applications at no charge. The following is an overview of runtime requirements. All of the files listed below have been installed in the \VB\REPORT directory, or the directory you indicated, upon installation of Visual Basic.

For all applications

The following files must be included on a distribution disk, regardless of the application it accompanies:

CRPE.DLL

Interface to the print engine

COMMDLG.DLL

Help with printer selection, etc.

PDIRJET.DLL

Crystal Access Engine DLL

PDBJET.DLL

Crystal Access Engine DLL

MSAJE110.DLL

Microsoft Access Engine DLL

MSAES110.DLL

Microsoft Access Engine DLL

MSABC110.DLL

Microsoft Access Engine DLL

CTL3D.DLL

Microsoft Access Engine DLL

VB.INI

Visual Basic initialization file

CRXLATE.DLL*

* You need to include this file only if you are going to use the ToWords(x) or ToWords(x, # places) functions in your reports.

Database--specific requirements

The following files are necessary for their respective databases. If your application will not be reporting on one or more of these databases, then you need not include the files for the databases that will not be used:

ODBC specific requirements

Include the following files if your application will be reporting on databases through ODBC:

PDSODBC.DLL

Crystal ODBC DLL

ODBC.DLL

Microsoft ODBC DLL

ODBCINST.DLL

Microsoft ODBC DLL

SQLSRVR.DLL

SQL Server through ODBC DLL

SQLSETUP.DLL

SQL Server through ODBC DLL

ODBC.INI

ODBC initialization file

ODBCINST.INI

SQL through ODBC initialization file

Paradox specific requirements

Include the following file if your application will be reporting on Paradox database(s)

PDX110.DLL

Paradox DLL

dBASE specific requirements

Include the following file if your application will be reporting on dBASE database(s)

XBS110.DLL

dBASE DLL

Btrieve specific requirements

Include the following file if your application will be reporting on Btrieve database(s)

BTRV110.DLL

Btrieve DLL

NOTE: Please check the manual for your development tools to see if there are additional tool--specific requirements.

NOTE: Again, if you are only using one type of database then you only have to include the database DLL's for that database.

Where to install the various files

CRPE files

All of the print engine files should be placed in the same directory. It is required that you place these CRPE and database DLL files someplace where Windows can find them. When Windows tries to load the CRPE.DLL it will look first in the current directory, then in the Windows directory, then in the Windows system directory, and finally in the path.

Report files

The location you select for report files should be the same as you have specified for your ReportFileName property.

Database files

We recommend that you set the database location to be "Same as Report". This will tell the CRPE print engine to look in the same directory as the report file for the database files. Again, if it does not find the database files in this directory, CRPE will look for the database files in the current directory, then in the Windows directory, then in the Windows system directory, and finally in the path.

Error Messages & Formula Compiler Warnings

A) is missing.

Parentheses must be used in pairs; each opening parenthesis must be matched with a closing parenthesis. One of your opening parentheses is not matched by a closing parenthesis. Insert the missing parenthesis and recheck.

A] is missing.

Brackets must be used in pairs; each opening bracket must be matched with a closing bracket. One of your opening brackets is not matched by a closing bracket. Insert the missing bracket and recheck.

A boolean range variable is not allowed.

You have entered a Boolean range variable. Range variables are allowed in all data types other than Boolean. Either change the data type to something other than Boolean, or enter a Boolean item variable to replace the Boolean range variable.

Access denied.

DOS will not allow access to a file specified. Make certain the file is not in use by another program (or another user on a network), and/or make certain you have the right network permissions and try again.

A day number must be between 1 and the number of days in the month.

You have entered a day number that doesn't fit the month. The Formula Checker displays this warning if, for the month of January, for example, you enter a day number of zero (0) or a number 32 or greater. Change the day number to fit the month and recheck.

A field is required here.

You have entered something in your formula other than a field at a position where a field is expected. Correct the problem and recheck.

A formula cannot refer to itself, either directly or indirectly.

You cannot enter a formula that refers to itself. For example, in creating the formula @Profit, you cannot use @Profit as the argument to a function. Remove the reference and recheck.

A function is required here.

The Formula Editor is expecting a function but none was entered. Review your formula and enter the required function or correct the formula if it is in error.

A memo field cannot be used in a formula.

You have picked a memo field for use in a formula. Crystal Reports does not allow the use of memo fields in formulas. Remove the memo field from the formula and try again.

A month number must be between 1 and 12.

You have entered a month number that falls outside the allowable range. Enter a month number between 1 and 12 and recheck.

A string can be at most 254 characters long.

Crystal Reports allows strings in formulas to be up to 254 characters long. You have entered a string that exceeds that limit. Reduce the length of the string (or break it into 2 or more concatenated strings) and recheck.

A subscript must be between 1 and the length of the string.

You have entered a subscript number that specifies a character that doesn't exist. If you enter a subscript that references the 6th or the 8th character in a five character string, for example, you will get this warning. Change the subscript to a value that exists and recheck.

A subscript must be between 1 and the size of the array.

You have entered a subscript that specifies an array item that doesn't exist. If you enter a subscript that references the 6th or 8th item in a five item array, for example, you will get this warning. Change

the subscript to a value that exists and recheck.

All network licenses are in use. You will be able to run Crystal Reports when a user leaves the program. To increase the number of licensed copies of Crystal Reports on your network, contact Crystal Services at (604) 681--3435 and ask about Network LanPaks.

Your current license specifies the maximum number of users that can use Crystal Reports on a network at any given time. The maximum number of users are currently using the program. You can increase the number of users allowed on the system at a given time by purchasing additional Network LanPaks through Crystal Services.

A subtotal condition is not allowed here.

You have entered a subtotal condition for a subtotal that uses something other than a date or Boolean field as the sort and group by field. Your subtotal does not require a condition. Delete the condition and continue.

A subtotal condition must be a string.

You have entered a subtotal condition that is not in string format. Make certain when you enter the condition in the formula that it is surrounded by single or double quotation marks.

A variable cannot be redeclared with a different type.

You have declared a variable with the same name but a different data type than a variable already declared. This is not allowed. Either change the name of the variable or change the data type so it conforms with the original data type.

A variable is required here.

You have used the assignment operator (=:) in a formula without preceding it with a variable. The program expects to see a variable immediately before (to the left of) the assignment operator. Enter a variable and try again.

A variable name is expected here.

You have declared a variable data type without declaring a variable name. You must enter a variable name to complete the declaration. Enter the variable name and continue.

Dates must be between year 1 and year 9999.

You have entered a date that falls outside the allowable range. Enter a date that falls within the range of years 1 to 9999 (including the end values), and then recheck.

Cannot allocate memory

This message typically indicates that there is not enough memory available. Close any reports that are not needed, and exit any programs that are not essential. Then try again.

Cannot reallocate memory

This message typically indicates that there is not enough memory available. Close any reports that are not needed, and exit any programs that are not essential. Then try again.

Disk full

You have attempted to save a report to a disk that is full. Either save to a different disk, or delete unnecessary files from the current disk and try again.

Division by zero.

You have entered a formula that attempts a division by zero. Crystal Reports does not allow such a division. Edit the formula so it does not attempt to divide by zero, and then recheck.

If you want to avoid this type of problem, you can use a test such as this:

```
if {file.forecast} = 0 then
  0
else
  {file.sales} / {file.forecast}
```

Error in formula code. Please contact Crystal Services.

There is something unusual about the formula that was not foreseen. Please save the formula text that produced this warning and contact the company.

Error in parse tree. Please contact Crystal Services.

In parsing your formula, the program encountered a situation that the parse tree could not process. Please save the formula text that produced this warning and contact the Company.

Field still in use.

The field you are requesting is currently in use. Try again once the field becomes available.

File name already in use. Please close the window for xxx before saving under this name.

You have tried to save a file under the name of a file already in use in an open report. Close that report first, and then try again.

File not found.

The file name you specified cannot be found. Either the filename or the path is incorrect. Enter the correct filename/path and try again.

File permission error

You have requested a file for which you don't have permission. You must gain the necessary permission before you can activate the file.

Incorrect Borland Custom Control DLL (BWCC.DLL) installed. Version m.n or higher required.

Crystal Reports is finding and using a version of BWCC.DLL that is too old for proper program operation. Here's how this can happen:

- BWCC.DLL is installed in the CRW directory (the same directory in which CRW.EXE resides) during program installation.
- The CRW directory is added to the end of the path statement in AUTOEXEC.BAT during installation (if you allowed the installation program to update the path statement).
- If an older version of BWCC.DLL has been installed in the Windows directory, the Windows System directory, or a directory that appears earlier in the path than the CRW directory (the result of an earlier installation), Crystal Reports picks up that version, not the newer version in the CRW directory.

To correct this problem

The correct version of BWCC.DLL is shipped with Crystal Reports. To correct the problem, delete older versions of BWCC.DLL that reside in directories earlier in the path than CRW.

If this doesn't solve the problem, move the latest version of BWCC.DLL from the CRW directory to the Window's directory.

Insufficient memory available

There is not enough memory available to do what you want the program to do. Free up memory and try again.

Invalid DOS version.

You are using a version of DOS earlier than Version 3.0. Install DOS Version 3.0 or higher and try again.

Invalid file handle.

You have specified a file handle that does not exist. Enter the correct file handle and continue.

No default printer selected.

Please use the Control Panel to select a printer and start Crystal Reports again.

You cannot begin using Crystal Reports unless you have a default printer selected. Trying to start the program without a default printer results in this error message.

To select a default printer:

Select the Printers icon in the Windows Control Panel; the Printers dialog box appears with all installed printers listed in the Installed Printers box.

If you haven't yet installed the printer, install it first, and then Double Click its listing.

NOTE: A printer must first be given the status Active before it can be selected as the default printer.

NOTE: For additional information in installing printers and default printers, please refer to the documentation that came with Microsoft Windows.

Not enough arguments have been given to this function.

The function requires more arguments than you have entered. Enter the missing argument(s) and recheck.

Not enough memory

There is not enough memory available to process the command. Close any reports that are not needed, and exit any programs that are not essential. Then try again.

Numeric overflow.

An intermediate result or the final result cannot be represented because it is too big. Restructure or subdivide the formula to create smaller results, and then recheck.

Physical database not found.

The program is unable to locate either a DLL or the database. Check to make certain that the directories that hold these files are listed in the path statement.

Printer not available.

Crystal Reports is having difficulty connecting with the selected printer. Reselect the printer through the Windows Control Panel and try again.

Report file already exists.

Overwrite *sample.rpt*?

You are attempting to save a report under the same name as an existing report. This will overwrite the existing report and make it no longer available. Select Yes to overwrite the report, No to stop the saving process to give you a chance to select a different name.

Report has changed.

Save changes to *sample.rpt* before closing?

You are attempting to close a report window without first saving it, even though you have made changes to the report since you opened it. The changes will be lost unless you save the report before closing. Select Yes to save the changes, No to close the report without saving the changes.

Sorry, this feature is not yet implemented. Try again later.

You have attempted to use a Crystal Reports feature which has not been implemented in the current release. Wait till an upgrade that implements the feature and try again.

The formula cannot be evaluated at the time specified.

This field cannot be used because it must be evaluated later.

This formula cannot be used because it must be evaluated later.

This function cannot be used because it must be evaluated later.

You are trying to force a field, formula, or function to be evaluated earlier than is possible. Evaluation time functions can only force a later evaluation time, never an earlier one. Change the formula to accommodate the required evaluation time.

The formula is too complex. Try simplifying it.

The formula could not be evaluated because it exceeds the limit of 50 pending operations. Pending operations are operations that are on hold due to order of precedence rules; they will be performed once the operations with higher level precedence are finished.

Sometimes it is possible to rearrange the formula and calculate the same value without requiring as

many pending operations. As a very simplified example, in the formula $2+3*4$, the addition cannot be performed until the multiplication has been done. The addition thus becomes pending, on hold until the multiplication is complete. If the formula is written as $3*4+2$ instead, the operations can be performed left-to-right with the same result, thus eliminating the pending operation.

Correct the formula and recheck.

The matching } for this field name is missing.

Field names must be enclosed in braces { }. You have entered one of the required braces but not the other. Insert the missing brace and recheck.

The matching ' for this string is missing.

A string that begins with a ' must end with a ' before the end of the line. You have used the ' in one of those positions but not the other. Insert the missing punctuation and recheck.

The matching for this string is missing.

A string that begins with a must end with a before the end of the line. You have used the ' in one of those positions but not the other. Insert the missing punctuation and recheck.

The number of copies of the string is too large or not an integer.

Using the ReplicateString function, you have requested too many copies or you are requesting a non-integer number of copies. Lower the number of copies requested or specify an integer number of copies and try again.

The number of days is too large or not an integer.

When adding days to dates, or subtracting days from dates, you can use only an integer number of days (a whole number); you cannot add or subtract non-integer numbers of days (1/2 days, 3.6 days, etc.). Additionally, once you add or subtract days from a date, the resulting date must fall within the allowable (year) date range, 0000--9999. If you enter a non-integer number of days or if your result falls outside the allowable range, the Formula Editor displays this warning. Correct the problem and recheck.

The number of decimal places is too large or not an integer.

The second argument to the Round(x, # places) or ToText(x, # places) functions must be a small integer (whole number). You have entered a number as the second argument (# places) that specifies too many decimal places or that is not an integer. Change the number to a small integer and recheck.

The record selection formula cannot include 'PageNumber', 'RecordNumber', 'GroupNumber', 'Previous', or 'Next'.

You cannot include PageNumber, RecordNumber, GroupNumber, Previous, or Next fields in record selection formulas. Eliminate the field(s) and recheck.

The record selection formula cannot include a summary field.

You have included a summary field in a record selection formula. Crystal Reports does not allow this. Remove the summary field and recheck.

The remaining text does not appear to be part of the formula.

You have provided a formula operand (the item on which a formula operation is to be performed) where none is expected. Often this means that you have forgotten an operator, or an earlier part of a function, or some required syntax item. Correct the error and then recheck.

The result of a formula cannot be a range.

You have created a formula that results in a range. A formula must result in a single value. Correct the formula and recheck.

The result of a formula cannot be an array.

You have created a formula that results in an array. A formula must result in a single value. Correct the formula and recheck.

The result of the selection formula must be a boolean.

You have created a selection formula that returns something other than a Boolean value. Reconstruct the formula using comparison operators (=, <, etc.) and recheck.

The string is non-numeric.

The argument to the ToNumber function must be a number stored as a string (for example, a customer number, an I.D. number, etc.). The string may be preceded by a minus sign and may contain leading and trailing blanks. You have used an argument that is non-numeric and therefore cannot be converted to a number. Change the argument to numeric and recheck.

The variable could not be created.

The variable you declared couldn't be created. Check the spelling and syntax of your declaration statement and try again.

The word 'else' is missing.

In an if-then-else expression, you have left out (or mis-placed) the 'else' component and the formula will not function. Insert (or reposition) the 'else' component and recheck.

The word 'then' is missing.

In an if-then-else expression, you have left out (or mis-placed) the 'then' component and the formula will not function. Insert (or reposition) the 'then' component and recheck.

There are too many characters in this field name

A field name may have at most 254 characters. You have entered a field name that exceeds that number. Enter a field name that has an allowable number of characters and try again.

There are too many characters in this string.

Crystal Reports allows strings in formulas to be up to 200 characters long. You have entered a string that exceeds that limit. Reduce the length of the string (or break it into 2 or more concatenated strings) and recheck.

There are too many digits in this number.

Crystal Reports allows numbers in formulas to have up to 25 digits before the decimal point. You have entered a number that exceeds that limit. Reduce the size of the number (or break it into 2 or more smaller numbers) and recheck.

There are too many letters and digits in this name.

A variable name can have at most 254 characters. You have entered a name that exceeds that number. Shorten the name to conform to the limit and continue.

There is an error in this formula. Please edit it for more details.

You have tried to accept a formula (via the Accept button in the Formula Editor) that contains an uncorrected error. Correct the error that was indicated and try again.

There must be a subtotal section that matches this field.

You have entered a subtotal in a formula without there being a corresponding subtotal in the report itself. Any subtotal you enter in a formula must duplicate a subtotal already in your report. Add the required subtotal to the report and then re-enter the formula, or delete the formula, and then recheck.

The special variable field could not be created.

This message typically indicates that there is not enough memory available. Close any reports that are not needed, and exit any programs that are not essential. Then try again.

The summary field could not be created.

This message typically indicates that there is not enough memory available. Close any reports that are not needed, and exit any programs that are not essential. Then try again.

This field cannot be summarized.

You have entered a summary field that does not already exist in your report. Any summary field you enter in a formula must duplicate a summary field already in your report. Either enter the summary

field in your report first and then re--enter it in the formula, or don't enter the summary field in the formula at all.

This field cannot be used as a subtotal condition field.

The field you are entering as a condition field causes the subtotal in the formula not to match any subtotal in the report. Any subtotal you enter in a formula must duplicate a subtotal already in your report. Either enter the subtotal in your report first and then re--enter it in the formula, or don't enter the subtotal in the formula at all.

This field has no previous or next value.

You have used a field for which there is no previous value as the argument for the Previous or PreviousIsNull function, or you have used a field for which there is no next value as the argument for the Next or NextIsNull function. If you want to use either of those functions, replace the argument with a field that contains the appropriate values.

This field must be in the same section as the current formula.

Since the field was put into the formula as an operand, it has been moved to a section where it is no longer a valid operand.

This field name is not known.

You have entered a field name that does not appear in any of the active databases. Correct the spelling of the field name and/or its alias, and then recheck. Or, if you want to enter a field name from a database that is not currently active, activate the database first and then re--enter the field name.

This group section cannot be printed because its condition field is non--existent or invalid.

Your report contains a group section that is based on a condition field that is either no longer in the report or changed so it is invalid for the group section. Review your grouping criteria to identify and correct the source of the problem.

This array must be subscripted. For example: Array [i].

You have entered an array without enclosing it in brackets. Enclose the array in brackets and recheck.

This subtotal condition is not known.

You have entered a subtotal condition that does not appear anywhere in your report. Any subtotal you enter in a formula must duplicate a subtotal already in your report. Change the condition and recheck.

Too many arguments have been given to this function.

You have entered an array as the argument to a non--array function. This kind of problem can occur, for example, if you forget to use brackets (the required syntax items for an array) to enclose an array. The Formula Checker sees the array values as arguments to a non--array function and displays the error message.

Too many items have been given for this array.

Crystal Reports allows up to 50 values in an array. You have exceeded this limit. Reduce the number of values in the array and recheck.

Too many open files.

You have too many open files (databases, reports) given the number of files you specified in the CONFIG.SYS FILES = statement. To prevent this error from recurring, either use fewer files or increase the number of files specified in the FILES = statement.

Missing or incorrect operand warnings

The following warnings appear when the Formula Checker expects to find a specific kind of operand (the item on which a formula operation is to be performed), and finds something different. For example, the formula 5>a is comparing a number to text (the old comparing apples to oranges analogy). When the Formula Checker sees that the number five is being compared to something, it expects that something to be another number. If anything other than a number appears, it displays the warning: *A number is required here.*

A Boolean array is required here.

A Boolean is required here.

A currency amount is required here.

A currency array is required here.

A currency range is required here.

A date array is required here.

A date is required here.

A date range is required here.

A number array is required here.

A number array or currency array is required here.

A number, currency amount, boolean value, or string is expected here.

A number, currency amount, Boolean, date, or string is required here.

A number, currency amount, date, or string is required here.

A number, currency amount, or date is required here.

A number field or currency amount field is required here.

A number is required here.

A number or currency amount is required here.

A number range is required here.

A string array is required here.

A string is required here.

A string or an array of values is required here.

An array of values is required here.

Formulas in Action Index

The following is a listing of complex formulas created to illustrate the use of various operators and functions. Each formula topic includes:

- a report scenario that describes a real-world reporting need,
- a formula that fills the need described in the scenario, and
- a dissection of the formula so you can understand the role of each of the functions and operators.

The names of the operators and functions used in the formula follow each numbered formula topic. Select your choice from the list below to review the formula.

Formula 1 (sales management, determining reps closest to hitting quota)

Abs(x), (--) Subtract, (/) Divide, (*) Multiply, ToText, Concatenate (+)

Formula 2 (form letter/extracting first purchase date from customer number, used date to calculate # of years as customer, and use result to customize letter)

If-then-else, Subscript [], Less Than (<), Concatenate (+), Make range (to), ToNumber, Subtract (--), ToText, Parentheses

Formula 3 (inventory analysis based on extracting inventory data from codes imbedded in item numbers)

Concatenate, ToText, ToNumber, Multiply(*), Make Range, Subscript, Parentheses ()

Formula 4 (sales compensation, calculating commissions, flag commissions that exceed certain amount)

Nested formulas, if-then-else, (--) Subtract, (*) Multiply, (>) Greater than, (>=) Greater than or equal, Sum, Parentheses

Formula 5 (form letter, soliciting orders against available credit line)

Nested formulas, If-then-else, Subtract (--), Not equal to (<>), Less than (<), Concatenate (+), ToText, To dollar (\$), Negate (--()), Parentheses

Formula 6 (calculating one value as percent of another, flag percentages outside range, disregard statistically insignificant percentages)

if-then-else, Greater than (>), Percentage (%), Greater than or equal (>=), Logical Operator And, Logical Operator Or, Parentheses

Formula 7 (sales compensation, selecting fixed bonus or calculated commission, whichever is higher)

If-then-else, Subtract (--), Greater than (>), Maximum, Multiply (*), Parentheses

Formula 8 (purchasing, determining quantity to order based on average sales during rolling quarter)

If-then-else, Less than (<), Negate (--), Add (+), Round, Average([array]), Parentheses

Formula 9 (retail, calculating mail order sales tax based on customer ZIP or Postal code)

Nested if-then-else expressions, NumericText, Subscript, Make Range, Equal to (=), ToNumber, In Range, Parentheses

Formula 10 (staff scheduling, flagging weekend incoming calls)

If-then-else, Not, DayOfWeek, Make range (to), In range (in), Parentheses ()

Formula 11 (calculating a contribution based on face value of invoice, and then selecting calculated value or agreed upon minimum)

If--then--else, Subscript [], Not equal to (<>), Maximum([array]), Multiply (*), Parentheses

Formula 12 (determining monthly compensation based on percent of dollars saved, and comparing result to negotiated maximum)

If--then--else, Average([array]), Subtract (--), Greater than (>), Minimum([array]), Multiply (*), Parentheses

Formula 13 (converting one unit of measure to another)

ToText, Truncate, Division (/), Concatenate (+), Remainder

Formula 14 (customer service, determining and identifying warranty plan based on length of product serial number)

If--then--else, Length, TrimLeft, Less than or equal (<+), Parentheses ()

Formula 15 (form letter, personalizing salutation based on degree and sex of recipient)

Nested if--then--else operators, Not equal (<>), Logical operator (and), Equal (=), Concatenate (+), Parentheses

Formula 16 (shipping, calculating discounted value of shipment and adding calculated freight charge to orders that don't meet "free freight" criteria)

If--then--else, Add (+), Less than (<), Multiply (*)

Formula 17 (form letter, splitting a mailing list in half and sending a different offer to each half of the list)

If--then--else, Remainder, ToNumber, Equal, Parentheses

Formulas in action

A formula is a symbolic statement of the manipulations you want performed on certain data before it is printed on your report.

Formulas are used:

- to calculate information you can't obtain directly from database data fields,
- to compare data,
- to join text with data,
- to convert data from one form to another,
- to enhance the formatting options with text strings, and
- to do a number of other things to customize your reports.

The formulas in the pages that follow have been developed to demonstrate the use of multiple functions and operators in coordination with one another. The formulas have been created to illustrate concepts; they do not represent the only way, or necessarily the best way, to achieve the desired effects.

Formula 1

Functions/Operators Used:

Abs(x), (--), (/) Divide, (*) Multiply, ToText, Concatenate

Formula Purpose

As a sales manager with a large sales force, you want to identify those sales reps who are the most consistent performers with regard to quota. You want to find those who come closest to hitting quota, regardless of whether they are slightly over or slightly under. It doesn't matter whether the variation is over or under quota; all that matters is the percent of variation from the mark.

Formula

`ToText(abs({file.quota}-{file.sales})/{file.quota} * 100) + "%"`

Result

Sales	Quota	Quota -- Sales	% Variation
8,000	10,000	2000	20%
11,000	10,000	1000--	10%

Explanation

- The formula uses the Subtract operator to subtract *{file.sales}* from *{file.quota}*. This gives the dollar variation from *{file.quota}* (+ or --).
- The Abs(x) function converts the dollar variation to an absolute number, ignoring any + or -- signs.
- It then uses the Divide operator to divide that result by *{file.quota}*. This gives the variation expressed as a decimal fraction.
- The formula then uses the Multiply operator to multiply the result by 100 in order to calculate the final result in the form of a percentage.
- ToText is used to convert the calculated percent to text that can then be joined with other text.
- The Concatenate operator is used to join the percentage, once converted to text, to the percent sign character.

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Formula 2

Operators/Functions Used

If--then--else, Subscript [], Less Than (<), Concatenate (+), Make range (to), ToNumber, Subtract (--), ToText, Parentheses

Formula Purpose

You have the date of first purchase coded as the fourth and fifth characters of the customer number (for example, 1971 as the 71 in ABC7101234 , 1988 coded as the 88 in ABC880544, etc.) and you want to customize a letter to thank customers for the number of years they've done business with you. You want the following sentence to appear in your letter:

"You have been a valued customer for" [x] "years."«where x is the number of years. »

Formula

```
if{file.Customer number}[4 to 5] < "90" then
    "You have been a valued customer for " + ToText(91 -- ToNumber({file.Customer number}[4 to 5]))
    + " years."
else
    "You are one of our newer customers, and we want you to know how valuable you are to us."
```

Result

Customer #	Resulting Sentence
ABC7801234	"You have been a valued customer for 13 years."
ABD890337	"You have been a valued customer for 2 years."
ABD904331	"You are one of our newer customers, and we want you to know how valuable you are to us."

Explanation

- The If--then--else expression says, "If the 4th and 5th elements of the customer number, expressed as numbers, are less than 90, print a sentence including the date of first purchase, otherwise print the 'newer customer' sentence."
- The formula above uses the Subscript [] operator to extract the 4th and 5th characters (your date code) from the customer numbers which are stored as text in character fields. The Make Range operator (to) is used to establish the range 4 to 5.
 - In the first example (ABC7801234) the 4th and 5th digits are 78 representing the year of first purchase as 1978.
 - In the second example (ABD890337), the 4th and 5th digits are 89 representing the year of first purchase as 1989.
 - If the extracted characters are less than "90" (*then*), Crystal Reports prints a concatenated text string (a sentence) that is customized to indicate the number of years the individual has been a customer. The text string says, "You have been a valued customer for (*calculated number, expressed as text*) years."
- The calculation of the number of years as a customer involves several steps:
 - As was done earlier, the Subscript [] operator extracts the 4th and 5th characters (your date code) from the customer numbers which are stored as text in character fields. The Make Range operator (to) is used to establish the range 4 to 5.
 - ToNumber converts the extracted date code to a number so it can be used in the calculation 91--x «where x = the date code expressed as a number».
 - 91--x subtracts the year of first purchase from 91 (the current year) to get the number of years the individual has been a customer.
 - ToText then converts the result of that calculation back to text so it can be used in the expression "You have been a valued customer for (x) years."
- If the characters are "90" or more (*else*), Crystal Reports prints the fixed text string "You are one

- of our newer customers, and we want you to know how valuable you are to us."
- The Parentheses control the order of calculation of the formula.

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Formula 3

Operators/Functions Used

Concatenate, ToText, ToNumber, Multiply(*), Make Range, Subscript, Parentheses ()

Formula Purpose

A sail maker, as part of his loan agreement with his bank, has to submit a detailed inventory analysis monthly. The analysis must include the cost of fabric in raw material inventory and the cost of fabric by item number for each item in finished product inventory.

The company uses one fabric for all of the sails it produces, and it uses the 5th and 6th characters in the item number for each product to represent the number of meters of material (rounded to the nearest meter) necessary to make that item.

In the form letter the manager sends to his banker each month, he wants the computer to automatically insert the quantity on hand, the item number, and the dollar value of the fabric for each item number.

Formula

```
ToText({file.Quantity}) + " each, Item " + {file.Item} + ", $ " + ToText({file.Quantity} *  
ToNumber({file.Item}[5 to 6]) * {file.FabricCost})
```

Result

With a fabric cost of \$14.88/meter, the formula delivers the following result:

Quantity	Item	Letter Text
46	4423141006	"46 each, Item 4423141006, \$ 9582.72"
27	4423081009	"27 each, Item 4423081009, \$ 3214.08"

Explanation

- This equation uses ToText to convert the value of *{file.Quantity}* (a numeric field) to text so it can be used as part of a concatenated text string.
- It then uses the Concatenate operator (+) to join the text version of *{file.Quantity}* with the string "each, Item "
- It again uses the Concatenate operator (+) to join the resulting string with the item number, stored as the value of the text field *{file.Item}*.
- It uses the Concatenate operator (+) one final time to join the resulting text string to the calculated fabric cost (expressed as text).
 - To calculate that fabric cost:
 - The formula uses the Subscript operator [] to extract the 5th and 6th elements (meters of material used) of *{file.Item}* (a text field).
 - The Make Range operator (to) is used to establish the range 5 to 6.
 - The ToNumber function converts those elements to a number so it can be used in a numeric calculation.
 - It uses the Multiply operator (*) to multiply that number by the value of *{file.Fabric Cost}* by the number of units in inventory (*{file.Quantity}*) to arrive at the total price.
 - Finally, it uses the ToText function to convert the total price (a number) into text that can be used in the concatenated string.

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Formula 4

Operators/Functions Used

Nested formulas, if--then--else, (--) Subtract, (*) Multiply, (>) Greater than, (>=) Greater than or equal, Sum, Parentheses

Formula Purpose

A computer store sells hardware, software, and books. It pays its sales reps 7% of all hardware sales (monthly) over \$5000, 10% of all software sales (monthly) over \$10,000, and 5% of all book sales (monthly) over \$1000. The sales manager wants to calculate the commission in each category for each rep, total the commission due each rep, and flag those reps who are entitled to more than \$5000 in total commission for the month. We will do this using nested formulas, that is, using one formula as one of the elements in another formula.

Formula(s)

@HARDWARE

```
if (({file.HardSales}--5000)> 0) then
    .07 * ({file.HardSales}--5000)
else
    0
```

@SOFTWARE

```
if (({file.SoftSales}--10000)> 0) then
    .10 * ({file.SoftSales}--10000)
else
    0
```

@BOOKS

```
if (({file.BookSales}--1000)> 0) then
    .05 * ({file.BookSales}--1000)
else
    0
```

@TOTCOMM

```
Sum({@HARDWARE}, {@SOFTWARE}, {@BOOKS})
```

@FLAG

```
if {@TOTCOMM} >= 5000 then
    " **** "
else
    ""
```

Result

Given this data:

Salesrep	HardSales	SoftSales	BookSales
Salesrep A	4500	21000	985
Salesrep B	31427	41222	4470
Salesrep C	22000	4687	4250

Salesrep D 14000 15678 2200

The formulas return the following results.:

Salesrep	Hardware	Software	Books	Total	Flag
SalesrepA	0.00	1100.00	0.00	1100.00	
SalesrepB	3122.20	1849.89	173.50	5145.59	****
SalesrepC	1190.00	0.00	162.50	1352.50	
SalesrepD	630.00	567.80	60.00	1257.80	

Explanation

- The three formulas (@HARDWARE, @SOFTWARE, and @BOOKS) work in the same manner.
 - They use the If--then--else operator to test for a condition, do one thing if the condition is true, do another thing if the condition is false.
 - They take total sales in the category, use the Subtract operator (--) to subtract the amount of sales on which no commission is to be paid, and test to see if the remaining amount is a positive number (>0).
 - If it is (if >0), they calculate the commissions using the Multiply operator (*) to multiply the appropriate commission percentage (expressed as a decimal: .07, .10, .05) times the commissionable amount (*{file.HardSales--5000}*, etc.).
 - If the remaining amount is a negative number (not >0), no commission is computed and the formula prints a zero amount (0.00).
- @TOTCOMM uses the SUM function to total the commissions due. Instead of including the calculations for each formula (a duplication of time and effort) it substitutes the formula name instead of the calculations. Crystal Reports knows that when it encounters the formula name it is to use the underlying calculations from the formula(s) referenced.
 - @FLAG uses the If--then--else operator to evaluate the values calculated by @TOTCOM and to flag (****) those values of \$5000 or more (>= 5000). @FLAG effectively nests two levels of other formulas: it nests @TOTCOM which is a formula that itself nests three other formulas, @HARDWARE, @SOFTWARE, and @BOOKS. When Crystal Reports sees @TOTCOM, it performs all of the underlying calculations referenced by that formula and the formulas that are used in @TOTCOM.
- Parentheses () are used throughout the formulas to control the order of calculation.

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Formula 5

Operators/Functions Used

Nested formulas, If--then--else, Subtract (--), Not equal to (<>), Less than (<), Concatenate (+), ToText, To dollar (\$), Negate (--()), Parentheses

Formula Purpose

A company wants to stimulate new credit sales for those customers with open credit limits and to make customers who are over their limits aware of their over--limit balances. To do this the company wants to include a brief "P.S." to its already customized (company name, contact name, etc.) sales letter to each customer.

Formula

```
if{file.Credit Limit} -- {file.Balance} <> 0 then
  if{file.Credit Limit} -- {file.Balance} <0 then
    "Your account is currently $" + ToText($(--{file.Credit Limit} -- {file.Balance})) + " over limit.
    Please contact us if you would like to discuss an increase in your credit limit."
  else
    "Your account has $" + ToText($({file.Credit Limit} --{file.Balance})) + " available credit. You
    can order today with no additional paperwork!"
else
  ""
```

Result

CreditLimit	Balance	Result
\$5000	\$2250	"Your account has \$2750.00 available credit. You can order today with no additional paperwork!"
\$3000	\$3457	"Your account is currently \$457.00 over limit. Please contact us if you would like to discuss an increase in your credit line."
\$7500	\$7500	«no message»

Explanation

- The formula uses two If--then--else operators, one nested inside the other.
 - The first begins with the first word "If" and doesn't end until the "else" at the very end of the expression. This expression says, essentially, "if the credit limit less the balance is less than zero, then print the message based on the if--then--else expression that follows (the expression inside the parentheses). If the credit limit less the balance equals zero, print nothing. Think of this first if--then--else expression in this way: If {file.Credit Limit} --{file.Balance} <> 0 then (do what is in the parentheses) else ""
 - The second If--then--else expression begins "if {file.Credit Limit}" and ends after the word "paperwork". This expression says: "if the credit limit less the balance is less than zero, then print the *over limit* message, otherwise (in those cases where the result is greater than zero) print the *available credit* message.
- The *then* expression ToText(\$(-- {file.Credit Limit} -- {file.Balance})) means
 - first use the Subtract operator (--) to subtract {file.Balance} from {file.Credit Limit}.
 - Since this part of the expression will only be activated if the result is a negative number (<0), the formula uses the Negate operator (--()) to multiply the result by --1 to return a positive number.
 - The To Dollar operator (\$) assures that the result will be printed in a dollar and cents format with two decimal places.
 - The ToText function takes the resulting number and converts it to text characters so it can be used in the *over limit* message.
- The *else* expression ToText(\$({file.Credit Limit}--{file.Balance})) differs only slightly from the then expression above. This expression does not use the Negate operator (--) because this expression

`{file.Credit Limit}--{file.Balance}` will be used only in those cases where the result is a positive number (>0).

- The Concatenate operator (+) joins the text strings (enclosed in quotation marks) with the number (converted to text using the ToText function) to produce the appropriate message (the *then* message [over limit] or the *else* message [available credit]).
- Many sets of parentheses are used to control the order of calculation of this formula.
- The characters "" at the very end of the formula are the representation of an empty string. This means, "print nothing."

Comments

Note the leading space in the string "over limit." Note too, the leading space in the string "available credit." These spaces are purposely entered into the formula so a space occurs between the dollar figure and the words in each message.

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Formula 6

Operators/Functions Used

if--then--else, Greater than (>), Percentage (%), Greater than or equal (>=), Logical Operator And, Logical Operator Or, Parentheses

Formula Purpose

The manager of a minor league baseball team wants a column on the statistics report that flags all batting averages of .300 or better and all averages below .200. The manager doesn't want the batting average flagged for any player who has batted fewer than 100 times because the manager doesn't feel that such a batting average is statistically significant.

Formula

```
if (file.AtBat>=100) and
   (file.Hits % file.AtBat>=30) or
   (file.Hits % file.AtBat<20) then
   "####"
else
   ""
```

Result

Hits	AtBat	Average	Flag	Explanation
31	98	.316		AtBat <100(not significant)
31	101	.307	####	Average > 30 (.300)
43	216	.199	####	Average < 20 (.200)
19	99	.192		AtBat < 100(not significant)

Explanation

- The formula uses the If--then--else operator to test for specific conditions.
 - Condition A (`file.TimesAtBat >= 100`) uses the Greater than or equal operator (>=) to make certain that the batter has batted at least one hundred times. If he has batted 100 or more times, this condition is true, otherwise it is false.
 - Condition B (`file.Hits % file.TimesAtBat >30`) uses the Percentage operator to calculate `file.Hits` as a percentage of `file.TimesAtBat`. It then uses the Greater than or equal operator (>=) to test the resulting percentage to see if it is 30% (.300 batting average) or more. If the percentage is greater than or equal to 30, this condition is true. Otherwise it is false.
 - Condition C (`file.Hits % file.TimesAtBat < 20`) again uses the Percentage operator to calculate `file.Hits` as a percentage of `file.TimesAtBat`. It then uses the Less than operator (<) to test the resulting percentage to see if it is less than 20% (.200 batting average). If the percentage is less than 20, this condition is true. Otherwise it is false.
- The formula uses the logical operators And and Or to evaluate conditions A, B, and C. The logical relationship required is Condition A and either Condition B or Condition C. Thus, the *if* part of the formula is satisfied if Condition A is TRUE, and *either* Condition B or Condition C is TRUE.
 - If the *if* part of the formula is satisfied (*then*), it flags the batting average by printing four pound signs "####".
 - If those conditions are not true (*else*), it prints nothing (as indicated by the empty text string "").

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Formula 7

Operators/Functions Used

If--then--else, Subtract (--), Greater than (>), Maximum, Multiply (*), Parentheses

Formula Purpose

A company has the following bonus/commission structure for its sales force: when a sales rep sells at or over quota, the rep earns a \$250 bonus or a 15% commission (on the amount over quota), whichever is highest. The company pays no bonus or commission on sales less than quota. The sales manager wants bonus/commission calculated and included on a report.

Formula

```
if(({file.Sales}--{file.Quota})>=0) then
  Maximum([.15* ({file.Sales} -- {file.Quota})
else
  0
```

Result

Sales	Quota	5%	Amount Paid
10,000	8000	300	540 (calculated commission)
8000	8000	0	250 (guaranteed bonus)
7999	8000	0	0 (sales not >= Quota)

Explanation

- This formula uses the If--then--else operator to test sales to see if they are greater than or equal to quota.
 - If they are (*then*) it calculates the commission and pays the higher of commission or guaranteed bonus.
 - If they are not (*else*), it does nothing
- To test sales to see if they are at least equal to quota, the formula uses the Subtract operator (--) to subtract *{file.Quota}* from *{file.Sales}*.
 - If *{file.Sales}* is greater than or equal to *{file.Quota}*, this subtraction will produce the result of zero or a positive number (>=0). This will trigger the *then* part of the formula.
 - If *{file.Sales}* is less than *{file.Quota}*, this subtraction will produce a negative result. This will trigger the *else* part of the formula.
- The *then* part of the formula uses the Multiply operator (*) to compute a 15% commission on the amount of sales in excess of quota: $.15 * (\textit{{file.Sales}} - \textit{{file.Quota}})$.
 - It then uses the Maximum([array]) function to determine if the calculated commission or the guaranteed bonus of \$250 offers the highest payout (Maximum([commission, 250]), and it returns this highest value.
 - Calculating this highest payout is the bottom line of the *then* part of the formula
- The *else* part of the formula makes no calculations and returns 0.

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Formula 8

Operators/Functions Used

If-then-else, Less than (<), Negate (--), Add (+), Round, Average([array]), Parentheses

Formula Purpose

To better control her purchasing and inventory, a store owner wants the inventory report to include a QtyToOrder column. She wants that column to tell her what quantity she needs to order to keep on hand the average quantity sold monthly during the previous three months.

- If there is stock on hand, she'll want to order the average quantity sold less the stock on hand.
- If there is no stock on hand but no backorders, she'll want to order the average quantity sold.
- If there is no stock on hand and backorders, she'll want to order enough to clear the backorders plus the average quantity sold.

Formula

```
if {file.OnHand} < 0 then
  (( -- {file.OnHand})) + Round ((Average({file.Month1}{file.Month2}, {file.Month3})))
else
  (Round((Average({file.Month1}{file.Month2}, {file.Month3}))) -- {file.OnHand})
```

OnHand	Month1	Month2	Month3	Avg.	Order
2	16	6	30	17	15
5--	7	3	19	10	15
0	9	8	18	12	12

Explanation

- The formula uses the if-then-else operator to set up one set of calculations if there are backorders ($\{file.OnHand\} < 0$), and a different set of calculations if there are no backorders.
 - The *if* part of the formula uses the Less than operator (<) to see if the quantity on hand is less than zero. This indicates that, not only is all stock gone but there are unfilled orders (a backorder situation).
- If there is a backorder, the *then* part of the formula calculates the amount to order as the average monthly sales over a specified three month period plus the amount backordered (expressed as a positive number).
 - It uses the Negate operator (--) to convert the negative value of $\{file.OnHand\}$ to a positive value.
 - It uses the Average([array]) function to average the product sales for $\{file.Month1\}$, $\{file.Month2\}$, and $\{file.Month3\}$ (the three months used to determine a typical sales pattern for the product).
 - It uses the Round function to round the average product sales to the nearest whole number.
 - It uses the Add operator (+) to add the quantity on hand (now expressed as a positive) to the rounded average monthly sales figure.
 - The result is the amount to order.
- If there is no backorder, the *else* part of the formula calculates the amount to order as the average monthly sales over the specified three month period less the quantity already on hand.
 - It uses the Average function to average the product sales for $\{file.Month1\}$, $\{file.Month2\}$, and $\{file.Month3\}$ (the three months used to determine a typical sales pattern for the product).
 - It uses the Round function to round the average product sales to the nearest whole number.
 - It uses the Subtract operator to subtract the quantity on hand from the rounded, average monthly sales figure.
 - The result is the amount to order.

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Formula 9

Operators/Functions Used

Nested if--then--else expressions, NumericText, Subscript, Make Range, Equal to (=), ToNumber, In Range, Parentheses

Formula Purpose

A retailer has a customer list that includes both customers living inside the state and customers living in Canada. For customers inside the state, some have 5 digit ZIP codes, others have 9 digit ZIP codes. Canadian customers have Postal Codes beginning with a letter.

The company wants a column on the list that shows the sales tax that needs to be levied on orders from each customer. Local customers (those within the greater metropolitan area) get assigned a 7.5% sales tax (6.5% state and 1% local); customers in the state but outside the metropolitan area are assigned a 6.5% sales tax (state only); and Canadian customers are assigned no sales tax.

Formula

```
if NumericText({file.ZIP/Postal}[1 to 5])then
  if ToNumber({file.ZIP/Postal}[1 to 5]) in 92200 to 92399 then
    "7.5"
  else
    "6.5"
else
  "0"
```

Result

ZIP/Postal	Tax	Explanation
91134	6.5	Inside state/outside metro area
92305	7.5	Inside state/inside metro area
92288--5423	7.5	Inside state/inside metro area (ZIP + 4)
96544--2333	6.5	Inside state, outside metro area (ZIP + 4)
T5A 9S2	0.0	Canadian customer

Explanation

This formula uses nested If--then--else operators.

- The first of these if--then--else expressions begins with the initial *if* and ends with the final "0". It says:
 - If the first five characters in the *{file.ZIP/Postal}* field are all numbers, then compute and print the sales tax using the methodology specified in the second if--then--else expression.
 - If the first five characters are not all numbers, print "0".
- The second of the if--then--else expressions begins immediately *after* the initial *then* and ends immediately *before* the final words *else "0"*. It says, now that we've already tested and know that the first five characters of *{file.ZIP/Postal}* are numbers:
 - If the first five characters of *{file.ZIP/Postal}*, converted to numbers, fall in the range of 92200 to 92399, print "7.5" (the amount of state and local sales taxes combined).
 - If the first five characters of *{file.ZIP/Postal}*, converted to numbers, fall outside that range, print "6.5" (the amount of state sales tax only).
- *if NumericText({file.ZIP/Postal} [1 to 5])* uses the If--then--else operator to test for the condition in parentheses.
 - *{file.ZIP/Postal} [1 to 5])* uses the Subscript operator *[]* and Make Range operator *to* to extract characters 1 to 5 in the ZIP/Postal field.
 - The NumericText function evaluates the extracted characters to determine if they are all numbers or not.

- If they are all numbers (YES) the first *if* condition is satisfied and the formula moves to the first *then* consequence.
- If they are not all numbers, the first *if* condition is not satisfied, and the formula moves to the final *else* consequence.
- Then if ToNumber(*{file.ZIP/Postal}* [1 to 5]) in 92200 to 92399 then "7.5" else "6.5" else "0" shows what is to take place if the original *if* conditions have been satisfied.
 - (*{file.ZIP/Postal}* [1 to 5]) uses the Subscript operator [] and Make Range operator *to* to extract characters 1 to 5 in the *{file.ZIP/Postal}* field.
 - ToNumber converts these extracted characters to a number that can then be used in a numeric expression.
 - *in 92200 to 92399* checks to see if the ZIP/Postal code (now converted to a number) falls anywhere within the range 92200 to 92399.
 - If it does, then the *if* condition (inside the parentheses) is satisfied and Crystal Reports performs the then consequence by printing the text string "7.5".
 - If it does not, then the *if* condition is not satisfied, and Crystal Reports perform the else consequence by printing the text string "6.5".

Comments

These tax figures, rules, and ZIP/Postal codes are for illustration only; they are not meant to accurately represent state and local taxing regulations.

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Formula 10

Operators/Functions Used

If--then--else, Not, DayOfWeek, Make range (to), In range (in), Parentheses ()

Formula Purpose

A seven day a week customer service department logs all calls and stores the records in a database. As an aid in scheduling weekend staff, management wants to flag the weekend calls so they stand out in the call report.

Formula

```
If Not(DayOfWeek({file.CallDate}) in 2 to 6) then
    "Weekend"
else
    ""
```

Result

Day of Week	#	Flag
Sunday	1	Weekend
Monday	2	
Tuesday	3	
Wednesday	4	
Thursday	5	
Friday	6	
Saturday	7	Weekend

Explanation

- The formula uses the If--then--else operator to say, "If the day of the week isn't a weekday, then print "Weekend", otherwise (else) print nothing (as indicated by the empty text string "")."
- The *if* part of the formula sets up the condition, "If the day of the week isn't a weekday."
 - The DayOfWeek function evaluates *{file.Call Date}* and returns a number from 1 to 7 (Sunday being 1, Saturday being 7) to indicate the day of the week on which a call was made.
 - *in 2 to 6* uses the In Range function (in) and the Make Range function (to) to determine if the day of the week the call was made was in the range 2 to 6 (Monday to Friday).
 - Not negates the expression that follows.
 - Without the Not function preceding the expression, the *if* expression reads "If the day of the week number indicates the call date *was* a weekday."
 - With the Not function, the *if* expression reads, "If the day of the week number indicates the call date *was not* a weekday."
 - If the call date is not a weekday, the *if* expression is satisfied, thus triggering the *then* consequence.
 - "Weekend" tells Crystal Reports that when the *if* condition is satisfied, print the word "Weekend"
 - If the call date is a weekday, the *if* condition is not satisfied, thus triggering the *else* consequence.
 - "" tells Crystal Reports to print nothing if the *if* condition is not satisfied.

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Formula 11

Operators/Functions Used

If-then-else, Subscript [], Not equal to (<>), Maximum([array]), Multiply (*), Parentheses

Formula Purpose

As part of a charity fund raiser, a company agreed to donate 1% of the invoice amount (or \$1.00, whichever is larger) for each invoice it cut during the previous quarter. The only invoices that it has exempted are Credit Invoices (identified with the letter "C" as the 6th character in the invoice number) and invoices for non-profit agencies (identified with the letter "N" as the 6th character in the invoice number). Management wants a *Contribution* column to appear on the quarterly detail sales report.

Formula

```
if {file.Inv#}[6]<>"C" and
   {file.Inv#}[6]<>"N" then
    $(Maximum([.01 * {file.Amt}], 1))
else
    0
```

Result

Invoice #	Amount	Amt. * 1%	To Charity	Reason
21523R	143.27	1.43	\$1.43	
21524C	223.46	N/A	0	«credit»
21538R	47.15	.47	\$1.00	
21575N	1312.49	N/A	0	«nonprofit»

Explanation

- The *if* part of the expression tests for two conditions: that the invoice is not a credit invoice and that it is not a non-profit invoice. Both conditions must be true to trigger the *then* consequence.
 - Condition A: `{file.Inv#}[6] <> "C"` uses the Subscript operator [] to extract the 6th character of the value stored in `{file.Inv#}`. It then compares that character to "C". If the character is not C (not a credit invoice), Condition A is satisfied.
 - Condition B: `{file.Inv#}[6] <> "N"` uses the Subscript operator [] to extract the 6th character of the value stored in `{file.Inv#}`. It then compares that character to "N". If the character is not N (not a non-profit invoice), Condition B is satisfied.
- The logical operator *and* indicates that both Condition A and Condition B must be TRUE in order to satisfy the *if* part of the expression.
 - If Condition A and Condition B are both TRUE, the *if* part of the expression is satisfied, thus triggering the *then* consequences.
 - `.01 * {file.Amt}` uses the Multiply operator (*) to multiply the amount of the invoice by 1% (.01).
 - `Max([.01 * {file.Amt}], 1)` returns the highest contribution for a given invoice: either 1% of the invoice amount or \$1.00.
 - The To Dollar operator converts the amount to a dollar value
 - If either Condition A or Condition B is FALSE, or both are FALSE, the *if* part of the expression is not satisfied, thus triggering the *else* consequences.
 - If the *if* part of the expression is not satisfied, the formula returns the value 0.

Comments

An alternative rendering follows:

```
if {file.Inv#}[6] in ["C", "N"] then
    0
```

else

Maximum([.01**file.Amt*], 1)

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Formula 12

Operators/Functions Used

If--then--else, Average([array]), Subtract (--), Greater than (>), Minimum([array]), Multiply (*), Parentheses

Formula Purpose

A consultant has contracts that pay him a percentage of the amount he saves his clients with a cap or ceiling on the amount he can earn. His contracts pay him 25% of the monthly savings up to a maximum of \$10,000 per month. If his percentage amounts to more than \$10,000, he collects the \$10,000 maximum; if the percentage is less than \$10,000, he collects the actual percentage. The base period against which savings are calculated is the average of three typical months in a prior year.

Formula

```
if (Average({file.Mon1}, {file.Mon2}, {file.Mon3}) -- {file.CurrentMon}) > 0 then
    Minimum([.25*((Average({file.Mon1}, {file.Mon2}, {file.Mon3}) -- {file.CurrentMon})], 10000])
else
    0
```

Result

Average	CurMon	Savings	25%	Amt.Due
90,000	65,000	25,000	6250	6250
120,000	60,000	60,000	15,000	10,000
75,000	77,000	N/A	N/A	0

Explanation

- The formula uses the If--then--else operator to say: if the average outlay during the three months specified was higher than the current month, then return 25% of the difference, up to a maximum of \$10,000. If the average outlay was equal to or less than the outlay during the current month, return 0.
- The formula uses the Average function to calculate the average outlay during *{file.Mon1}*, *{file.Mon2}*, and *{file.Mon3}* -- the baseline period.
- It uses the Subtract operator (--) to subtract the outlay in the current month from the average during the baseline period, thus giving the difference between the current month and the baseline.
- It uses the Greater than operator (>) to compare that difference to 0.
 - If the difference is greater than 0 (there actually was a savings), the *if* part of the expression is satisfied, thus triggering the *then* consequences.
 - If the *then* consequences are triggered:
 - The formula uses the Average function to calculate the average outlay during *{file.Mon1}*, *{file.Mon2}*, and *{file.Mon3}* -- the baseline period.
 - It uses the Subtract operator (--) to subtract the outlay in the current month from the average during the baseline period.
 - It uses the Multiply operator (*) to calculate 25% of the difference (.25 *...).
 - It uses the Minimum([array]) function to return the smaller amount: either 25% of the difference or \$10,000. Using the Minimum function in this way effectively puts a ceiling on the result of the calculation.
 - If the difference is equal to or less than 0 (there was no savings), the *if* part of the expression is not satisfied, thus triggering the *else* consequences.
 - The *else* consequence (else 0) simply returns the value 0.

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Formula 13

Operators/Functions Used

ToText, Truncate, Division (/), Concatenate (+), Remainder

Formula Purpose

Bulk grains and nuts are inventoried by the ounce, but management wants to see a breakdown in pounds and ounces on the inventory report.

Formula

```
ToText(Truncate({file.Oz}/16)) + " pounds, " + ToText(Remainder ({file.Oz}, 16)) + " ounces "
```

Result

Ounces	Resulting Text
433	"27 pounds, 1 ounces"
278	"17 pounds, 6 ounces"
1455	"90 pounds, 15 ounces"

Explanation

- The formula uses the Divide operator (/) to divide *{file.Oz}* by 16, thus calculating the number of pounds of the item in inventory. Unless *{file.Oz}* is perfectly divisible by 16, the quotient will be a whole number with decimal places.
 - The Truncate function returns only the whole number (integer) part of the quotient.
 - The ToText function converts the number to text so it can be used in a string with other text.
 - The formula uses the Concatenate operator (+) to connect the number of pounds with the text string " pounds" to give the new string " n pounds" «where *n* is the calculated number of pounds».
- The Remainder function determines the remainder that results from the division *{file.Oz}/16* (*{file.Oz}* the numerator, 16 the denominator). The remainder is a number of ounces less than 16 (less than a full pound).
 - The ToText function converts the remainder to text so it can be included in the final text string.
 - The Concatenate operator (+) connects the number of ounces (now converted to text, to the string before ("n pounds, ") and to the string after (" ounces") to produce the final text string "n pounds, y ounces" «where *y* is the remainder».

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Formula 14

Operators/Functions Used

If--then--else, Length, TrimLeft, Less than or equal (<=), Parentheses ()

Formula Purpose

Five and a half years earlier, a company had changed from a lifetime warranty for its products to a five year warranty. The first products that had been manufactured with the shorter warranty were now out of warranty, but the repair department was slow to adapt. It continued to repair all products for free, as if they were all covered by the original lifetime warranty.

All products manufactured under the new, shorter warranty had issued eight(8) character serial numbers instead of the 5, 6, or 7 character serial numbers that had been issued to lifetime--warrantied products.

To begin controlling the situation, management has called for a column on its repair report that identifies products serviced as either lifetime warranty or five year warranty products.

Formula

```
If Length(TrimLeft({file.Serial#}))<= 7 then
    "Lifetime Warranty"
else
    "5 Year Warranty"
```

Result

Serial Number	# Characters	Flag
BP10001	7	"Lifetime Warranty"
BP1000	6	"Lifetime Warranty"
BP999	5	"Lifetime Warranty"
BP100001	8	"5 Year Warranty"

Explanation

- The formula uses the if--then--else operator to say, "If the serial number is 7 characters long or less (*then*), print "Lifetime Warranty", otherwise (*else*) print "5 Year Warranty".
- TrimLeft({file.Serial#}) removes all of the blank spaces stored to the left of the actual serial number in the right justified {file.Serial#} field. The formula uses TrimLeft to eliminate spaces because Length counts spaces as characters if they are present.
- Length counts the characters in the actual serial number.
- The formula uses the Less than or equal to operator (<=) to make certain that the serial number is 7 characters long (or less).
 - If the serial number is less than or equal to 7 characters, the *if* part of the expression is satisfied, thus triggering the *then* consequences.
 - If the *if* part of the expression is satisfied, the formula prints the text string "Lifetime Warranty"
 - If the serial number is greater than 7 characters, the *if* part of the expression is not satisfied, thus triggering the *else* consequences.
 - If the *if* part of the expression is not satisfied, the formula prints the text string "5 Year Warranty".

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Formula 15

Operators/Functions Used

Nested if--then--else operators, Not equal (<>), Logical operator (and), Equal (=), Concatenate (+), Parentheses

Formula Purpose

The director of a non--profit health care facility wants to automate the salutation in a letter he is sending to his staff. The staff consists of men and women, and professional and non--professional employees. He wants to be certain that all doctors on staff (M.D., Ph.D., and D.D.S.) are given the form of address "Dr." and all non--doctors are given the form of address appropriate to their sex.

Formula

```
if {file.Degree} <> "Ph.D." and
   {file.Degree} <>"M.D." and
   {file.Degree} <>"D.D.S" then
  if {file.Sex} = "M" then
    "Dear Mr. " + {file.Iname}
  else
    "Dear Ms. " + {file.Iname}
else
  "Dear Dr. " + {file.Iname}
```

Result

Degree	Sex	Last Name	Salutation
B.A.	F	Jones	"Dear Ms. Jones"
Ph.D.	F	Smith	"Dear Dr. Smith"
M.D.	M	Jackson	"Dear Dr. Jackson"
M.S.	M	Miller	"Dear Mr. Miller"
D.D.S.	F	Johnson	"Dear Dr. Johnson"

Explanation

This formula uses nested If--then--else operators.

- The first if--then--else expression begins with the first if and continues to else "Dear Dr. " + {file.Iname} at the end of the formula. It says, "If the degree listed is not a doctoral degree (then), follow the then consequences which themselves contain another if--then--else expression. If the degree listed is a doctoral degree (else), print a doctoral salutation."
 - The if part of the expression tests for three different conditions.
 - Condition A uses the Not equal operator <> to make certain that the employee's degree is not Ph.D.
 - Condition B uses the Not equal operator <> to make certain that the employee's degree is not M.D.
 - Condition C uses the Not equal operator <> to make certain that the employee's degree is not D.D.S.
 - The two And operators indicate that all three conditions must be met to satisfy the if part of the expression.
 - If all three conditions are met, the if part of the expression is satisfied, thus triggering the then consequences.
 - If any one of the three conditions is not met (or 2 or all three), the if part of the expression is not satisfied, thus triggering the else consequences.
- The second if--then--else statement begins with if {file.Sex} = and ends with else "Dear Ms. " +

{file.Iname}. It says, "If the employee is male (*then*), print a male salutation. If the employee is anything but male (*else*), print a female salutation. This if--then--else expression determines what actually happens if the *if* part of the first expression is satisfied.

-- If the sex is male (determined by using the Equal operator =), the *if* part of the second if--then--else expression is satisfied, thus triggering the *then* consequence (printing the salutation "Dear Mr. " + {file.Iname}).

-- If the sex is not male, the *if* part of the second if--then--else expression is not satisfied, thus triggering the *else* consequence (printing the salutation "Dear Ms. " + {file.Iname}).

■ The Concatenate operator (+) connects the "Dear x" part of the salutation with the last name (as stored in the {file.Iname} field).

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Formula 16

Operators/Functions Used

If-then-else, Add (+), Less than (<), Multiply (*)

Formula Purpose

A manufacturer of lawn and garden products grants a 10--5--5 discount on Category A products and a 15--10--5 discount on Category B products. It also pays the freight on all orders of \$5, 000 or more (before discount). It charges a flat 4% freight on all orders of less than \$5000. Management wants a Total Including Freight figure to appear on the daily sales report.

Formula

```
if ({file.CatA} + {file.Cat B}) < 5000 then
    1.04 * .95 *.95 *.90 *{file.CatA} + .95 *.90 *.85 *{file.CatB}
else
    .95 *.95 *.90 *{file.CatA} + .95 *.90 *.85 *{file.CatB}
```

Result

CatA	CatB	CatA+CatB	TotInclFrt
9524	1344	10868	8712.62
3424	1344	4768	3908.21

Explanation

- This formula uses the If-then-else operator to say, if the sum of *{file.CatA}* and *{file.CatB}* is lower than \$5, 000 (then), multiply the discounted price by 104% (1.04) to arrive at the price plus freight. If the sum of *{file.CatA}* and *{file.CatB}* is higher than \$5000 (else), simply calculate the discounted price (no freight, since the order is bigger than \$5000).
 - The if part of the expression uses the Add operator (+) to calculate the undiscounted value of *{file.CatA}* and *{file.CatB}*.
 - It uses the Less than operator (<) to determine if the sum of *{file.CatA}* and *{file.CatB}* is less than \$5000.
 - If the sum is less than \$5000, the if part of the expression is satisfied, thus triggering the *then* consequence.
 - The formula uses the Multiply operator (*) several times, first to multiply the value of *{file.CatA}* by .90 (10% discount), to multiply that result by .95 (5% discount), and to multiply that result by .95 (5%) discount to arrive at the discounted amount for *{file.CatA}*.
 - It performs the same set of calculations on *{file.CatB}* to determine the discounted amount for that category.
 - It uses the Add operator (+) to add the discounted amounts of *{file.CatA}* and *{file.CatB}* to arrive at the discounted total (before freight).
 - Finally, it uses the Multiply operator (*) to multiply the discounted total by 1.04 (100% + 4% freight) to arrive at the invoice total including freight.
 - If the sum is \$5000 or more, the *if* part of the expression is not satisfied, thus triggering the *else* consequence.
 - The formula uses the Multiply operator (*) several times, first to multiply the value of *{file.CatA}* by .90 (10% discount), to multiply that result by .95 (5% discount), and to multiply that result by .95 (5%) discount to determine the discounted amount for *{file.CatA}* (freight free).
 - It performs the same set of calculations on *{file.CatB}* to determine the discounted amount for that category.
 - Finally, it uses the Add operator (+) to add the discounted amounts of *{file.CatA}* and *{file.CatB}* to arrive at the final invoice total (freight free).

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Formula 17

Operators/Functions Used

If-then-else, Remainder, ToNumber, Equal, Parentheses

Formula Purpose

A retailer wants to test two different direct mail offers to see which one has the best "pulling" power. He wants to send one offer to all customers on his mailing list with even customer numbers and the second offer to all customers with odd customer numbers.

Formula

```
if Remainder(ToNumber({file.CustNum}), 2)= 0 then
    {file.Offer1}
else
    {file.Offer2}
```

Results

Cust #	Remainder	Result
203104	0	Offer 1 -- "You're entitled to a 10% discount."
203105	1	Offer 2 -- "You're entitled to a free gift."

Explanation

- The ToNumber function converts the customer number (stored as text) to a number.
- The Remainder function takes that number, divides it by 2, and returns a remainder.
- The Equal operator tests the remainder to see if it is equal to 0.
 - If the remainder is equal to zero, the customer number is divisible by two and thus an even number triggering the printing of *{file.Offer1}*.
 - If the remainder is not equal to zero, the customer number is not evenly divisible by two and thus an odd number, triggering the printing of *{file.Offer2}*.

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Inserting text and numbers in formulas

You insert text and numbers in formulas by typing them into the formula text box.

- Text must be surrounded by 'single' or "double" quotation marks.
- Numbers must be entered without commas (1000000 *not* 1,000,000)
- You can use the Cut, Copy, and Paste commands with text in the Formula Editor.

NOTE: Formulas are treated as text by Crystal Reports. The program uses syntax items (quotation marks, brackets, parentheses, etc.) to identify the various formula components.

Inserting fields in formulas

You can enter fields into your formulas in two ways: via the Fields box in the [Formula Editor](#), or manually.

Via the Fields scroll box

To enter a field via the Fields scroll box, you move the I-beam cursor to the place you want to insert the field and click the left mouse button to set the [insertion point](#) at that point. Then you locate the field you wish to insert from the Fields scroll box list.

- Fields already in use in the report are grouped at the top of the list; other available fields follow.
- Formulas you have entered are listed next, their names preceded by the @ sign.
- Groups you have entered are listed next.

-- groups that you enter in group sections appear in the following format:

group section:sort and group by field:

summary action/field summarized

-- groups that you enter in the Grand Total section appear in the following format

Grand total:

summary action/field summarized

- All other fields available in the [active databases](#) are listed last, grouped by database. Select a field. Crystal Reports inserts the selected field (complete with the required [syntax](#) elements) at the insertion point.

NOTE: You select an item from the Fields scroll box by double clicking it, or by clicking it once to highlight it and then clicking the Select button at the bottom of the Editor to complete the selection process.

Manually

To enter a field manually, you locate the insertion point in the appropriate position and type in the field name as you would any text.

- The correct syntax for a database field name is:
{file.fieldname}
- The correct syntax for a formula field is:
{@formulaname}

NOTE: While you can enter group fields manually, it is recommended that you enter them via the Fields scroll box.

- If you don't include the file name, leave out the separating period, or fail to surround the expression in braces, Crystal Reports will generate a Formula Compiler Warning detailing your error.

Inserting operators in formulas

You can enter operators into your formula in one of two ways: via the Operators scroll box in the Formula Editor, or manually.

Via the Operators scroll box

1. To enter an operator via the list in the Operators scroll box, you set the insertion point where you want the entry to appear in the formula.
2. Then you select the operator of interest from the scroll box list. Crystal Reports inserts the selected operator in your formula, complete with any parentheses, brackets, or commas required.

NOTE: For an array of items, only the first comma is included. As you enter additional items into an array, you will need to type in commas to separate the items.

Manually

To enter an operator manually, you locate the insertion point in the appropriate position and type in the operator as you would any text.

Inserting functions in formulas

You can enter functions into your formula in one of two ways: via the Functions scroll box in the Formula Editor, or manually.

Via the Functions scroll box

1. To enter a function via the list in the Functions scroll box, you set the insertion point where you want the entry to appear in the formula.
2. Then you select the function of interest from the scroll box list. Crystal Reports inserts the selected function in your formula, complete with any parentheses, brackets, or commas required.

NOTE: For an array of items, only the first comma is included. As you enter additional items into an array, you will need to type in commas to separate the items.

Manually

To enter a function manually, you locate the insertion point in the appropriate position and type in the function as you would any text.

Inserting other formulas in formulas

Just as you can enter database fields in formulas, you can enter other formulas in formulas too. Crystal Reports performs the calculations in the referenced formula, and then it uses the value returned by the referenced formula in the same way it uses any other value.

For example, the formula

$$1*(2+4*6/3--7*12--8) +2*(2+4*6/3--7*12--8) +3*(2+4*6/3--7*12--8) +4*(2+4*6/3--7*12--8) = --820$$

includes the expression (2+4*6/3--7*12--8) repeated many times.

If you had created a formula for the repeated expression (@F = (2+4*6/3--7*12--8)) and then referenced that formula instead of entering the expression itself, you would get the same result.

$$1*{@F}+2*{@F}+3*{@F}+4*{@F} = --820$$

Every time Crystal Reports sees the formula @F, it performs the @F calculations and returns the value --82, just as the expression underlying the formula (2+4*6/3--7*12--8) returns the value --82

To insert a formula via the Fields list

1. To enter a formula via the list in the Fields scroll box, set the insertion point where you want the entry to appear in the formula.
2. Select the formula of interest from the scroll box list (formulas appear in the list with @ signs preceding their names). Crystal Reports inserts the selected formula in your formula, complete with the required braces.

Manually

1. To enter a formula manually in a formula, set the insertion point where you want the entry to appear.
2. Type in the formula name using the syntax {@formulaname}.

NOTE: A formula cannot reference itself.

NOTE: You cannot reference any formulas that do not appear on the list in the Fields box.

Inserting group field values in formulas

You can enter group field values in formulas in one of two ways: via the Fields box, or manually.

NOTE: *Due to the syntax complexity for some group fields, it is highly recommended that you enter group fields by selecting them from the field list.*

To insert a formula via the Fields list

1. To enter a group field via the list in the Fields scroll box, set the insertion point where you want the entry to appear in the formula.
2. Select the group field of interest from the scroll box list. Group fields appear in the list in a format similar to this:

Group section #n; file.fieldname

Action of file.fieldname

3. Crystal Reports inserts the selected group field in your formula, complete with the required braces, commas, condition fields, date fields, conditions, etc..

Manually

1. To enter a group field manually in a formula, set the insertion point where you want the entry to appear.
2. Select the function from the Functions list that matches the group field you want to insert. Crystal Reports inserts the function and all the required syntax items (parentheses, commas, etc.). The insertion point is automatically set for entering the first field.
3. Select the first field from the fields list. Crystal Reports enters it at the insertion point, complete with braces.
4. Set the insertion point after the comma.
5. Select the second field from the fields list. Crystal Reports enters it at the insertion point, complete with braces.
6. If your sort and group by field is a date or Boolean field, set the insertion point between the opening and closing quotation marks.
7. Type in the date/Boolean condition (daily, weekly, monthly, next is Yes, etc.).

Your finished group field should have the following syntax:

- For a group triggered by a number, dollar, or text field:
Action({file.field}, {file.condField})
- For a group triggered by a date or Boolean condition:
Action({file.field}, {file.condField}, "condition")

NOTE: *In order to use a group field in a formula, you must have already entered a group field in your report with identical parameters: same field, same sort and group by field, same date condition (if applicable), and same action.*

Including comments with formulas

Comments are notes that you include with a formula to explain its design and operation. They can be invaluable for understanding the interaction of the various formula components when memory of your initial inspiration fades, or when someone else is editing the formula in your absence.

Comments don't print and they don't affect the formula, but they appear with the formula whenever you call the formula up for editing. It is always a good idea to include comments with complex formulas, especially those formulas that will be used again and again over time.

To include comments with formulas

Type your comments in the Formula Text box in the [Formula Editor](#), the same box you use for creating the formula. The comment can be above or below the formula, or it can even follow the formula on the same line if it is preceded by two slashes. Any of the following placements are acceptable:

```
//This is an acceptable
//position for a comment.
//Note that when we force
//the line break, we have to
//begin each new line with
//double slashes.
```

```
if ({file.Amount} in (100.00 to 250.00)) then    //This too is an acceptable position
    (.10 * {file.Amount})                        //for a comment.
else
    0
```

//This is also an acceptable position for a comment.

Comment considerations

The following are considerations when including comments with formulas:

- The proper syntax for a comment is two slashes // followed by the comment. When Crystal Reports sees the two slashes, it realizes that the text that follows is comment only and not to be included as part of the formula itself.
- Crystal Reports treats everything that follows the slashes on the same line as the slashes as a comment.
- If your comment is long and automatically wraps to the next line, no additional slashes are necessary; Crystal Reports treats it as one continuous comment.
- If you break your comment into two or more lines using the Enter key, you must begin each new line with two slashes. If you don't, Crystal Reports treats each unslashed line as part of the formula itself and displays an error message when you check the formula [syntax](#).

Checking/debugging formula syntax

The Formula Editor contains a formula checker which checks the syntax of your formula. If the syntax is incorrect, the formula checker points out the location of the problem and tells you what the problem is. You activate the formula checker by selecting the Check button. Crystal Reports also checks the formula automatically when you choose Accept.

When debugging formulas in the Formula Editor, especially if you have entered them manually, look carefully for:

- missing quotation marks around text strings (single ' or double "),
- missing database name accompanying field names,
- missing braces around database name/field name combinations,
- missing closing parentheses to match opening parentheses,
- case differences (the Formula Checker is case sensitive),
- commas in numbers (numbers must be entered without commas,
- if--then--else formulas that use different data types for the then and else actions, and
- using X instead of * for multiplication

Accepting and placing the formula

When your formula is complete, Click the Formula Editor Accept button. Crystal Reports automatically checks the formula syntax and, if correct, displays the rectangular placement cursor. Position the cursor where you want the formula to appear, and Click the left mouse button to place it.

If--then--else formulas

If--then--else formulas are conditional formulas: if a condition is met, then a certain consequence, an action, takes place. If the condition is not met, some other action takes place. For example:

- If a sales rep has already earned the maximum allowable bonus, print the amount of the maximum bonus allowed; if he has not yet earned the maximum, calculate the bonus actually earned and print it.
- If the value in the title field is "Mr.", print "Dear Mr." as the beginning of the salutation; if it is not "Mr.", print "Dear Ms." as the salutation.
- If the quantity on hand of a part is equal to or less than the reorder amount, reorder according to the reorder instructions; if the quantity is greater than the reorder amount, do nothing.

These are just a few of the kinds of conditional formulas you can create using the if--then--else operator.

When using the if--then--else operator, remember that there must be three separate parts to any if--then--else formula:

the *if* part

This part sets the condition.

the *then* part

This part sets the action that takes place if the *if* condition is met.

the *else* part

This part sets the action that takes place if the *if* condition is not met.

The data types (text, number, dollar amount, date, or Boolean) for the *then* part and the *else* part must be the same.

Thus, if the action that takes place if the condition is met (*then*) is to print a text string, the action that takes place if the condition is not met (*else*) must also be to print a text string, even if that text string is empty.

Multi--condition if--then--else formulas

Crystal Reports allows you to create powerful multi--condition formulas using the If--then--else operator. Multi--condition and nested if--then--else formulas can be set up in this general pattern: *if* the red (first) condition is met, *then*, go to the blue (second) condition. *If* the blue condition is met, *then* perform the blue action; if the blue condition is not met (*else*), perform the blue alternative. If the red condition is not met (*else*), perform the red alternative. Thus:

```
if {file.Color1} = "Red" then
  if {file.Color2} = "Blue" then
    "Blue Action"
  else
    "Blue Alternative"
else
  "Red Alternative"
```

This formula checks the field *{file.Color1}*.

- If the value of that field is "Red," it then checks the field *{file.Color2}*.
- If the value of that field is "Blue," it prints "Blue Action."
- If the value of *{file.Color2}* is not "Blue," it prints "Blue Alternative."
- If the value of *{file.Color1}* is not "Red," it prints "Red Alternative."

While multi--condition formulas look complex at first, after you've worked through one or two you'll find that they are not as intimidating as they seem, especially given the work they perform.

Formulas -- an overview

A formula is a symbolic statement of the manipulations you want performed on certain data before it is printed on your report. If your report is to contain a *{file.Sales}* field and a *{file.Cost}* field, for example, you may want to create an *@GrossProfit* field (*@* designates that the field is a formula) and designate its value as *{file.Sales} -- {file.Cost}*. *{file.Sales} -- {file.Cost}* is a simple formula that tells Crystal Reports to subtract the value of the *{file.Cost}* field from the value of the *{file.Sales}* field and then to print the result. You can use formulas to calculate numeric values, compare one value to another and select alternative actions based on the comparison, join multiple text strings into a single string, and for a multitude of other purposes.

Formula examples

Here are some additional examples showing just a few of the things that you can do with formulas:

.80 {file.Price}*

« multiplies the value in the *{file.Price}* field by .80 (80%). You can use a formula like this, for example, to calculate the discounted price (20% discount) for a valued customer. »

"Dear " + TrimRight(*{file.FNAME}*) + ":"

« concatenates (joins) the text "Dear " with the value in the first name field *{file.FNAME}* and the additional text ":" (a trailing colon) to create a custom salutation for a form letter (Dear Bill:, Dear Mary:, etc. The TrimRight function eliminates trailing blanks in the *{file.FNAME}* field so that the colon appears directly after the last letter in the name, regardless of the length of the name.»

*{file.QTY} * {file.SELPRICE}*

« calculates the extended price for a line item by multiplying the quantity ordered(*{file.QTY}*) by the selling price of the item(*{file.SELPRICE}*). »

If (*{file.ONHAND}*) < 5 then

 "Reorder"

else

 ""

« using the word "Reorder," Crystal Reports flags those items that show a quantity on hand *{file.ONHAND}* less than 5, and puts no flag (as designated by the empty string "") with those items that show a quantity on hand of 5 or more. »

How to create a formula

Creating a formula in Crystal Reports is much like creating one in your favorite spreadsheet. You can use:

- fields (*{file.LNAME}*, *{file.LstYrSales}*, etc.),
- numbers (1,2, 3.1416),
- text ("Quantity" ", " ":")
- operators (+, --, etc.),
- functions (TrimRight(x), Length(x), etc.),
- group field values [Average(field, condField), Sum(field, condField, "condition"), etc.], or
- other formulas (@GrossProfit, @QUOTA, etc.)

You combine these components into working formulas using the Formula Editor. The Formula Editor allows you to type the components into the formula directly, or, in the case of fields, functions, operators, group field values, and other formulas, to select them from lists of those items that are available.

The Formula Editor requires you to enter the various components according to a specific set of rules called syntax: text enclosed in quotation marks, arguments enclosed in parentheses (where applicable), referenced formulas identified with a leading @ sign, etc. The Formula Editor checks the syntax and helps you debug (fix) problems before you enter the formula into the report.

Inserting the formula:

1. Select Insert|Formula Field. The Insert Formula dialog box appears.
2. Type in the name you want to use to identify the formula and Click OK when finished. The Edit Formula dialog box (the Formula Editor) appears.
3. Enter the formula by typing in the components or selecting them from the scroll lists displayed in the Formula Editor.
4. Select Check to check the syntax in your formula when finished, and fix any syntax errors the Formula Checker identifies.
5. When the formula has the correct syntax, select Accept and a rectangular placement cursor appears.
6. Place the formula where you want it to appear in the report.

NOTE: When you Click the Accept button, Crystal Reports automatically checks the syntax of the formula before allowing you to place it in the report.

NOTE: For an index to the various formula topics discussed in this section, see [Formula Topics Index](#)

Variables in formulas -- an overview

Crystal Reports allows you to use variables in formulas. While programmers need no introduction to variables, non-programmers may find the following discussion helpful.

Variables are a special kind of value that you can use in a formula. Unlike a constant value which is fixed and unchanging, a variable holds a value that may change from time to time

A variable is like a container that can hold one value at a time. You assign a value to a variable, and the variable maintains that value until you later assign a new value. Then the variable maintains the new value until you later assign a newer value, etc.

When you use a variable in a formula, the formula looks to the variable and uses its current value in calculating the formula result. If the variable value changes, the formula looks to the new value and uses that to calculate a new result.

If you have a digital alarm clock, you're already familiar with a practical use of variables, even though you may not know what a variable is or that it is involved in the wake-up process. You set a time to get up, and the alarm goes off at the time set. You set a new time to get up and the alarm goes off at the new time. The time the alarm goes off depends on the value assigned to a variable in the clock's programming code. Here's how it works.

You set a time to get up, and the alarm clock stores that time in a variable we'll call WakeUpTime. If you set the alarm to get up tomorrow at 7:00, for example, the clock stores 7:00 in WakeUpTime. The alarm goes off whenever the time of day (a variable we'll call TimeOfDay) matches the variable value. Thus, at 7:00, TimeOfDay matches the value stored in WakeUpTime and the alarm goes off.

A simple formula that shows this action is as follows:

```
if TimeOfDay = WakeUpTime then  
  Alarm  
else
```

This formula uses two variables because the time of day is changing constantly, and the wake up time can change to meet the user's needs.

Now if the alarm goes off and you decide to sleep a little longer, you may reset the alarm to seven thirty. When you do this, you are, in effect, assigning a new value to the variable WakeUpTime. The clock replaces the WakeUpTime value 7:00 with the new value 7:30. This time the alarm goes off when the time of day matches the new variable value.

The alarm clock uses a variable to store the wake up time because the manufacturer knows that the wake up time will vary from person to person, and for a given person it may vary from day to day. Were the manufacturer to have used a constant for the wake up time instead of a variable, the alarm would go off at the same time every day for every person using it, a most inflexible situation.

Uses for variables

Variables can be used to solve many formula problems, but they have two primary uses:

- streamlining formulas, and
- expanding formula capabilities.

Using variables to streamline formulas

Variables allow you to write certain formulas much more efficiently than you can without using variables. For example, without using variables it takes this kind of formula to evaluate the {customer.Telephone} field to determine if the area code is for Washington (206, 509) or British Columbia, Canada (604):

```
if {customer.Telephone}[1 to 3] = 604" then  
  BC  
else  
  if {customer.Telephone}[1 to 3] = 206" or
```

```
        {customer.Telephone}[1 to 3] = 509" then
        WA
else
```

You have to write out the instructions for extracting the area code from the telephone number field ({customer.Telephone} [1 to 3]) every time you want the formula to use the area code from the current record.

But using a variable (we'll call it AreaCode), you write those instructions one time. Crystal Reports uses those instructions, automatically extracts the area code from the {customer.Telephone} field, and stores it in the variable each time it reads a new record. You simply reference the variable (AreaCode) whenever you want to use the area code from the current record in your formula. Here's an example of the formula using a variable:

```
StringVar AreaCode := {customer.Telephone}[1 to 3];
if AreaCode = 604" then
    BC
else
    if AreaCode = 206" or AreaCode = 509" then
        WA
    else
```

Not only does the streamlined version take less time to write, but it takes less time to process by Crystal Reports as well, so your report prints more quickly.

A word about semicolons in formulas

In a formula with multiple statements, the result of the final statement is the result that is returned (gets printed). When you have multiple statements in a formula, you must separate the statements using a semicolon so that Crystal Reports knows where one statement ends and the next begins. Without semicolons, Crystal Reports treats the entire formula as a single statement. In a multiple statement formula, this can result in an incorrect result or an error message.

The general rule that best describes the use of semicolons in multiple statement formulas is this:

- Every statement needs to end in a semicolon with two exceptions:
 - the last statement in a formula doesn't need one, and
 - the last statement before an else (when there are multiple statements before an else) doesn't need one.

Using variables to expand formula capabilities

Besides their impact on streamlining formulas, variables allow you to expand your formula writing capabilities. Before discussing the specifics of using variables in formulas, it is important to understand some things about the way the Formula Editor reads formulas.

How the Formula Editor reads formulas

Crystal Reports uses a sophisticated programming language in the Formula Editor. Because you can build formulas by picking fields, operators, and functions from lists of options, and because Crystal Reports supplies the required syntax elements when you build a formula by picking items from the list, that language is almost transparent for the most part (that is, there is not a lot of the language you have to remember).

Because of their special capabilities, however, variables:

- come with a set of special requirements, and
- require you to have a better understanding of the programming language than you might need if you didn't use variables in your formulas.

Special requirements for using variables in formulas

Up till now, we've worked with formula elements that were pretty narrowly defined:

- a given operator only works in certain situations and with certain kinds of text and/or data,
- a function only works with a specific number of arguments, and each argument must be a specific data type, and
- if--then--else formulas work only if the data type of the *else* part of the formula matches the data type of the *then* part.

Such narrow definition allows you to create formulas, in many cases, simply by filling in the blanks, with the formula checker pointing out any mistakes you make.

Variables, however, are not narrowly defined. They are extremely flexible; you make them what you want them to be. You create them at will, and you include them in formulas as needed.

Because of this flexibility, it is necessary for you to define (declare) the variables before you use them so that Crystal Reports:

- is aware of them,
- understands how you intend to use them, and
- can set aside and set up the memory space they require.

You also need to assign values to the variables so Crystal Reports knows what value they are to return.

Crystal Reports knows only what you tell it about the variables. The fail--safe formula--checker routines that work automatically with the other formula elements work with variables only after you define them.

To use a variable in a formula, you must do three things:

- declare the variable,
- set the value of the variable, and
- enter the variable in the formula.

Crystal Reports requires you to declare all variables prior to using them. When you declare a variable, you tell the program:

- the name you intend to use for the variable, and
- the type of data you want the variable to hold.

The program uses this information to set aside a piece of memory for receiving and storing the values that are assigned to the variable.

NOTE: If you declare a variable with the same name and data type in two or more formulas, the formulas share the same variable. Thus, if one formula sets the value of the variable, the variable in the second (and additional formulas) reflects the change.

Name

You can name the variable anything you wish with the following qualifications:

- the variable name must not exceed 254 characters, and
- it can't have the same name as a Crystal Reports operator or built--in function.

NOTE: As a general rule, you're probably better off if you keep the variable name short, easy to remember, and unique (not so close to the name of another variable as to cause confusion).

Data type

The data type of a variable determines the type of data that can be stored as a value in that variable.

With Crystal Reports, you can create a variable with one of five data types:

- number
- currency
- Boolean
- date
- string

The data types correspond to the data types used throughout Crystal Reports.

See Also

How to declare a variable

How to assign a value to a variable

The formula programming language

Variable Example #1(Streamlining a formula)

Variable Example #2(Running total)

Variable Example #3(Running total/totals only)

Semicolons in formulas

How to declare a variable

You declare a variable at the beginning of the formula that uses the variable.

NOTE: If you are using a variable that was declared in another formula, it is necessary for you to declare it again.

You declare the variable with a declaration statement that lists the data type, a space, the name you want to use for the variable, and a semicolon.

For example, to declare a number variable named Amount, you enter the following declaration statement:

```
NumberVar Amount;
```

If you want to declare a Boolean variable named Outstanding, you enter this for a declaration statement:

```
BooleanVar Outstanding;
```

If you want to declare both variables (or three, four, or more variables), you simply chain them together (making certain that each variable declaration statement ends in a semicolon). For example:

```
NumberVar Amount;
```

```
BooleanVar Outstanding;
```

```
DateVar MonthEnd;
```

Crystal Reports uses your declaration statement to set aside a block of memory to hold each of the variable values, and to assign a default value to each memory block. The default value assigned depends on the data type you declared for the variable. The default values assigned are as follow:

Data type	To declare	Default value
number	NumberVar	0
currency	CurrencyVar	0
Boolean	BooleanVar	False (No, 0)
date	DateVar	null date (Date(0,0,0))
string	StringVar	empty string ("")

How to assign a value to a variable

You assign a value to a variable using an assignment statement. The assignment statement consists of:

- the variable name,
- the assignment operator, and
- the value you want to assign to the variable.

Variable name

The variable name is the name you used to declare the variable.

Assignment operator

The assignment operator is a colon followed by an equal sign (:=).

Variable value

The variable value is any value you want to assign to the variable. A variable value can be a constant, an expression, or a sequence of expressions.

Example assignment statement

Here are the assignment statements for assigning different kinds of values to variables:

```
Amount := 0
```

« initializes (zero's out) the variable named Amount. »

```
Amount := 100
```

« assigns the value 100 to the variable named Amount. »

```
Amount := Amount + {detail.QTY}
```

« assigns the result of a calculation to the variable named Amount. The calculation adds the value of the quantity field {detail.QTY} to the current value of the Amount variable. This type of expression is useful in running total situations where each running total consists of the current amount plus an additional value. »

```
Amount := {detail.QTY1} + {detail.QTY2} + {detail.QTY3}
```

« totals the three quantity fields and assigns the total to the variable named Amount. »

```
Customer := Westside Motors
```

« assigns the string Westside Motors to the variable named Customer. »

```
Customer := {file.FNAME} + {file.LNAME}
```

« concatenates two fields and assigns the concatenated value of both fields to the variable named Customer.»

```
Customer := TrimRight({file.FNAME}) + {file.LNAME}
```

« trims the trailing blanks from the first name field ({file.FNAME}), concatenates that field to the last name field ({file.LNAME}), and assigns the concatenated value of both fields to the variable named Customer. »

```
Customer := Mr. + {file.LNAME}
```

« concatenates the string Mr. with the value of the last name field {file.LNAME}, and assigns the concatenated value to the variable named Customer.

```
Amount := 100; Customer := Westside Motors
```

« Assigns the constant 100 to the number variable named Amount, and assigns the string Westside Motors to the string variable named Customer. You can assign values to multiple variables by separating the assignment statements with semicolons.

Combining a variable declaration and assignment expression

For efficiency, Crystal Reports gives you the ability to declare a variable and assign it a value in a single line of formula code. To do this, simply declare the variable, allow a blank space, enter the assignment operator, and assign the value. For example, to declare a currency variable SellPrice and assign it the value of the Cost field {file.Cost} times two (a 100% markup), you would use this expression:

```
CurrencyVar SellPrice := {file.Cost} * 2;
```

To declare a Boolean variable `OverQuota` and assign it the result of the comparison `{file.Sales}>{file.Quota}`, you would use this expression:

```
BooleanVar OverQuota := {file.Sales}>{file.Quota};
```

To declare and assign values to multiple variables

In the previous section, you learned how to declare a variable and assign a value to it in a single step. There may be times, however, that you want to declare multiple variables and assign values to each of them in the most efficient manner possible. To do this, you simply chain the declaration/assignment expressions together, separating them with semicolons. For example, to declare two variables (a number variable `Quantity`, and a currency variable `SellPrice`) and then to assign values to each variable (the number 5 to the variable `Quantity`, and `{file.Cost} * 2` to the variable `SellPrice`), you use chained expressions similar to the following:

```
NumberVar Quantity := 5;  
CurrencyVar SellPrice := {file.Cost} * 2;
```

Conditionally assigning values to variables

Crystal Reports' formula language gives you the ability to assign different values to variables based on conditions being met or not met. Consider the following formula:

```
NumberVar Total;  
NumberVar Result;  
Total:= Total + {invoices.ITOTAL};  
If Next ({invoices.CNO})<>{invoices.CNO} then  
  (Result:= Total;  
  Total:= 0)  
else  
  Result:= 0;  
Result
```

- The if--then--else part of this formula says that if the if condition is met (if the customer numbers `{invoices.CNO}` are not equal), Crystal Reports is to do two separate things:
 - assign the value stored in the variable `Total` (the running total) to the variable `Result`, and
 - reset the value in the variable `Total` to 0.
- if the if condition is not met (if the customer numbers are equal), Crystal Reports is to assign the value 0 to the variable `Result`.

The formula programming language

The Crystal Reports programming language has been developed as an *expression* language (in contrast to most programming languages which are *statement* languages).

Expressions

An expression is a calculation:

- that involves fields, constants, variables, and/or functions,
- that is tied together by operators, and
- that results in a value.

For example, the calculation:

```
1 + 1
```

is a simple expression that results in the value 2.

The calculation:

```
{file.Cost} <10.00
```

is another expression, this one resulting in the value Yes (for values in the {file.Cost} field of 9.99 and lower, and No {for values in the {file.Cost} field of 10.00 or higher).

Expressions can contain subexpressions

Expressions can contain subexpressions. For example, the calculation:

```
Sum ({file.Qty1}, {file.Qty2}, {file.Qty3})
```

is an expression that results in the sum of the values found in the {file.Qty1}, {file.Qty2}, and {file.Qty3} fields. The expression, taken as a whole, results in a single value, which is the sum of the quantity fields. This expression, however includes three arguments ({file.Qty1}, {file.Qty2}, and {file.Qty3}), each of which is an expression in its own right. For example, {file.Qty1} can stand alone as a complete formula because it returns (results in) the value of the {file.Qty1} field. The other arguments can stand alone for the same reason.

Expressions can be joined in sequence

A sequence of expressions can be joined by semicolons. For example, the expression:

```
1 + 1
```

can be joined to the expression:

```
"abc"
```

with a semicolon:

```
1 + 1; "abc"
```

When expressions are joined in sequence by semicolons, Crystal Reports evaluates each expression in order, but the result of the last expression becomes the result for the entire sequence

The semicolon is of critical importance when working with variables in multi expression formulas.

Variable Example # 1

Formula

```
StringVar AreaCode := {customer.Telephone}[1 to 3];

If AreaCode = "604" then
    "BC"
else
    if AreaCode = "206" or AreaCode = "509" then
        "WA"
    else
        ""
```

Purpose

For a database of Washington and British Columbia customers, you want Crystal Reports to determine and print a state or province abbreviation for each record based on the area code portion (the first three characters) of the telephone number field.

Explanation

```
StringVar AreaCode := {customer.Telephone} [1 to 3];
```

« Declares a string variable, names it AreaCode, and assigns to that variable the value of the first three characters ([1 to 3]) of the telephone number field ({customer.Telephone}). This tells Crystal Reports:

- to set aside a block of memory to hold variable number values,
- to name that memory block AreaCode, and, as it reads each record,
- to store the first three characters of the telephone number field in the AreaCode variable.

NOTE: Note the difference from the earlier examples in which the variables were declared but left with no value assigned until later in the formula. In this case the variable is declared and a value is assigned in a single line of formula code.

With this arrangement, when the word AreaCode is used in the formula, Crystal Reports is to use the value stored in the AreaCode memory block (the area code for the current record) in place of the word AreaCode. »

```
if AreaCode = "604" then
    "BC"
else
    if AreaCode = "206" or AreaCode = "509" then
        "WA"
    else
        ""
```

« This is a fairly standard if--then--else formula. It references the variable AreaCode instead of a database field from which the area code can be extracted.

The first line:

```
if AreaCode = "604" then
```

The first line (the first if condition) says that if the value of the AreaCode variable is 604" (the BC area code), the first then part of the formula should be triggered.

The second line:

```
"BC"
```

indicates what is to happen if the first if condition is met (if the area code is 604). When the first if

condition is met, the formula is to print the characters BC.

The third and fourth lines:

```
else
```

```
    if AreaCode = "206" or AreaCode = "509" then
```

indicate what is to happen if the first if condition is not met (if the area code is not 604). This circumstance triggers the first else part of the formula. The else action is a second if condition. The formula is to evaluate the AreaCode variable and determine if the value of that variable is either 206" (Washington) or 509" (also Washington). If it is, then the second then part of the formula should be triggered.

The fifth line:

```
    "WA"
```

indicates what is to happen if the second if condition is met (if the area code is either 206 or 509). When the second if condition is met, the formula is to print the characters WA.

The sixth and seventh lines:

```
else
```

```
    ""
```

indicate what is to happen if the second if condition is not met (if the area code is not 206 or 509). If the second if condition is not met, the formula is to print the empty string (that is, print nothing). This would happen in the rare case that the area code was typed into the telephone number incorrectly, that it was left out of the telephone number entirely, or that a record with a telephone number outside BC and Washington was inadvertently entered into the database. »

NOTE: In this formula, the entire if--then--else part of the formula follows the only semicolon (the semicolon at the end of the variable declaration/assignment statement). Since it follows the last (only) semicolon, the if--then--else formula, taken as a whole, becomes the final statement in the formula, and the result of that if--then--else formula ("BC", "WA", or "") is what gets printed.

NOTE: While this formula can be done without variables, the formula takes less time to write, consumes less memory, and prints more quickly than a similar formula written without the use of variables.

Variable Example # 2

Formula

```
NumberVar Runtotal;  
If Previous({detail.INO})<>{detail.INO} then  
    Runtotal:= 0  
else  
    0;  
Runtotal:= Runtotal + {detail.LTOTAL}
```

Purpose

Crystal Reports may be used to prepare invoices. Each invoice is made up of one or more line items drawn from a database of invoice details. You want Crystal Reports:

- to keep a running total of the line items for each invoice,
- to print the running total as it processes each record,
- to print the invoice total when the invoice number changes,
- and to reset the running total calculator to 0 prior to reading the first record for the next invoice.

Explanation

```
NumberVar Runtotal;
```

« Declares a number variable and names it Runtotal. This tells Crystal Reports to set aside a block of memory to hold variable number values, and to name that memory block Runtotal. With this arrangement, if the word Runtotal is used in a formula, Crystal Reports is to use the value stored in the Runtotal memory block in place of the word Runtotal.»

```
If Previous({detail.INO})<>{detail.INO} then
```

```
    Runtotal:= 0;
```

```
else
```

```
    0;
```

« This is the heart of the formula. It performs important side events (sets variable values) that impact the formula output (the result of the last statement in the formula).

The first line:

```
If Previous({detail.INO})<>{detail.INO} then
```

is the *if* part of the formula. It uses the Previous function to evaluate the value of the invoice number field ({detail.INO}) for the previous record. It then compares that value to the value of the invoice number field for the current record.

- When the two values are equal, the invoice numbers are the same indicating that the next record belongs to the same invoice.
- When the two numbers are not equal, the invoice number changes signaling the start of a new invoice.

The *then* part of the formula triggers when the numbers are not equal, that is, it triggers whenever the invoice number (and hence the invoice) changes.»

The second line:

```
Runtotal:= 0;
```

tells what is to happen if the *if* condition is met (if the invoice number changes). When that condition is met, the formula is to reset the value of the variable Runtotal to 0 (Runtotal:= 0). It resets the value so that the calculations for the current invoice begin with 0 rather than with a residual value from the previous invoice.

The third and fourth lines:

```
else
```

```
    0;
```


tell what is to happen if the condition is not met (if the invoice numbers are equal, indicating that the invoice number has not changed). When the if condition is not met, the formula is to return the value 0 for the current record.

The final line of the formula:

Runtotal := Runtotal + {detail.LTOTAL}

uses the assignment operator (:=) to assign a value to the variable named Runtotal. In this case, the value assigned is the result of a calculation. That calculation is the current value of the variable Runtotal plus the line total ({detail.LTOTAL}) for the current invoice. This line is used to track a running total for the invoice. For example, if the records indicate line totals of 100, 200, and 450 respectively, the value of the variable Runtotal (the running total for the current invoice) changes as follows:

detail.INO#	Runtotal	Line Total	Calculation	Invoice Total
1001	0	100	0+100	0
1001	100	200	100+200	0
1001	300	450	300+450	0
	750		750	
1002	0	375	0+375	0
1002	375	100	375+100	0
	475		475	
1003	0	200	0+200	0
1003	200	240	200+240	0
1003	440	150	440+150	0
	590		590	
1004	0	100	0+100	0

Since this is the final statement in the formula, the result of this statement is the formula output (what gets printed).

Variable Example # 3

Formula

```
NumberVar Total;  
NumberVar Result;  
  
Total:= Total + {invoices.ITOTAL};  
  
If Next ({invoices.CNO}) <> {invoices.CNO} then  
    (Result:= Total;  
    Total:= 0)  
else  
    Result:= 0;  
Result
```

Purpose

This formula is designed to keep a running total of the invoices for each customer, and to print the total of all invoices for the customer once the final record for that customer is processed.

The formula is set to print a zero (0) for each record that it processes that is not the final record for the customer. (Since the *if* part of the formula results in a number, the *else* part must result in a number too. The number zero satisfies that formula requirement.) If you format the formula field using the Suppress if Zero option, Crystal Reports hides all the zero values, and the net effect is to show customer totals only.

Explanation

NumberVar Total;

« Declares a number variable and names it Total. This tells Crystal Reports to set aside a block of memory to hold variable number values, and to name that memory block Total. With this arrangement, if the word Total is used in a formula, Crystal Reports is to use the value stored in the Total memory block in place of the word Total. »

NumberVar Result;

« Declares a number variable and names it Result. This tells Crystal Reports to set aside another block of memory to hold variable number values, and to name that memory block Result. With this arrangement, if the word Result is used in a formula, Crystal Reports is to use the value stored in the Result memory block in place of the word Result. »

Total:= Total + {invoices.ITOTAL};

« Uses the assignment operator (:=) to assign a value to the variable named Total. In this case, the value assigned is the result of a calculation. That calculation is the current value of the variable Total plus the invoice total ({invoice.ITOTAL}) for the current invoice. As further lines of the formula will reveal, this line is used to total the value of invoices for a given customer. For example, if the records indicate invoice totals of 100, 200, and 450 respectively, the value of the variable Total (the total value of invoices for a given customer) changes as follows:

Total	Invoice Total (ITOTAL)	Calculation (Total + ITOTAL = new Total)
0	100	0+100
100	200	100+200
300	450	300+450
750		

```
If Next ({invoices.CNO}) <> {invoices.CNO} then  
    (Result:= Total;  
    Total:= 0)
```

else

Result:= 0;

« This is the heart of the formula. It performs important side events (sets variable values) that impact the formula output (the result of the last statement in the formula).

The first line:

If Next ({invoices.CNO}) <> {invoices.CNO} then

is the *if* part of the formula. It uses the Next function to evaluate the value of the customer number field ({invoices.CNO}) for the next record. It then compares that value to the value of the customer number field for the current record.

- When the two values are equal, the customer numbers are the same indicating that the next record belongs to the same invoice.
- When the two numbers are not equal, the customer number changes signaling the start of a new invoice.

The *then* part of the formula triggers when the numbers are not equal, that is, it triggers whenever the customer number (and hence the invoice) changes.

The second and third lines:

(Result:= Total;

Total:= 0)

tell what is to happen if the if condition is met (if the customer number changes). When that condition is met, the formula is to assign the value of the variable Total to the variable Result (Result:= Total;) and then reset the value of the variable Total to 0 (Total:= 0). It resets the value so that the calculations for the next invoice begin with 0 rather than with a residual value from the current invoice.

The final line:

The final line of the if--then--else formula

(Result:= 0;)

is the else part of the formula, the action that is to take place when the if condition is not met (if the customer number does not change). When that condition is not met, the formula is to assign the value 0 to the variable Result.»

Result

« This line says to print the value of the variable Result. The value printed is determined by the outcome of the if--then--else formula that precedes it.

- If the if condition is met (if the customer number changes), the value of the variable Result is the value of the variable Total before it was reset to 0.

Thus, if Total had begun at 0 and the invoice totals (values of the {invoices.ITOTAL} field for each record with the same customer number) had been added to it, the value of the variable Total that is assigned to the variable Result (and is printed) is the total of all invoices for the customer.

- If the if condition is not met (if the customer number does not change), the value of the variable Result is set to 0, and the formula prints the value 0. »

The following data shows the interrelationship between the variables and the output from this formula:

Cust#	Total	Invoice Total	Calculation	Result
1001	0	100	0+100	0
1001	100	200	100+200	0
1001	300	450	300+450	0
750			750	
1002	0	375	0+375	0
1002	375	100	375+100	0
475			475	

1003	0	200	0+200	0
1003	200	240	200+240	0
1003	440	150	440+150	0
590				590
1004	0	100	0+100	0

NOTE: You can achieve the same results as you do with this formula by subtotaling the invoice total field {invoices.ITOTAL} every time the value changes in the customer number field {invoices.CNO}, and by placing the subtotal on the same line in the Details section as the invoice total field.

Semicolons in formulas

In a formula with multiple statements, the result of the final statement is the result that is returned (gets printed). When you have multiple statements in a formula, you must separate the statements using a semicolon so that Crystal Reports knows where one statement ends and the next begins. Without semicolons, Crystal Reports treats the entire formula as a single statement. In a multiple statement formula, this can result in an incorrect result or an error message.

The general rule that best describes the use of semicolons in multiple statement formulas is this:

- Every statement needs to end in a semicolon with two exceptions:
 - the last statement in a formula doesn't need one, and
 - the last statement before an else (when there are multiple statements before an else) doesn't need one.

Deleting Formulas from your report

When you create a formula and enter it in your report, Crystal Reports does two things:

- it stores the specification for creating that report, using the name you assigned it, and
- it places a working copy of that specification at the point you specify in the report.

In order to delete formulas, you can delete:

- individual working copies of the formula.
- the specification and all working copies of the formula, or

NOTE: You cannot delete the specification without deleting all working copies of the formula.

To delete individual working copies of the formula

- To delete individual working copies of the formula, select the formula copy you want to delete and then:

- Click the right mouse button and select Delete Field from the pop--up menu that appears,
- press the Delete key on your computer's numeric keypad, or
- select Edit|Clear.

NOTE: Even after you have deleted all of the working copies of a formula from your report, the formula specification remains unchanged. The specification is listed in the Insert Formula dialog box, and it is available for immediate use should you wish to enter the formula again in your report. To delete the formula specification, follow the steps below.

To delete the specification (after you have deleted all working copies of the formula)

1. Once you have deleted all working copies of the formula, select Insert|Formula. The Insert Formula dialog box appears.
2. Select the formula specification you want to delete from the Formula name list. Crystal Reports activates the Delete button.
3. Click the Delete button, and Crystal Reports deletes the formula specification.

NOTE: If you haven't deleted all working copies of the selected formula, the program displays the following message: Please delete all uses of the formula in the report first.

Copying formulas from Crystal Reports Help

Windows 3.0 and 3.1 allow you to copy text from help topics to the Clipboard. You can then paste this text wherever it is needed. Since the formulas you develop using the Formula Editor are simply text, you can save yourself a lot of time by copying useful formulas directly into the Formula Editor and then modifying it to fit your needs..

To copy formulas from Help

With the Formula Editor active:

1. Call up the Crystal Reports Help facility in any of the standard ways (Help menu, Help button, F1 function key).
2. Regardless of the topic that first appears, use Search to find the topic that contains the formula of interest.
3. Call up the topic.
4. Select Edit|Copy. The Copy dialog box appears with the topic text displayed in a scrolling edit window.
5. Scroll down through the topic until you locate the formula you want to copy.
6. Select the formula by dragging the I--beam cursor over it, and Click the Copy button when finished. Windows puts a copy of the selected text into the Windows Clipboard.
7. Place the insertion point where you want the text to appear in the Formula Editor and press Shift--Ins to paste the text from the Clipboard.
8. Modify the formula to fit your needs.

Titles of Help topics that contain useful formulas

- All topics for individual functions and operators. (Locate by function/operator name or Click the Contents button and call up the Functions or Operators index from the Reference Information section of Index to Crystal Reports Help.)

Other Help topics that contain useful example formulas are:

- How to assign a value to a variable contains example assignment statements for a variety of assignment scenarios.
- How to create aging reports contains a number of if--then--else formulas that can be modified and used to create aging reports.
- Formulas in Action leads you to a number of complex formulas for solving a variety of real world reporting problems.

STACKING FORMULAS AND FIELDS

When you use an if--then--else formula, the data type of the *then* consequence must match the data type of the *else* consequence. In other words, you cannot have a formula like this:

```
if {file.AMOUNT} 0 then
  {file.AMOUNT}
else
  Zero
« where file.Amount is a numeric field. »
```

- The data type of the *then* consequence *file.Amount* is a number.
- The data type of the *else* consequence field must be a number as well.

-- But in this formula, the else consequence is a string, Zero.

Since the data types don't match, the program will not allow the formula and you will get an error message.

The formula above is trying to solve a real world reporting problem, i.e., to print a string instead of the number 0 to call particular attention to zero values. Fortunately, there is a way to get the results wanted, and that is by stacking fields and formulas (multiple fields and/or formula fields stacked on top of one another).

NOTE: A stack of formulas is not a vertical stack of formula fields (vertical on the screen). When you stack formulas, the stack seems to build out from the screen, towards you (theoretically, not visually). A stack of formulas looks essentially like one formula, but the text inside the top formula box is garbled because the text from formula boxes lower in the stack is showing through as well.

Reproducing the effect using a stack

Creating the effect from the formula above using stacked fields and/or formula fields follows this process:

1. Insert the *file.Amount* field in the Details section of your report.
2. Format the *file.Amount* field so that nothing prints if the value in the field is zero. To do this, you format the field using the Suppress if Zero option in the [Format Number dialog box](#). At this point, the value in the *file.Amount* field will print *only* if it is something *other* than zero.
3. Create an [if--then--else formula](#) that prints the word Zero if the value in the *file.Amount* field is zero and that prints nothing (an empty string) if the value in that field is something other than zero.

```
if file.AMOUNT = 0 then
  Zero
else
```

4. Stack the formula field directly on top of the *file.Amount* field.
- Both stacked items (the *file.Amount* field and the formula field) are mutually exclusive.
-- Each one prints something only when the other one doesn't print.
 - By restricting our stack to mutually exclusive fields and formulas, we never run into a situation where two or more values print at the same time, thus putting unreadable and unsightly printing in your report.
 - As long as we restrict our stack to mutually exclusive items, we can put many items in the stack and still get only one value printing at a time.
With this understanding of stacking theory and some careful planning and experimenting, you can create some very intelligent reports.

NOTE: When fields are stacked in such a way that you can select more than one field, the field selected becomes the top field in the stack.

Support Questions and Answers

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- [Extraneous characters in Font dialog box](#)
- ["See through" dialog boxes](#)
- [Maximized window remains open](#)
- [Using program with Norton Desktop for Windows](#)
- [Restored window includes highlighted lines](#)
- [Total records increasing in record counter](#)
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Command topics

- [Using Cut, Copy, Paste in the Formula Editor](#)
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Avoiding clipped text on right edge of report

In rare circumstances, text that appears fine on screen gets clipped off during printing. Those circumstances typically occur when you tab over to the right side of the Report Editor and enter text that finishes close to the right edge of the Editor. This phenomenon occurs when tabs are expanded and become wider in the printer due to differences in screen/printer metrics used for proportional spacing. The text thus begins closer to the edge than expected, and one or more of the final characters is clipped off.

How to avoid clipped text problems

1. Create a text field consisting only of the text you want to enter at the right edge of the report. To do this:
 - a. Select Insert|Text Field. The Edit Text Field dialog box appears.
 - b. Type in the text you want.
 - c. Click the Accept button when finished. A rectangular placement cursor appears.
 - d. Position the placement cursor at the right edge of the Report Editor and Click the left mouse button to place it.
2. Select Format|Field. The Field Format dialog box appears.
3. In the Alignment scroll box, select right, and Click OK when finished.

Crystal Reports right aligns the selected text in the field box, creating a placement as close to the right edge of the Editor as possible. And because it is in a field box, the text does not get clipped off as long as the field box is totally within the Report Editor.

Default printer must be selected

You cannot begin using Crystal Reports unless you have a default printer selected. Trying to start the program without a default printer results in an error message.

To select a default printer

- Select the *Printers* icon in the Windows Control Panel; the Printers dialog box appears with all installed printers listed in the Installed Printers box.
 - If you have already installed the printer you want to use as the default printer, Double Click its listing in the Installed Printers box.
 - If you haven't yet installed the printer, install it first, and then Double Click its listing.

NOTE: A printer must first be given the status Active before it can be selected as the default printer.

NOTE: For additional information on installing printers and default printers, please refer to the documentation that came with Microsoft Windows.

See through dialog boxes

If you run into a situation where dialog boxes are "see-through," that is, if the background of the dialog box does not block out the content of the window stacked directly beneath it, you may have a problem with the file BWCC.DLL. Here's how the problem can occur:

- BWCC.DLL is installed in the CRW directory (the same directory in which CRW.EXE resides) during program installation.

NOTE: If you have installed Crystal Reports in a directory other than CRW, substitute the name of that directory whenever the directory CRW is referenced.

- The CRW directory is added to the *end* of the path statement in AUTOEXEC.BAT during installation (if you allowed the installation program to update the path statement).
- If an older version of BWCC.DLL has been installed in a directory that appears *earlier* in the path than the CRW directory (the result of an earlier installation), Crystal Reports picks up that version, not the newest version in the CRW directory.

To correct this problem

The correct version of BWCC.DLL is shipped with Crystal Reports. To correct the problem, delete older versions of BWCC.DLL that reside in directories earlier in the path than CRW.

If this doesn't solve the problem, move the latest version of BWCC.DLL from the CRW directory to the Windows directory.

NOTE: The correct version of BWCC.DLL is version 1.1. This version has a size of 153,312 bytes and a time stamp of 1:10 a.m.

Btrieve page size too small

During installation, Crystal Reports adds the following entry in WIN.INI:

```
[btrieve]
```

```
options=/m:38 /p:4096 /f:16 /l:20
```

The *p* parameter is the parameter for page size, and, in certain situations, it may not be large enough.

To correct the problem

When using Btrieve files, if you get a message that the page size is not large enough, increase this parameter in the WIN.INI file using the Windows Notepad or another ASCII text editor.

For additional information on modifying WIN.INI files, please refer to the documentation that came with Microsoft Windows.

Fine tuning group selection formulas

You may run into situations in which a group selection formula results in no values printing even though there are values that match the selection criteria. Typically, in these cases,:

- the group selection formula references another formula, and
- the referenced formula is one that calculates the value of each group as a percentage of the total value of all groups (i.e., a subtotal as a percentage of a grand total).

A typical scenario:

1. You create an order report that includes the following fields:

{company.CONAME}

{company.STATE}

{header.ORDERNUM}

{header.AMOUNT}

For each order, the report shows the company that placed the order, the state in which that company is located, the order number and the amount of the order.

2. You want to see the value of orders coming from each state, so you subtotal the *{header.AMOUNT}* field using *{company.STATE}* as the sort and group by field. (Crystal Reports sorts the data by state and calculates a subtotal in the *{header.AMOUNT}* field every time the state changes.)
3. You want to see the total value of all orders placed so you grand total the *{header.AMOUNT}* field as well.
4. You want to see the value of orders for each state group as a percentage of all orders placed, so you create a report formula (Percent) that calculates each subtotal as a percentage of the grand total:

$\text{Sum}(\{header.AMOUNT\}, \{company.STATE\}) \% \text{Sum}(\{header.AMOUNT\})$

5. You want to find which states individually contributed less than 5% of total sales. To do that, you reference this formula (**@percent**) in a group selection formula that selects only those groups for which the percentage (of subtotal to grand total) is less than 5%:

@percent < 5

Even though there are groups that have a percentage of less than 5%, nothing prints when you go to print the report.

How to correct this problem

The problem can be corrected easily. **Instead of using the formula name** (in this case **@percent**) in the group selection formula, **enter the formula itself** (the formula named **@percent**). Thus, instead of using the group selection formula:

@percent < 5

use the group selection formula

$\text{Sum}(\{header.AMOUNT\}, \{company.STATE\}) \% \text{Sum}(\{header.AMOUNT\}) < 5$


Now when you print, all the states (and only the states) that contributed less than 5% will print.

Speeding up the process

To speed the process and minimize the chance for mistakes, you can copy the formula into the group selection formula using Windows' Copy and Paste commands. To do this:

1. Select from your report the formula you want to use in the group selection formula.
2. Select Edit|Formula. The Formula Editor appears with the formula in the Formula text box.
3. Copy the formula to the Clipboard using the Copy command (Ctrl+Insert).
4. Click on Accept or Cancel to close out the Formula Editor.
5. Select Print|Edit Group Selection Formula. The Formula Editor appears.
6. Paste the formula into the Formula Text box using the Paste command (Shift+Insert).
7. Add additional formula elements as needed.

Maximized window remains open.

If you are using Windows 3.0, Double Clicking the Control icon  for a maximized window will not close the window as it should.

To close the window

You need to select the Close command from the Control menu or File|Close to close the window. If you are using Windows 3.1, this problem should not occur; Double Clicking the Control icon should close the window as expected.

Restored window includes highlighted lines

If you are using Windows 3.0 and you maximize a window, then minimize it to an icon, and then restore it, some of the lines in the window may be highlighted. This problem does not occur under Windows 3.1.

To correct the problem

To make the highlighting disappear, do anything active to the window (move it, resize it, etc.).

Making certain program can find DLL's

Crystal Reports utilizes several DLL's (Dynamic Link Libraries) during its operation. DLL's are program modules that each perform specific tasks. It follows that Crystal Reports must be able to find these DLL's in order to operate properly. For this reason, it is important that you reboot your PC after you have installed Crystal Reports. Rebooting activates the new path statement that includes the directory that contains the DLL's (CRW or the other directory you selected during installation). Without rebooting, the computer doesn't know that CRW is in the path, and Crystal Reports will not know where to look for the needed DLL's.

Extraneous characters in Font dialog box

If you run into a situation where you find extraneous characters in the Font dialog box, you may have a problem with the file COMMDLG.DLL. Here's how the problem can occur:

- COMMDLG.DLL is installed in the CRW directory (the same directory in which CRW.EXE resides) during program installation.

NOTE: If you have installed Crystal Reports in a directory other than CRW, substitute the name of that directory whenever the directory CRW is referenced.

- The CRW directory is added to the *end* of the path statement in AUTOEXEC.BAT during installation (if you allowed the installation program to update the path statement).
- If an older version of COMMDLG.DLL has been installed in a directory that appears *earlier* in the path than the CRW directory (the result of an earlier installation), Crystal Reports picks up that version, not the newest version in the CRW directory.

To correct the problem

Crystal Reports comes with the latest version of COMMDLG.DLL. To eliminate the extraneous fonts--in--the--Font--dialog--box problem, move the version of COMMDLG.DLL that comes with Crystal Reports from the CRW directory to the \Windows\System directory.

Using program with Norton Desktop for Windows

If you are using Norton Desktop for Windows and you find Crystal Reports to be behaving strangely (you can't use the mouse, etc.), the problems can probably be traced to certain Norton Desktop for Windows incompatibilities with Borland's Object Windows Library (OWLn.DLL) which is used by Crystal Reports.

To correct the problem

These problems were a known problem with Version 1.0 of Norton Desktop for Windows. The developer of that program says that the problems have been corrected in Version 2.0.

If you are using Crystal Reports with Version 1.0 of Norton Desktop for Windows, one suggested method for trying to fix the problem is as follows:

1. Go into the Norton Desktop for Windows control panel.
2. Turn the launcher and launch manager off.
3. Reboot your system and call up Crystal Reports again.

Command tips and tricks

The following tips and tricks reference various Crystal Reports commands. Each item can be found elsewhere as part of another topic. The items are presented together here to provide easy review of many important tips, tricks, cautions, and explanations.

1. To speed the report building process, the Insert Database Field dialog box is set to remain on screen until you Click the Done button. The dialog box can be moved anywhere on screen that is convenient.
2. You can change the default field formats via the File|Options command.
3. Crystal Reports stores your default options in the file CRW.INI, located in the Windows directory.
4. The Insert|Subtotal command is simply a shortcut for setting up a summary field that adds the values in each group.
5. Delete Section deletes both the Group Header and the Group Footer section for the selected group. You cannot use this command to delete one of the two sections but not the other. If what you want to do is to keep one of the sections from printing but not the other, you can do that using the Hide Section option under the Format|Section command.
6. The Format|Section command allows you to reset the page number for invoices, statements, etc.
7. You can hide either the Group Header section or the Group Footer section for any group by activating the Hide Section option available via the Format|Section command.
8. When using Database|Add File to Report, you must Click the Add Field button in the Define Link dialog box to select the link field in the Link from file. If you don't, you will get an Invalid File Link message from Crystal Reports.
9. Database|File Location does not physically move the database(s). It simply directs Crystal Reports to look for the database(s) in a different location than you originally specified when setting up the report.
10. You cannot use the Same As Report button in the File Location dialog box until you have saved the report.
11. Database|File Alias changes the alias only, not the database location. If you want to change the location of a database (i.e., tell Crystal Reports to find the database in a new location), use Database|File Location.
12. Database|File Alias does not affect the aliases already used in formulas. When you change an alias, you must make certain that you change any formula references to the old alias as well. For example, if you change the company alias to customer, you must make certain that you change any formula references from {company.fieldname} to {customer.fieldname}. If you don't make such a change, Crystal Reports will be unable to locate the referenced field and return an error message. Formula references include both formulas used in the report and selection formulas as well.

Database tips and tricks

The following tips and tricks reference various database--related topics. Each item can be found elsewhere as part of another topic. The items are presented together here to provide easy review of many important tips, tricks, cautions, and explanations.

1. When you have activated multiple databases, the fields in the Insert Database Field dialog box are grouped by database, and each group is headed by the alias you selected for the database of origin.
2. .ddf files are data dictionary files created by Novell's Xtrieve utility. You will need to create .ddf files using this utility (or get .ddf file information from the database developer) before you can use Btrieve files with Crystal Reports.
3. The currency provision is included in the Format Number dialog box to make it easier for you to work with fields from dBASE databases, since dBASE doesn't offer a currency data type.
4. When working with dBASE files in the Define Link dialog box, you must pick an index that resides in the same directory as its corresponding .dbf file.

Formulas, functions, and operators tips and tricks

The following tips and tricks reference various formula, function, and operator--related topics. Each item can be found elsewhere as part of another topic. The items are presented together here to provide easy review of many important tips, tricks, cautions, and explanations.

1. The Cut command can be used in the Report Editor (for text) and in the Formula Editor (for any formula element) via the Windows keyboard command Shift--Delete.
2. The Copy command can be used in the Report Editor (for text) and in the Formula Editor (for any formula element) via the Windows keyboard command Ctrl--Ins.
3. The Paste command can be used in the Report Editor (for text) and in the Formula Editor (for any formula element) via the Windows keyboard command Shift--Ins.
4. You can't use commas in numbers you enter in a formula. Enter only the number itself.
5. In order for a group function to work [Sum(fld, condFld), Average(fld, condFld, cond), etc.], you must have already defined a group section in your report that matches the group selection criteria you build into your formula. For example, if you want your report to include only those groups with a subtotal greater than \$1000 in the Amount field (triggered by changes in the Customer field), you must have already used in your report a group field (summary field or subtotal) that sums (totals) the Amount field whenever there is a change in value in the Customer field.
6. Text strings must be enclosed in either double or single quotation marks (" " or ` `). Crystal Reports includes any blank spaces as part of the character count.
7. ToText does not convert commas (or other thousands separators) to text. In the present example, it converts 14,233.08 (the number) to "14233.08" (text) and then counts the number of characters in the text to arrive at the length (8)
8. You don't have to have a page number field in your report to use the PageNumber function in a report formula.
9. If the denominator of a division formula = 0, the report will be halted with a divide by zero warning from Crystal Reports. If you want to avoid this type of problem, you should put a test in. For example:

if {file.forecast} = 0 then

0

else

{file.sales} / {file.forecast}

10. \$ * \$ = error. You can not multiply a dollar with a dollar.
11. The subscript ranges are 1 origin: they start at 1 rather than 0. (See Subscript Operator (String))
12. The correct expression for specifying a range of elements in a text string (array) is x to y. (See Subscript Operator (String))
13. "In" can be used to test for the presence of text in a text range, i.e., "V5B" in "V0A" to "V9Z". Such a range can be created using the Make Range operator.
14. Formulas are treated as text by Crystal Reports. The program uses syntax items (quotation marks, brackets, parentheses, etc.) to identify the various formula components.
15. When Crystal Reports displays the syntax elements for an array of items, only the first comma is included. As you enter additional items into an array, you will need to type in commas to separate the items.
16. A formula cannot reference itself.
17. You cannot reference any formulas that do not appear on the list in the Fields box in the Formula Editor.
18. Due to the syntax complexity for some group fields, it is highly recommended that you enter group fields in formulas by selecting them from the field list in the Formula Editor rather than typing them in manually.
19. When you Click the Accept button in the Formula Editor, Crystal Reports automatically checks the

syntax of the formula before allowing you to place it in the report.

20. In an if then else formula below, the ToText function is used to convert the page number to a string so that it will print an empty string (nothing) on the first page.

```
If PageNumber <> 1 then  
    ToText(PageNumber)  
  
else  
    ""
```

Were the formula to use PageNumber as a number in the formula without first converting it, the else part of the formula would have to be a number too as in the formula below (because the then and the else parts of the formula must be of the same data type).

```
If PageNumber <> 1 then  
    PageNumber  
  
else  
    0
```

With this formula we would then have had to format the formula field to Suppress if Zero to keep anything from printing on the first page.

21. Database|File Alias does not affect the aliases already used in formulas. When you change an alias, you must make certain that you change any formula references to the old alias as well. For example, if you change the company alias to customer, you must make certain that you change any formula references from {company.fieldname} to {customer.fieldname}. If you don't make such a change, Crystal Reports will be unable to locate the referenced field and return an error message. Formula references include both formulas used in the report and selection formulas as well.

Groups(subtotals, summary fields) tips & tricks

The following tips and tricks reference various group--related topics. Each item can be found elsewhere as part of another topic. The items are presented together here to provide easy review of many important tips, tricks, cautions, and explanations.

1. Delete Section deletes both the Group Header and the Group Footer section for the selected group. You cannot use this command to delete one of the two sections but not the other. If what you want to do is to keep one of the sections from printing but not the other, you can do that using the Hide Section option under the Format|Section command.
2. You can't sum or average a text, Boolean, or date field.
3. You can summarize both subgroups and the report as a whole if you wish. Simply enter one summary field in a Group section and another in the Grand Totals section.
4. When you select Insert|Group Number Field, Crystal Reports assigns a number to each group as it processes the records for printing. The number assigned represents the number of the group as it is printed. The groups A, B, and C, for example, if sorted in ascending order (A to Z), will have the following group numbers: Group A = 1, Group B = 2, Group C = 3. The same groups, if sorted in descending order (Z to A), will have the following group numbers: Group C = 1, Group B = 2, Group A = 3. The term group number thus refers to the position of the group in the report, not to the data in the group; if a group of data changes its position in a report relative to other groups, its group number changes as well. (See Insert|Group Number Field)
5. If you want to get all of the details in a group, plus the Group Start and the Group End sections, to start on a new page, there are two techniques you can use to accomplish this.
Use New Page Before in the Group Start Section, or use New Page After in the Group End section. Both techniques produce the same output except at the end of the report.
 - With the first method (Group Start section), the Grand Total section prints on the same page as the last group.
 - With the second method (Group End section), the Grand Total Section prints on a separate page.
6. You can use Page Number and Record Number fields in a group selection formula via the PageNumber and RecordNumber functions.
7. When you create a group, both the group header and group footer sections are given the same name so you can tell that they are tied together. The two sections are also tied together visually.
8. You can hide either the Group Header section or the Group Footer section for any group by activating the Hide Section option available via the Format|Section command.
9. The Insert|Subtotal command is simply a shortcut for setting up a summary field that adds the values in each group.
10. Not all summary field options are available for every data type. For example, you can't sum or average text fields.
11. In order to use a group field in a formula, you must have already entered a group field in your report with identical parameters: same field, same sort and group by field, same date condition (if applicable), and same action.
12. If you group your data using the Insert|Group, Insert|Subtotal, or Insert|Summary Field command, Crystal Reports sorts your data automatically, as part of the grouping process. For example, if you sort a customer list by state, Crystal Reports first sorts the list alphabetically by state, before breaking it into state groups. In such a case, you don't have to use this command to generate the sorting.
13. When you sort by group, nothing happens to the sort order of the records within a group (as evidenced by the record numbers in the table above); only the relative positions of the groups themselves change.
14. When you format the document so that only one group appears per page, the sum for each group, the subtotal, effectively becomes the total for your document.
15. You can tell when data is grouped because two new sections appear in the Report Editor bracketing the Details section. These sections are identified with the name of the field you selected as the sort and group by field.

16. You can nest groups within groups (i.e., company within city within state, etc.). You can add additional nesting levels as needed; there is no practical limit to how many nesting levels you can set up.

Installation, configuration, and setup tips and tricks

A printer must first be given the status Active before it can be selected as the default printer.

Links tips and tricks

The following tips and tricks reference various link--related topics. Each item can be found elsewhere as part of another topic. The items are presented together here to provide easy review of many important tips, tricks, cautions, and explanations.

1. You must Click the Add Field button in the Define Link dialog box to select the link field in the Link from file. If you don't, you will get an Invalid File Link message from Crystal Reports.
2. If you are using an index that indexes on two or more fields, all of those fields will appear in the Link Fields box in the Define Link dialog box. It will be necessary for you to add all of the corresponding link fields from your first database using the steps described in the Link from File box.
3. Each time you add or remove a field or index, the linking instructions in the bottom box change to conform to your selection.

Mouse, keyboard, and cursor tips and tricks

The following tips and tricks reference various mouse, keyboard, and cursor--related topics. Each item can be found elsewhere as part of another topic. The items are presented together here to provide easy review of many important tips, tricks, cautions, and explanations.

1. You can delete text and fields using the right mouse button menus. Select the text or field you want to delete and Click the right mouse button to call up the menu. If you are deleting text, select the Clear option. If you are deleting a field, select the Delete Field option.
2. If you have swapped left/right mouse buttons via the Control Panel, the left mouse button will activate the pop--up menus.
3. You can use the keyboard as well as the buttons to move around in the Print Window. Ctrl+Home moves you to the first page, Pg Up moves you to the previous page, Pg Dn moves you to the next page, Ctrl--End moves you to the last page, and Esc closes the print window.
4. As a visual aid, the cursor changes to the shape of a tiny hand whenever it is over a jump expression in the Help facility.

Numbers (page, group, record) tips and tricks

The following tips and tricks reference various number--related topics. Each item can be found elsewhere as part of another topic. The items are presented together here to provide easy review of many important tips, tricks, cautions, and explanations.

1. You can insert as many page number fields in your report as you wish. Page numbers may appear in any section of the report.
2. The Format|Section command allows you to reset the page number for invoices, statements, etc.
3. You don't have to have a page number field in your report to use the PageNumber function in a report formula. Crystal Reports determines the page number internally rather than from its external display on your report.
4. You can use Page Number and Record Number fields in a group selection formula via the PageNumber and RecordNumber functions.
5. When you use Insert|Record Number Field, Crystal Reports assigns a number to each record as it processes the records for printing. The number assigned represents the number of the record as it is printed. The records A, B, and C, for example, if sorted in ascending order (A to Z), will have the following record numbers: Record A = 1, Record B = 2, and Record C = 3. The same records, if sorted in descending order (Z to A), will have the following record numbers: Record C = 1, Record B = 2, and Record A = 3. The term record number thus refers to the record position in the report, not to the record position in the database from which it came; if a record changes its position in a report relative to other records, its record number changes as well. (See Insert|Record Number Field)
6. When you use Insert|Group Number Field, Crystal Reports assigns a number to each group as it processes the records for printing. The number assigned represents the number of the group as it is printed. The groups A, B, and C, for example, if sorted in ascending order (A to Z), will have the following group numbers: Group A = 1, Group B = 2, Group C = 3. The same groups, if sorted in descending order (Z to A), will have the following group numbers: Group C = 1, Group B = 2, Group A = 3. The term group number thus refers to the position of the group in the report, not to the data in the group; if a group of data changes its position in a report relative to other groups, its group number changes as well. Only the innermost groups are numbered. (See Insert|Group Number Field)
7. Besides rounding numbers via the Format|Field command, you can also round a number by putting the number in a formula and using the Round(x, # of decimal places) function.
8. You can't use commas in numbers you enter in a formula. Enter only the number itself.

Report layout and formatting tips and tricks

The following tips and tricks reference various layout and formatting related topics. Each item can be found elsewhere as part of another topic. The items are presented together here to provide easy review of many important tips, tricks, cautions, and explanations.

1. The Default Section Font button in the Options dialog box (File|Options) gives you the opportunity to customize the Crystal Reports Report Editor to best fit your needs. When you make changes via the button, Crystal Reports simply changes the defaults so the fonts used in each section appear in the format you typically want them in. These default changes don't in any way limit the fonts available for use in any section of your report, however. You still have the ability to reformat text or field elements individually if you wish.
2. When you change fonts, Crystal Reports automatically adjusts line and letter spacing to accommodate your change.
3. You can change the default field formats via the File|Options command.
4. The changes you make via the Field Formats box in the Options dialog box (File|Options) apply only to elements that you insert after you make the changes. Elements that you entered before you changed the defaults retain their previous format.
5. Besides rounding via the Format|Field command, you can also round a number by putting the number in a formula and using the Round(x, # of decimal places) function.
6. Thousands separator (Format|Field/Format Number dialog box) allows you additionally to type in a character to be used as a thousands separator. The default is a comma (.). If you want to change the separator, delete the comma in the edit box and replace it with the separator of your choice.
7. If you want to get all of the details in a group, plus the Group Start and the Group End sections, to start on a new page, there are two techniques you can use to accomplish this.
Use New Page Before in the Group Start Section, or use New Page After in the Group End section. Both techniques produce the same output except at the end of the report.
 - With the first method (Group Start section), the Grand Total section prints on the same page as the last group.
 - With the second method (Group End section), the Grand Total Section prints on a separate page.
8. Not all options are available for formatting all sections. For example, New Page Before and New Page After are not available options when you are formatting the Page Header section: Crystal Reports already generates a page break before each Page Header section, and, since a header cannot stand alone on a page, there is no need for the Page Break After option.
9. If you want to center the text over a field, or right or left align it, you can type the text into a formula and use the Format|Field alignment commands to set the alignment of the text within the formula field (See Centering Text and Fields).
10. Text can be moved right and left (with the Tab and Backspace keys) and so can fields (with the Right Arrow and Left Arrow keys). By moving text and fields in concert, you should easily be able to get good alignment.
11. If you want to move several pieces of text on a given line into position (i.e., aligning titles with data fields), begin at the left. Move the leftmost text into position, reset the insertion point to the left of the second text element and move it into position, reset the insertion point to the left of the third text element, etc.
12. Crystal Reports allows you to move fields across other fields without affecting the placement of the bottom fields.
13. To align field titles with fields it's best to work from left to right. Make certain the first title is aligned with its field, then align the second title with its field, etc. Aligning, in this case, consists of aligning the left edge of the title with the left edge of the field.
14. You can hide either the Group Header section or the Group Footer section for any group by activating the Hide Section option available via the Format|Section command.
15. Use the TrimLeft and TrimRight functions to eliminate spaces before and after left-justified and right-justified string fields. For example:

TrimLeft({file.Item number})

will trim the spaces to the left of the item number, which is stored right-justified. The example for ToNumber also includes the use of the ToString function.

16. To print only those records for which there is a match in the lookup database (instead of printing all records and showing nothing as a value when there is no match in the lookup database), enter the following as the selection formula using the Print|Edit Record Selection Formula command.

not IsNull({emp.EmpNum})

This prints only those records that don't have a null value in the EmpNum field.

Report topics tips and tricks

The following tips and tricks reference various report topics. Each item can be found elsewhere as part of another topic. The items are presented together here to provide easy review of many important tips, tricks, cautions, and explanations.

1. As a default, Crystal Reports allows three lines for the page header and three lines for the page footer. If you need more lines than that, click the I-beam cursor in the appropriate section and press Enter one time for each additional line you want to add.
2. For section integrity, Crystal Reports will not let you move a field outside the section in which it was originally placed. If you try to move the field to a different section, it snaps back to the section of origin when you release the mouse button. If you want to move a field to a different section of the report, delete the field in its current position (using the Delete key or EditClear command), and re--insert the field in the new section using the InsertDatabaseField command.
3. When you hide the Details section (using FormatSection/HideSection), you hide everything in the Details section. You may have certain fields, formulas or string in that section that you want to appear on your final report, however. Re--enter those items in the subtotal section where they will print along with the summarized values.

Selection formula tips and tricks

The following tips and tricks reference various selection formula--related. Each item can be found elsewhere as part of another topic. The items are presented together here to provide easy review of many important tips, tricks, cautions, and explanations.

1. No placement cursor appears when you create a selection formula; the formula is simply stored in the Crystal Reports report.
2. Your record selection formula must be Boolean, that is, it must result in a Yes or No answer.
3. You can use Page Number and Record Number fields in a group selection formula via the PageNumber and RecordNumber functions.
4. Sorting is done automatically for all groups. For example, if you group on Customer, Crystal Reports knows to sort on customer. The sorts specified in the Sort Order dialog box will take lesser precedence.
5. To print only those records for which there is a match in the lookup database (instead of printing all records and showing nothing as a value when there is no match in the lookup database), enter the following as the selection formula using the Print|Edit Record Selection Formula command.

not IsNull({emp.EmpNum})

This prints only those records that don't have a null value in the EmpNum field.

Sorting tips and tricks

The following tips and tricks reference various sorting--related topics. Each item can be found elsewhere as part of another topic. The items are presented together here to provide easy review of many important tips, tricks, cautions, and explanations.

1. If you group your data using the Insert|Group Section, Insert|Subtotal, or Insert|Summary command, Crystal Reports sorts your data automatically, as part of the grouping process. For example, if you sort a customer list by state, Crystal Reports first sorts the list alphabetically by state, before breaking it into state groups. In such a case, you don't have to use this command to generate the sorting.
2. Sorting is done automatically for all groups. For example, if you group on Customer, Crystal Reports knows to sort on customer. The sorts specified in the Sort Order dialog box will take lesser precedence.
3. When you sort by group, nothing happens to the sort order of the records within a group (as evidenced by the record numbers in the table above); only the relative positions of the groups themselves change.

Deleting files using Remove File from Report command

When using the Database|Remove File from Report command, you may find yourself selecting a file to delete in the Files box (Remove File from Report dialog box) and then clicking OK to delete it. The Remove File from Report dialog box disappears, and you assume that the selected file has been deleted. You later find that it is still an active file.

How to correct this problem

When you select a file in the Files box, *clicking OK does not delete it. You must Click the Remove File button* to complete the deletion process.

Finding fields Remove File from Report says to remove

When using the Database|Remove File from Report command, you get the following message if there are fields in the active report from the database you are trying to delete:

There are fields in the report from this file. Please remove them before deleting the file.

If you have looked for the fields and can't find them, print the report definition (to the printer or Print Window) using the Print|Print Report Definition command. By reviewing the report definition carefully, you should be able to locate those places in which the fields are used. More than likely you will find the fields hidden in selection formulas, report formulas, or sort criteria.

Cutting and copying fields in the Report Editor

You may find yourself trying to use the Cut, Copy, and Paste commands on fields and formulas in the Report Editor without success. The Cut, Copy, and Paste commands work only with text in the Report Editor, not with fields. This is true whether you select the commands from the Edit menu, the Button Bar, or the keyboard.

To cut fields in the Report Editor:

Select the field. At this point you have three choices:

- press the Delete key,
- click the right mouse button and select Delete Field from the menu that appears, or
- select the Clear command from the Edit menu.

To copy fields in the Report Editor

Since there is no Copy command available for use with fields in the Report Editor, enter the field again for each additional copy you need.

Why you can use Cut, Copy, & Paste with fields in the Formula Editor

Since all formula elements are read as text in the Formula Editor (including field and formula references), you can use the Cut, Copy, and Paste commands with any formula element when creating and editing formulas and selection formulas. The commands are activated in the Formula Editor via the keyboard, *not by the Edit menu or Button Bar*. The keystroke combinations to use in the Formula Editor are as follow:

Command	Keystroke combination
----------------	------------------------------

Cut	Shift+Delete
Copy	Ctrl+Insert
Paste	Shift+Insert

NOTE: You can use these keystroke combinations with text in the Report Editor as well.

Sources of Error Recognizing File message

If you are getting an Error Recognizing File message, you may find the source of the problem in the following discussion:

If the problem occurs when you try to select a report

There are two typical situations that result in the Error Recognizing File message when you are trying to activate a report:

Situation 1

It is possible that you have tried to open an existing report via the File|New Report command instead of the File|Open Report command.

- The File|New Report command is the command you use to begin the creation of a new report.
- The File|Open Report command is the command you use to open an existing report.

When you select File|New Report and select a file with the extension .RPT in the Choose Database File dialog box, Crystal Reports responds with the error message.

Conversely, when you select File|Open Report and attempt to select a file with an extension other than .RPT, you get an Error Loading Report message.

Situation 2

If you have used the correct menu command and are still getting the error message, it is possible that the .RPT file you have tried to open is one generated by Paradox or dBASE instead of by Crystal Reports. Crystal Reports only recognizes those .RPT files that it has generated itself.

If the problem occurs when you try to select a database

There are two typical situations that result in the Error Recognizing File message when you are trying to activate a database:

Situation 1

It is possible that you are using the correct command (File|New), but that you are selecting a database that is not a compatible database. In such a case, review your selection and make certain that you are selecting a database that works with Crystal Reports.

Situation 2

If you are trying to activate a Btrieve database, you may be selecting a .DAT file instead of a .DDF file. Crystal Reports cannot use .DAT files because they are user definable and don't store any dictionary information. The necessary information is stored in the .DDF files. Select the appropriate .DDF file and try again.

File|Save command -- when inactivated?

You may attempt to save a report using the File|Save command only to find that the command is inactive (grayed out). When the command is inactive, it means that there have been no changes to the file since it was last saved, and thus, no reason to save it again.

If you wish to save the file under a different name at this point, you can use the File|Save As command.

Selecting linking index

When you Click the New Index option in the Using Index scroll box in the Define Link dialog box, you may expect that the new index you select from the Choose New Index dialog box will become the active index for the To File side of the link. But while you have selected a new index, you find that the old index (the index appearing in the Using Index scroll box) remains unchanged.

How to correct this problem

In order to solve the problem, it is important to understand the function of the New Index option. The New Index option simply gives you the ability to add another index to the list of indexes in the Using Index scroll box; *it does not select the active index*. Once the new index appears in the Using Index scroll box, you must then select it from that scroll box to make it the active index. Before you can select the new index from the scroll box list, however, you must Click the scroll arrow to reveal it on the list. Since indexes you select using the New Index option are entered at the bottom of the list, they don't appear in the scroll box until you click the scroll arrow.

To select and activate a new index

1. Click the scroll arrow on the Using Index scroll box in the Define Links dialog box.
2. Click the New Index option. The Choose New Index dialog box appears.
3. Type the name of the new index file in the Index File Name box, or select the file using the Files and Directories boxes. Click the OK button when finished. This enters your selection as the last item in the Using Index scroll box. You have just added another index to the list of alternatives available for use as the active index.
4. Click the scroll arrow on the Using Index scroll box to reveal your index choices.
5. Click the index you just selected via the New Index option. The scroll box closes and the new index becomes the active index and now appears as the Using Index entry.

Show Field Names alternatives

You may find that using Show Field Names sometimes takes immediate effect and sometimes it does not, depending on whether you activate it through a menu command or the Options dialog box switch. This is because the menu command, Edit|Show Field Names, and the Show Field Names switch in the Options dialog box (File|Options) do, in fact, work differently.

- When you select Edit|Show Field Names (the menu command), the effect is immediate. The characters that appear in the field boxes are immediately replaced by the names of the fields themselves.
- When you select the Show Field Names switch in the Options dialog box, nothing happens immediately. The field names do not appear until the next time you open Crystal Reports and the report.

Changing subtotal/summary field sort direction

When you group data on your report (using Insert|Group, Insert|Subtotal, or Insert|Summary Field), Crystal Reports sorts the data first and then groups it. When you set up the grouping, Crystal Reports gives you the option of sorting the data in ascending order (A to Z, 1 to 9, January to December) or in descending order (Z to A, 9 to 1, December to January). If, after the grouping is complete, you decide that you want to change the sort order, follow these steps:

1. Select Format|Section. The Format Section/Sections dialog box appears.
2. Select the End group section for the group whose sort direction you want to change. The Format Section dialog box appears.
3. In the Sort Direction box at the bottom of the dialog box, select the new sort direction you want (Ascending or Descending).
4. Click OK when finished. From this point on, Crystal Reports will sort the data in the new sort direction before grouping the data.

Activating/linking additional databases

In order to activate a second (or additional) database for use in creating your report, your experience may tell you that you need to "add another link" and so you select the Database|File Links command to activate the database. This is *not* the command you use to activate new databases.

Database|File Links is used to update or delete existing links between active databases or to create new links between databases that are already activated and otherwise linked.

How to activate a second or additional database

1. To activate an additional database, select Database|Add File to Report. This calls up the Choose Database File dialog box.
2. Using the Files and Directories boxes, select the database you want to activate, and Click the OK button when finished. The Define Link dialog box appears.

Define Link dialog box options

Three boxes appear in the dialog box:

Link from File box

The Link from File box specifies the field in the first database that will serve as your link field.

To File box

The To File box specifies the indexed field(s) in the second database that will serve as your link field(s).

Description

The Description box displays the results of your selections, in sentence form.

The Link from File box

1. Using the edit box at the top of the Link from File box, select the first of the two databases you are linking (if different than the default). Click the scroll arrow to display a list of your choices. The list contains the names of all databases that have been activated using the Choose Database File dialog box.
2. Using the edit box above the Add Field and Remove buttons, select the field in the selected database that will serve as your link field. Click the scroll arrow to display a list of your choices. To select a field, highlight it in the list and then Click the Add Field button. Your selection appears in the Link Fields box (the small box beneath the Add Field and Remove buttons).
 - If you decide to use a different field, highlight the field in the Link Fields box and Click the Remove button.
3. If you are using multiple fields as link fields (if, for example, you are linking with an index that indexes on multiple fields), repeat Step 2 as many times as needed.

NOTE: You must Click the Add Field button to select the link field in the Link from file. If you don't, you will get an Invalid File Link message from Crystal Reports.

The To File box

1. Using the scroll box at the top of the To File box, select the second of the two databases you are linking (if different than the default). Click the scroll arrow to display a list of your choices. The list contains the names of all databases that have been activated using the Choose Database File dialog box.
2. Using the Using Index box, select the index in the second database that indexes the database based on the linking field. Click the scroll arrow to reveal your choices. The field on which the index indexes your database appears in the Link Fields box below.

NOTE: If you are using an index that indexes on two or more fields, all of those fields will appear in the Link Fields box. It will be necessary for you to add all of the corresponding link fields from your first database using the steps described in the Link from File box.

NOTE: Each time you add or remove a field or index, the linking instructions in the bottom box change to conform to your selection.

3. Select OK when finished. If you have specified valid links, Crystal Reports links the databases; if not, Crystal Reports displays a message detailing the problem. From this point on, when you call up a field list, fields from both databases will be listed.

The New Index option

The New Index option allows you to select an index for your database other than the default index (assuming the database selected has multiple indexes).

1. To select a new index, Click the scroll arrow on the Using Index scroll box and Click the **New Index option** from the scroll list that appears. The **Choose New Index dialog box** appears.
2. Using the Files and Directories boxes, select the index that you want active. Crystal Reports returns you to the **Define Link dialog box** with your new index field(s) appearing on the Using Index scroll list. (You may have to click the scroll arrow on the Using Index scroll box to reveal the new index.)

NOTE: When working with dBASE files, you must pick an index that resides in the same directory as its corresponding .dbf file.

Fine tuning record selection formulas

You may have run into a situation in which you create a record selection formula (using Print|Edit Record Selection Formula), and, while header and footer information prints on your report, no detail information appears. The problem is a selection formula that is rejecting all records, and this usually occurs because of some inadvertent error in the creation of the selection formula.

Things to look for

There are several things that you can look for as the cause of your problem in the selection formula:

Upper/lower case inconsistencies

Record selection formulas are case sensitive. That is, "Bob" matches only with "Bob". It does not match with "bob", "BOB", "BoB", "bOB", "boB" or "BOb". Thus, if your selection formula is set to include only those records with "BOB" in the *{file.FirstName}* field, but all the entries in the *{file.FirstName}* field are mixed case ("Bob", for example), the selection formula will find no matches and thus not print any details for the report.

You can solve this problem by using the UpperCase or LowerCase functions in your selection formula to convert field data to a consistent case before Crystal Reports begins its selection. For example, if you were using this formula:

```
{file.FirstName} = "BOB"
```

you can change the formula to this:

```
UpperCase({file.FirstName}) = "BOB"
```

and get the results you want. This last formula first converts the value of the *{file.FirstName}* field to upper case characters and then checks to see if the value in that field is equal to "BOB". Using this formula, any instance of the three letters "b" "o" "b" will be a match, regardless of case, because the case will be converted first to uppercase for consistency.

You could use the LowerCase function in a similar manner to match with "bob".

Check your selection formula closely and make sure you have the case correct on any text you are trying to match. If in doubt, use the UpperCase (or LowerCase) function to assure consistency and proper matches.

NOTE: Another formula that does much the same as that above is:

```
"BOB" in UpperCase({file.FirstName})
```

Number in text field not in quotes

When a number is stored in a text field, it is text even though it looks like a number. Whenever you use a value from a text field in a record selection formula, you must surround the value with single or double quotation marks. If your selection formula is set to look for a number in a text field and you fail to surround the number with quotes in the selection formula, the selection formula will find no matches and thus not print any details for the report.

For example, this selection formula:

```
{file.CustNum} = 12345
```

won't find any matches, even though the value 12345 appears in the *{file.CustNum}* field of many records.

To select records with the characters 12345 in a text field, you must put quotes around the characters you're attempting to match, like this:

```
{file.CustNum} = "12345"
```

Check your selection formula closely, and make sure that any numbers you are attempting to match in a text field are surrounded by single or double quotation marks.

Unwanted spaces appear in selection formula

Spaces are characters, and when you include spaces in the search key of a record selection formula, the formula looks for records with the exact match in the selected field, spaces and all. For example, the following formula:

"Mr." in *{file.FormAddrs}*

won't find any matches with the form of address "Mr." because there is an extraneous space in the search key between the letter "r" and the period. Likewise, "Ph. D" will not match "Ph.D".

Check your selection formula closely, and make sure that the spaces in the selection formula match the spaces in the fields you are trying to match.

Troubleshooting record selection formulas

The process that follows is the same process used by the technical support department. If you contact the company with a record selection formula problem, technical support will ask you to perform these steps on your formula. You can save a considerable amount of time by working through the process on your own. Then, if you still can't find the error, contact technical support.

The process

In the following process, you get all of the selectors visible on your report, delete the selection formula, and test it as you rebuild it, step by step.

1. Write down the record selection formula on paper (or print it out as part of the report definition using the Print|Print Report Definition command). You will use the written copy of the selection formula to help you reconstruct the selection formula a step at a time.
2. Remove the record selection formula from your report. To do this, you can simply delete the formula from the Formula Text box in the Formula Editor, and Click the Accept button when finished.
3. Make certain that all fields referenced in the record selection formula (the selectors) are on the report physically and not hidden. For example, if one of the selectors is *{file.ZIP} > "80000"*, but the *{file.ZIP}* code field isn't used on your report (as in the case of a sales report that uses the ZIP code to define territories but doesn't include the ZIP code in the report data), then insert the *{file.ZIP}* field in an obvious place on the report. Or, if one of the fields referenced in the selection formula is on the report but hidden, unhide it by deactivating the Format|Field/Hide when Printing switch for that field.
4. Print the report and make certain that the data in those fields referenced by the selection formula prints satisfactorily. Make certain that all the data prints. For example, if there are x total records in the database you should have x records printing for each of the referenced fields. This establishes a baseline against which you can compare the results of printing with the selection formula.
5. When you're sure you're getting satisfactory results without the selection formula, enter the selection formula using only one of the selectors.

For example, if you want to use this as your final selection formula:

{file.ZIP} > "80000" and {file.Lname}[1] = "C" and {file.Amount} >= 5000

« a formula that should select all of those records that show a value in the *{file.Lname}* field beginning with "C", a ZIP code greater than 80000, and a value in the *{file.Amount}* field greater than or equal to 5000. »)

You might start with this as your first test selection formula:

{file.ZIP} > "80000"

6. Print the report and evaluate the data that prints with only one selector activated. In our example, evaluate the data in the *{file.ZIP}* field. Does the field show only ZIP codes greater than 80000?
 - If it does, then you know that this part of the selection formula is working.
 - If it doesn't, then troubleshoot this part of the selection formula. Keep in mind the trouble spots outlined in *Things to look for* above.
7. Once the selection formula with one selector activated is working properly, add a second selector. In our example, the new selection formula might look like this:

{file.ZIP} > "80000" and {file.Lname}[1] = "C"

8. Print the report and evaluate the data that prints with the two selectors activated. In our example,

evaluate the data in the *{file.Lname}* field (since you already evaluated *{file.ZIP}* in the last step..

Does the *{file.Lname}* field show only text strings beginning with the letter "C"

- If it does, then you know that this part of the selection formula is working.
 - If it doesn't, then troubleshoot this part of the selection formula. Keep in mind the trouble spots outlined in *Things to look for* above.
9. Once the selection formula with two selectors activated is working properly, add a third selector, then a fourth, etc. until you have troubleshoot each selector in the selection formula. By the time you have troubleshoot the entire selection formula, you should have uncovered the source of your problem and the formula should be selecting records according to your wishes.

Making certain your application supports .MDX index

While Crystal Reports supports dBASE IV.MDX index files (multiple indexes in a single file), not all applications do. Some applications that serve as a front end to dBASE files support .NDX files but not .MDX. (We'll call these applications FrontEndAps). You can run into some problems when you use a dBASE IV database that you updated using a FrontEndAp, and you link to it from another database via an .MDX index file link.

The Problem

Assume that you have a database (Data_B) that contains 10 records. These records were entered using dBASE IV, and the database is indexed with both .MDX and .NDX indexes.

If you add five records to this database via a FrontEndAp:

- the .DBF file will contain 15 records,
 - the .NDX file will contain 15 records (assuming you directed the FrontEndAp to update the .NDX file), but
 - the .MDX file will contain only the original 10 records (because the FrontEndAp doesn't update this file).
- If you link from another database (Data_A), to Data_B using the Data_B .MDX index, Crystal Reports will only be able to read the 10 records that appear in the .MDX file (those entered using dBASE IV).
 - If you link from another database (Data_A) to Data_B using the Data_B .NDX index, Crystal Reports will be able to read all 15 records in Data_B (those entered using dBASE and those entered using the FrontEndAp).

NOTE: If an .MDX file is available for a dBASE IV database, Crystal Reports uses that file as the default index. If you have updated the database using a FrontEndAp (an application that supports .NDX but not .MDX files), don't use the .MDX option if you want Crystal Reports to read all of your records.

How to link the files so Crystal Reports can read all of the records

To link the files so Crystal Reports can read all of the records, use the .NDX file for the database instead of the .MDX file. Here's how:

1. In the Define Link dialog box, Click the arrow on the Using Index scroll box, and select the New Index option from the list that appears.
2. Select the .NDX file from the Choose New Index dialog box and Click OK when finished. Crystal Reports returns you to the Define Link dialog box.
3. Click the scroll arrow in the Using Index scroll box and select the .NDX index you have just added.
4. Click the OK button when finished. Crystal Reports now links the databases using the .NDX link instead of the .MDX link. Crystal Reports should now be able to read all matching records in the To File database.

How Crystal Reports deals with .MDX and .NDX indexes

For dBASE III+ files

For dBASE III+ files Crystal Reports expects to find only an .NDX file. When it finds such a file it uses it as the default index, displaying it in the Using Index scroll box.

For dBASE IV applications:

- If it encounters only an .NDX file, it uses the .NDX file as the default index.
- If it encounters both an .NDX and an .MDX file, it uses the .MDX file as the default index. If you want to use the .NDX index instead of the .MDX index, follow the steps above in *How to link the files so Crystal Reports can read all of the records*.

Lookup database requires index to link

You may find yourself in a situation when linking databases where the To File database (the lookup database) has not been indexed. In such a case, the word None appears in the Using index scroll box in the Define Link dialog box, and if you Click the scroll arrow on the scroll box no indexes appear. This can happen when you are adding a second (or third, fourth, etc.) database, creating new links between existing databases, or updating an existing link between databases.

If you try to proceed without an index for the lookup database, you get a message stating:

An index must be selected for this file link.

If this situation occurs, your only alternative is to index the lookup database using the database program that was used to create it. Crystal Reports requires an index on the lookup database. Without such an index, the lookup process would be agonizingly slow.

Finding existing index for lookup database

You may experience a situation when linking databases where the To File database (the lookup database) shows no index even though you know it is indexed. Specifically, the word None appears in the Using index scroll box in the Define Link dialog box, and if you Click the scroll arrow on the scroll box no indexes appear. This can happen when you are adding a second (or third, fourth, etc.) database, creating new links between existing databases, or updating an existing link between databases.

If you try to proceed without an index for the lookup database, you get a message stating:

An index must be selected for this file link.

What causes the problem

This problem can occur under two sets of circumstances:

- if the index for the lookup file has a different production name (the name of the file without the extension) than the database file (for example, COMPANY.DB indexed on CONAME.PX), or
- if the lookup file (the To File) is a .DBF file and the index for that file is stored in a directory other than the directory in which the .DBF file is stored.

How to solve this problem

- If the index file has a different production name, rename either the database file or the index file so that both production names are consistent, or re-index the file and save the index under the same production name as the database file. You can rename the file by using the DOS Rename command, or by using the appropriate command in the database program.
- If the index for the .DBF lookup file is stored in a different directory than the .DBF file, move the index to the directory in which the .DBF file is stored. You can move the file using either the DOS Copy or Move command.

Using Group Sort, Record Sort Order together

When you group data, Crystal Reports first sorts the data and then breaks it into groups. If you have set a sort order (using the Print|Record Sort Order command) in addition to the grouping sort, the grouping sort takes precedence. In other words, the grouping sort is done first; non--grouping sorts follow, even if they were entered first. There are times in which you may not want this to happen.

Consider the following data

Customer	Item	Quantity
A	A1	4
A	A2	2
A	A2	3
A	A1	1
B	A2	4
B	A1	2
B	A1	1
B	A2	3

Assume that you want the data broken down by customer so that all Customer A data appears before Customer B data, plus, you want a quantity subtotal for each item. In other words, you want your data to look like this on the completed report:

Customer	Item	Quantity	Subtotal
A	A1	1	
A	A1	4	
			5
A	A2	3	
A	A2	2	
			5
B	A1	1	
B	A1	2	
			3
B	A2	3	
B	A2	4	
			7

Getting your data like this requires two separate sorts:

- the data must be sorted by customer, and
- the data for each customer must be sorted (and subtotaled) by item.

A logical approach to doing this sorting seems to be to use Print|Record Sort Order to set up *{file.Customer}* as a sort field, and then use Insert|Subtotal to subtotal *{file.Quantity}* every time *{file.Item}* changes. Unfortunately, this approach does not produce the desired results. When you use that approach, your data comes out looking like this:

Customer	Item	Quantity	Subtotal
A	A1	1	
A	A1	4	
B	A1	1	
B	A1	2	
			8
A	A2	3	
A	A2	2	

B	A2	3
B	A2	4

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Because the grouping sort (that is a part of the subtotaling activity) takes precedence over the customer sort (set up via Print|Record Sort Order), the sorts are performed in the wrong order to produce the results you want.

- Data is first sorted by item (the grouping sort), so that all Item A1 appears before item A2.
 - Then the data is sorted by customer (the non--grouping sort), so that, for item A1, all customer A comes before customer B, and for item A2, all customer A comes before customer B.
- Clearly you need to sort the data by customer before it is sorted by item.

How to solve this problem

To solve the problem you group your data by customer (using Insert|Group Section), and then you subtotal your data so that the Quantity field is subtotaled every time the item changes. This time, since both sorts are part of grouping activity, the sorts take place in the order in which they are entered into Crystal Reports. (To eliminate extraneous spacing caused by the extra grouping, you can hide the customer group sections using Format|Section/Hide Section.)

The steps to follow:

1. Select Insert|Group Section. The Insert Group Section dialog box appears.
2. In the scroll box, select the field that you want to be used as the first sort field.
3. Set the Sort Direction to in ascending order (A to Z, 1 to 9) or in descending order(Z to A, 9 to 1) in the next scroll box, and set the Condition bottom scroll box if the field you select is a date field .
4. Click OK when finished.
5. Select the field that you want subtotaled.
6. Select Insert|Subtotal. The Insert Subtotal dialog box appears.
7. In the top scroll box, select the field that you want to trigger a subtotal whenever it's value changes.
8. Set the sort direction to in ascending order (A to Z, 1 to 9) or in descending order (Z to A, 9 to 1), and set the Condition if the field you select is a date field.
9. Click OK when finished.
10. If you want to hide the first group field, select Format|Section. The Format Section/Sections dialog box appears.
11. Select the group header section (Group header #1:) for the first group you entered, and Click OK when finished. The Format Section dialog box appears.
12. Click Hide Section and Click OK when finished.
13. Select Format|Section one more time, and select the group footer section (Group footer #1:) for the first group you entered and Click OK when finished. The Format Section dialog box appears.
14. Click Hide Section and Click OK when finished.
15. Now, when you print your report, the data will be sorted by the first sort field (the sort and group by field for the first group) and then by the second sort field (the sort and group by field for the subtotal group).

NOTE: *The data is sorted using the first sort field even though you have hidden the first group. Hiding only keeps the data from printing; it doesn't prevent the sorting from taking place.*

Extraneous spaces between text & fields

If you are trying to combine dBASE field data and text on your report, you may find yourself in a situation where you are getting gaps (many extra spaces) between the field data and the text. This is caused when the data in a field does not take up as much room as the space allotted for the field.

When you have a dBASE field value that uses fewer characters than the space allotted, you will get the extraneous spaces between the text and the fields, even when you place the fields visually flush against the text in the Report Editor. This is because it is the spaces *in* the fields that are causing the problem, not the space *between* the text and fields.

NOTE: Changing the alignment of the text (or number) in the field is not a solution to this problem. It doesn't get rid of the extraneous spaces; it just shifts the spaces to a different side of the value. For example, in the case of the word "Bob", changing the alignment of the {file.FNAME} field to Right aligns the name flush right within the space allotted, turning the seven blank spaces to leading spaces instead of trailing spaces as they were before.

How to solve this problem

Crystal Reports provides two functions for getting rid of extraneous spaces:

TrimRight Removes trailing blanks in left justified fields

TrimLeft Removes leading blanks in right justified fields

By using the appropriate function with the data field that contains extraneous blanks (TrimLeft with number and currency fields, Trim Right with text, date, and Boolean fields), you can easily and seamlessly combine text and field data.

The best way to combine text and data is to create a formula that contains all the text and data you want to combine and insert it into the report.

Assume, for example, that you want to use this sentence in a form letter

We hope you know, {file.firstname}, that we're glad you've decided to join our organization.

The components of the sentence are as follow:

- "We hope you know, " is text. Note that the space that follows the comma is enclosed in the quotation marks so that a space follows the comma in the completed sentence.
- {file.Firstname} is the value from the {file.Firstname} field, and
- ", that we're glad you've decided to join our organization."

Creating the formula

To create this kind of text formula, adapt the following steps to your specific needs:

1. Select Insert|Formula. The Insert Formula dialog box appears.
2. Type in the name of the formula. The Edit Formula dialog box (the Formula Editor) appears.
3. Type in any text that comes before the data field, and enclose the text in single or double quotation marks. In our example, type in:
"We hope you know, "
Don't forget to include the space before the closing quotation mark.
4. Type in the concatenate operator (+), or select in from the Operators list in the Formula Editor.
5. Enter the data field that you want included in the sentence. In our example, type in TrimRight({file.Firstname}) or select the function from the Functions box and the field from the Fields box in the Formula Editor. When it prints the formula, Crystal Reports uses the TrimRight function to strip trailing spaces from the {file.Firstname} field.
6. Type in the concatenate operator (+), or select in from the Operators list in the Formula Editor.
7. Type in any text that comes after the data field, and enclose the text in single or double quotation marks. In our example, type in:
", that we're glad you've decided to join our organization."
8. Click the Accept button when finished. The rectangular placement cursor appears.
9. Position the formula where you want it to appear, and Click the left mouse button to place it.

NOTE: In constructing your own text/field formulas, make certain that you include a space inside the closing quotes before the data field and another space inside the opening quotes after the data field if you want spaces to appear between the text and field value when the report prints.

NOTE: If you're using Paradox database data, it is not necessary to use TrimRight or TrimLeft in this circumstance; Paradox uses null values instead of spaces to fill the space allotted but unused by the field value. Crystal Reports reads fields containing null values as "nothing there beyond the value". Field values from Paradox files thus appear automatically as if they had already been trimmed.

Source of Server Not Found message

When Crystal Reports searches for the program file CRPE.DLL, it will look first in the current directory, then in the Windows directory, then in the Windows system directory, and finally in the path. Since the installation procedure automatically installs the program in the CRW directory and updates the path statement in the AUTOEXEC.BAT file (unless you have selected different options), the program should have no problem finding the CRPE.DLL file under normal circumstances.

If you have installed Crystal Reports to a directory other than the default directory, and if you have not modified the path statement to include the new directory, you may get a *Server Not Found* message.

How to solve this problem

To recover from a *Server Not Found* message, modify the path to point to the directory that holds CRPE.DLL, or move the program to the Windows directory, the Windows system directory, or a directory in the current path.

Applications developed using QRW, run using CRW

Crystal Reports was first marketed under the name Quik Reports. When the name was changed to Crystal Reports, many of the program file names that included the QR (Quik Reports) characters were changed to include the CR (Crystal Reports) characters instead (QRPE.EXE, for example, was changed to CRPE.EXE).

If you developed applications using Quik Reports, you will need to change all QR references in your code to CR references before you can run the applications successfully with Crystal Reports.

Verify questions when upgrading from earlier version

When upgrading to Crystal Reports from an earlier version of the product, you may get the following message at print time when you use the Verify Database (or Verify on Every Print) command:

The database file filename has changed. Proceed to fix up the report?

This message may appear even if the database used in the report has not changed at all. Changes in some of the upgrade programs that affect the report are triggering this message.

How to proceed

- If you get this error message in the situation described, select **Yes** in response to the *Proceed to fix up the report?* question.
- If the report in question uses more than one database, you may get the message regarding each database. Select **Yes** in response to each *Proceed to fix up the report?* question.

NOTE: This procedure will not alter your reports in any way.

Memo field questions when upgrading from earlier version

Crystal Reports (Versions 1.1 and newer) offers comprehensive support of memo fields while earlier versions of the product offered only limited support. For example, Version 1.0 allowed the use of memo fields, but only the first 80 characters in a memo field could be included in a report.

If you have used memo fields in reports created with an earlier version, only the first 80 characters of each memo field will print when you first use the report with Version 1.0. This can be easily corrected.

How to get the report to print memo fields in their entirety

1. Open the report in question and use the Verify Database command. This should produce the following error message:

The database file filename has changed. Proceed to fix up the report?

2. Select Yes, and Crystal Reports will modify the report so it will print the memo fields in their entirety.

NOTE: You must save the report in order to make the modifications permanent. Otherwise they will affect only the current use of the report.

Mouse and screen problems

If you encounter problems where the mouse won't work and/or the screen display is garbled, check to see if you are using a product called YourWay. If you are, take YourWay out of the load command and try Crystal Reports again. This should solve the problem.

Deleting blank lines from your report

- By default the Report Editor allots three lines for the Page Header section and three lines for the Page Footer section of your report. The defaults may allot more lines than you need for those items on your report.
- Additionally, you may expand a section on your report by a random number of lines prior to inserting text and data, just to make sure you have enough room for your entries. You may find that you have added more lines than necessary
Printing the report without first deleting the unneeded blank lines can leave gaps in your report that make the report less attractive visually and more difficult to read.

To delete unneeded blank lines

If an entire section is blank (i.e., if you aren't putting anything into the Page Footer section of your report), you can eliminate the allotted blank lines by eliminating the entire report section via the Hide Section option of the Format Section command.

If you have text and/or data in a section and just want to remove the extraneous blank lines, Click the I-beam cursor on the blank line you want to delete. This sets the insertion point. Once the insertion point is set, press the Backspace key (the key that deletes the previous character); Crystal Reports deletes the line on which the insertion point is set.

Example

Assume that you have entered text in the first line of the Page Header section and that you have entered data fields in the details section. You want to delete the bottom blank line in the Page Header section. To do this:

1. Position the I-beam cursor on the last (bottom) line of the Page Header section and Click the left mouse button to set the insertion point. The insertion point appears at the left edge of the Report Editor text box.
2. Press the Backspace key one time. The bottom blank line disappears.

To delete the remaining blank line

When you deleted the bottom blank line in the Page Header section, the insertion point moved up to the remaining blank line (what had been Line 2, the center line in the section). To delete this line, press the Backspace key once again. Now all that remains is the line of text you entered in the section.

Using Cut, Copy, Paste in the Formula Editor

The Cut, Copy and Paste commands on the Crystal Reports Edit menu and on the Button Bar do not work in the Formula Editor. The Windows' keyboard--activated Cut, Copy, and Paste commands do work in the Formula Editor, however.

How to cut, copy, and paste in the Formula Editor

To cut, copy, and paste in the Formula Editor, use the following keystroke combinations:

Command	Keystroke combination
----------------	------------------------------

Cut	Shift+Delete
Copy	Ctrl+Insert
Paste	Shift+Insert

You can, if you wish, use these keystroke combinations instead of the menu or Button Bar commands *whenever* you need to cut, copy, or paste text, *not just in the Formula Editor*.

New index support during record selection

Crystal Reports will analyze your record selection formula to identify fields that have an index on them and will use these indexes during record selection.

For example, let's say you have an order database that has an order number, order date, and order amount fields, and it has an index on the order number field. If you have a record selection formula like:

{orders.order number} in 1000 to 2000

Crystal Reports will automatically use the order number index and will go directly to order 1000 and will stop reading the database after record 2000. This technique is considerably faster than reading every record in the database to find the data you're looking for.

In order to take advantage of this speedup technique, Crystal Reports must know about your indexes. In Paradox and Btrieve, all indexes are known by Crystal Reports because they are tracked by the database. With dBASE databases, however, Crystal Reports will know only about index files with the same name as the database file (widget.dbf/widget.ndx, widget.mdx). You must tell Crystal Reports about other available indexes if you want the program to use them.

Setting up other indexes

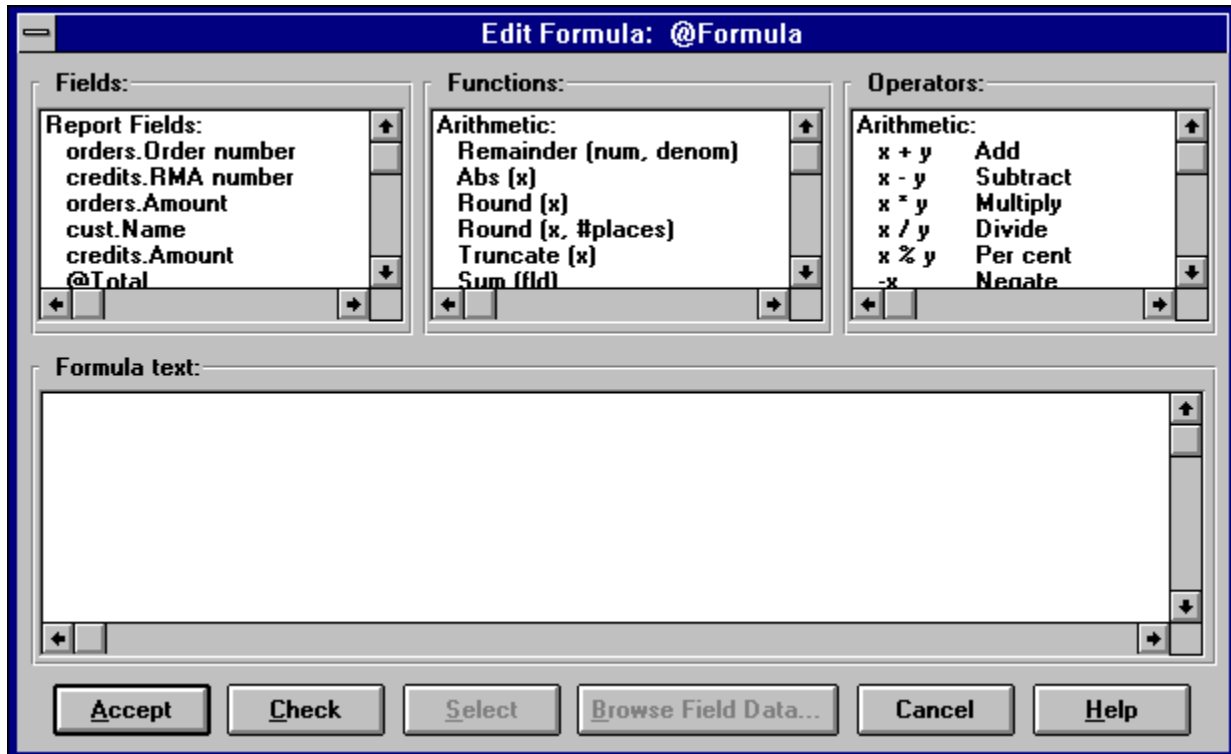
To set up additional indexes, do the following:

1. Select Database|File Links. The File Links dialog box appears.
2. Select New. The Define Link dialog box appears.
3. Select New Index. The Choose New Index dialog box appears.
4. Using the File Name and Directories boxes, select the index you want the program to know about, and Click OK when finished. Crystal Reports returns you to the Define Link dialog box with your new index appearing in the Using Index box. (You may have to click the scroll arrow on the Using Index scroll box to reveal the new index.)
5. Repeat Steps 3 and 4 as many times as necessary.
6. Click OK when finished. Crystal Reports will now use any of the available indexes when appropriate.

If for any reason you do not want Crystal Reports to automatically use indexes during record selection, go to the File|Options dialog box and toggle off the Use Indexes for Speed choice.

Edit Formula dialog box -- the Formula Editor

Use the **Edit Formula dialog box** to create and edit formulas for use in your report. A variation of this dialog box appears when you select the Insert|Formula Field command, the Edit|Formula command, the Print|Edit Record Selection Formula command, and the Edit|Group Selection Formula command.



Dialog box options

Formula text box

You edit your formula in the large white formula text box.

Accept button

The *Accept* button tests the syntax of your formula, and if correct, enters the formula in the report, replacing the earlier version of the formula (if any). If the syntax is incorrect, Crystal Reports gives you the opportunity to correct the error(s) prior to entering the formula in the report.

Check button

The *Check* button tests the syntax of your formula and identifies syntax errors if they are found. Unlike the *Accept* button, this button does not enter your formula in the report if the syntax is correct; *Check* is intended for interim syntax checks while you are building a formula.

Select button

The *Select* button inserts an item once you have highlighted it in the Fields, Functions, or Operators box.

Browse Field Data

Browse Field Data enables you to review values for the selected field and to paste individual values directly into your formula if you wish. When you Click the *Browse Field Data* button, a dialog box appears with a scroll list of those values.

- The name of the field selected is at the top of the dialog box.
- The data type of the field (number, string, etc.) is listed immediately below the field name.
- The length of the field is listed below the Type.

-- Field values are listed in the scroll box.

To paste a field value directly into your formula, highlight the value of interest and Click the Paste Data button (or Double Click the value of interest). Crystal Reports pastes the value at the insertion point in the formula.

Fields box

The *Fields* box displays a list of those database fields that are available for using in the report. Fields are listed in the following formats:

database fields	file. <i>fieldname</i>
formulas	@Formulaname
group fields	Grouped by <i>condition field</i> Sum of <i>fieldname</i>

When you select a field from the list, Crystal Reports inserts in the in the report at the insertion point. For further information, see [Inserting fields in formulas](#).

NOTE: For *large Btrieve .ddf files* (.ddf files that contain four or more database files), Crystal Reports displays the names of the files in the .ddf file, not the individual field names. To review the field names in individual files:

- **Double--Click the file name to select the file of interest. The Formula Editor Select button changes to an Open button.**
- **Click the Open button and the program lists all of the fields in the selected database file.**
- **Select the field(s) of interest as you would from any other kind of database (.dbf, .db, etc.)**

Functions box

The *Functions* box displays a list of Crystal Reports functions available for use in the formula. When you select a function from the list, Crystal Reports inserts in the in the report at the [insertion point](#). The function is inserted complete with its required syntax items (parentheses, commas, quotation marks, etc.) to make your work easier. For additional information on working with functions, see [Inserting functions in formulas](#). For detailed information on individual functions, see the [Functions Index](#).

Operators box

The *Operators* box displays a list of Crystal Reports operators available for use in the formula. When you select an operator from the list, Crystal Reports inserts in the in the report at the insertion point. For additional information on working with operators, see [Inserting operators in formulas](#). For detailed information on individual operators, see the [Operators Index](#).

Entering a formula in the Formula Editor

1. Enter your formula in the Formula text box.

- If your formula is to include text strings, type those strings wherever they are to appear in the formula. Each such string must be surrounded by single or double quotation marks. (See [Inserting text and numbers in formulas](#))
- If your formula is to include [functions](#) and/or [operators](#), you may either type them in or select them from the lists that appear in the Functions and Operators boxes. (See [Inserting functions in formulas](#) and [Inserting operators in formulas](#))
- If your formula is to include field names, you can type them in or select the names from the list that appears in the Fields box. (See [Inserting fields in formulas](#))If you choose to type them in, you must enter them in the format
{alias.fieldname}
- If your formula is to include other formulas, you can type them in or select the names from the list that appears in the Fields box. (See [Inserting other formulas in formulas](#))If you choose to type them in, you must enter them in the format
{@formulaname}
- If your formula is to include groups, it is recommended that you select the group from the list that appears in the field box rather than type it in (due to the complexity of the syntax). (See [Inserting group field values in formulas](#))

2. Use the Check option to check the syntax of your formula at any time while you build it.
3. When you have completed your formula, select Accept to enter the completed formula in your report. Crystal Reports checks the syntax and, if it is correct, displays the insertion cursor. (If the syntax is not correct, you will need to make the necessary syntax changes first. Then, when you select Accept, the pointer will appear.)
6. Move the cursor to the place you want to insert the formula and Click your left mouse button to insert it.

NOTE: *You can't use commas in numbers you enter in a formula. Enter only the number itself.*

See Also

[Index To Formula Topics](#)

Remove File from Report dialog box

The Remove File from Report dialog box appears when you select the Database|Remove File from Report command. Use this dialog box to delete databases from the active list so they can no longer be used in your report.

- The alias for each of the active databases appears in the **Files** box.
- The name of the file highlighted in the Files box (and its path if different than the directory where CRW resides) appears in the **Locations** box.

To remove a database file

1. Highlight the file you wish to remove (in the Files box) and click **Remove File** to delete it.
 - If there are no fields from this database in the report, Crystal Reports deletes the database.
 - If there are fields from the database in the report, Crystal Reports prompts you to remove the fields from your report before it deletes the database from the active list.
 - To delete such fields, you need to first identify them and then to delete them.
 - To identify the fields from the database you wish to delete, move the cursor over each field of interest and click the right mouse button. This calls up a pop--up menu that identifies the file (alias) and the field name for the selected field.
 - To delete the field (once identified), select Delete Field on the same pop--up menu you used to identify the field, use the Delete key, or select Edit|Clear.
 - Edit each formula field and delete any fields used in the formulas that are from the database you want to delete. You delete a field in a formula by highlighting the field and pressing the Delete key.
 - Edit the record and group selection formulas, and delete any fields used in those formulas that are from the database you want to delete. You delete a field in a selection formula by highlighting the field and pressing the Delete key.
2. When you have finished deleting all of the fields, select Database|Remove File from Report again, highlight the database you want to remove (in the Files box) and click **Remove File** to delete it. If you have successfully removed all the fields in the report from that database, Crystal Reports deletes the database from the list of active databases.
3. Click OK to return to the report.

See Also

[Finding fields Remove File says to remove](#)
[Deleting files using Remove File command](#)

File Location dialog box

The File Location dialog box appears when you select the Database|File Location command. Use this dialog box to change the location of a database that is active in a report. This option is convenient if you need to change the directory or disk location of a database to avoid file name conflicts, better utilize disk space, etc. It is also a handy option to use if someone sends you a report based on databases that were located in different disk/directory locations on their system than they are on yours.

NOTE: *This option does not physically move the database(s). It simply directs Crystal Reports to look for the database(s) in a different location than you originally specified when setting up the report.*

To use the File Location dialog box

1. From the **Files** list, select the database file for which you want to change the location. As you highlight a file on the list, Crystal Reports displays the location (path) of that file in the **Location** box at the bottom of the dialog box.

2. Set the new location for the database:

- If you want to set the database location to the same location as the active report, Click the **Same As Report** button. Crystal Reports will now look for the database in the directory in which you have saved the report.

NOTE: *You cannot use the Same As Report button until you have saved the report.*

- If you want to set the database location to a location different than that of the active report, click the **Set Location** button. This takes you to the Choose Database File dialog box , the dialog box you use to specify the new location.

Choose New Location dialog box

The Choose New Location dialog box appears when you Click the Set Location button in the File Location dialog box while using the Database|File Location command. Use this dialog box to specify a new location for a database used in a report.

To choose a new location

- If you wish to choose a database with a different name, select the database from the list in the File Name scroll box or type the new name in the File Name text box at the top.
- If you wish to change the directory or disk location of the file, type in the new location beneath the Directories heading or set the new location using the Directories scroll box. When you make a change in this box, Crystal Reports displays the new location beneath the Directories heading.
- If you wish to change both the name and location, you can type in the new name and include the new path in the File Name text box or, you can type in the new name in the File Name text box and select the new location using the Directories scroll box.
- Click the OK button. Crystal Reports changes the report to reflect the new name/location you have chosen.

NOTE: This option does not physically move the database(s). It simply directs Crystal Reports to look for the database(s) in a different location than you originally specified when setting up the report.

Database File/Alias dialog box

Use the Database File/Alias dialog box to change the alias assigned to the selected database file.

This dialog box appears automatically whenever you select a new database if you have toggled the Use Default Alias option *Off* in the Options dialog box. That option is toggled *On* by default. The Use Default Alias option tells Crystal Reports to automatically use the database name (less the extension) as the default alias. For example, the database **company.dbf** will automatically generate the alias **company**.

To use the Database File/Alias dialog box

- If you want to use the alias currently displayed in the box: select OK.
- If you want to change the alias: type in a new alias and then select OK.

NOTE: *Changes you make via this dialog box do not affect the aliases already used in formulas. When you change an alias, you must make certain that you change any formula references to the old alias as well. For example, if you change the company alias to customer, you must make certain that you change any formula references from {company.fieldname} to {customer.fieldname}. If you don't make such a change, Crystal Reports will be unable to locate the referenced field and return an error message. Formula references include both formulas used in the report and selection formulas as well.*

NOTE: *Database|File Alias changes the alias only, not the database location. If you want to change the location of a database (i.e., tell Crystal Reports to find the database in a new location), use Database|File Location.*

See Also

Selecting an alias

File Alias dialog box

The File Alias dialog box appears when you select the Database|File Alias command. Use the File Alias dialog box to select a file alias that you want to change.

The **Files** box contains a list of aliases used in the current report, and the first alias on the list is highlighted.

The **Location** box at the bottom of the dialog box displays the name (and the path, if different from the directory holding CRW.EXE) of the database referenced by the highlighted alias.

The **Set Alias** button takes you to the Database File/Alias dialog box. You use that dialog box to change the alias for the selected database file.

How to select an alias to change

1. Highlight the alias of interest and Click the Set Alias button. The Database File/Alias dialog box appears with the highlighted alias displayed in the Alias Name box.

Once in the Database File/Alias dialog box:

2. Type your new alias in the Alias Name box and Click OK when finished. Crystal Reports returns you to the File Alias dialog box. The new alias has replaced the old alias in the Files box but the location remains the same.

NOTE: *Database|File Alias changes the alias only, not the database location. If you want to change the location of a database (i.e., tell Crystal Reports to find the database in a new location), use Database|File Location.*

3. Click OK when finished. Crystal Reports replaces the old alias with the new. Fields already placed in the report using the old alias are now identified using the new alias (*{old.fieldname}* is now *{new.fieldname}*).

See Also

Selecting an alias

Define Link dialog box

The Define Link dialog box appears under three different circumstances:

- when you Click the New button from the File Links dialog box when using the Database|File Links command,
- when you Click the Update button from the File Links dialog box when using the Database|File Links command, or
- when you select an additional database using the Database|Add File to Report command.

You use the Define Link dialog box to establish links between active database files when you have more than one database active in a report.

A link is a field that is common to two or more databases and that serves as a connecting point between those databases. Crystal Reports uses the link to match up records from one database with those from the other(s). For example, if the databases each contain a customer number field (even though the fields might have different names), Crystal Reports can use those fields to electronically connect all records in one database with corresponding records in the other(s). When you create a single report based on multiple databases, the link assures that all the data in each row on that report refers to the same customer (transaction, invoice, etc.).

Define Link dialog box options

Link from File scroll box

The Link from File scroll box enables you to select the first database to be linked.

NOTE: The database aliases, not the database names are listed in this scroll box.

Using field(s) scroll box

The Using field(s) scroll box enables you to select the field(s) in the first database that will serve as your linking field(s).

NOTE: You can also activate a field as a linking field by double clicking the field of interest in the Using field(s) scroll list.

To File scroll box

The To File scroll box enables you to select the second database to be linked.

Using index scroll box

The Using index scroll box enables you to select the indexed field(s) in the second database that will serve as your linking field(s). If you are using a dBASE database, the scroll list also gives you the option of activating additional, non-listed indexes if you have created any.

Description

The Description box displays the results of your selections, in sentence form.

NOTE: When you are activating an additional database via the Database|Add File to Report command, the program:

- automatically enters database names in the Link from File and To File boxes, and
- it automatically displays the names of linking fields in the Link Fields box if it can identify them.

How to define a file link

1. Using the Link from File scroll box, select the first of the two databases you are linking (if different than the default). Click the scroll arrow to display a list of your choices. The scroll list contains the aliases of all databases that have been activated using the Choose Database File dialog box.
2. Using the To File scroll box, select the second of the two databases you are linking (if different than the default). Again, the scroll list contains the aliases of all databases that have been activated using the Choose Database File dialog box.

Based on your Link from File and To File selections, Crystal Reports attempts to locate linking fields. If there is a field in the first database that has the same name as an indexed field in the second database, the program assumes a link and displays the field names in the Link Fields boxes.

- If you are satisfied with the default selection, Click OK to exit the dialog box.
- If you want to establish a different link, continue with the following steps:

The first database

3. Using the Using Field(s) scroll box, select the field in the selected database that will serve as your linking field.
 - Click the scroll arrow to display a list of your choices, and
 - Click the field you want to select from the scroll list.
 The program enters your selection in the left Link Fields box.

NOTE: If you decide to use a different field, if you have inadvertently selected too many fields, or if there is already a field in the Link Fields box that you want to remove, Double Click the field(s) you want to remove from the list in the Link Fields box.

4. If you are using multiple fields as link fields (if, for example, you are linking with an index that indexes on multiple fields), repeat Step 2 as many times as needed.

The second database

5. Using the To File scroll box, select the second of the two databases you are linking (if different than the default).
 - Click the scroll arrow to display a list of your choices. The scroll list contains the names of all databases that have been activated using the Choose Database File dialog box.
 - Click the database you want to select from the scroll list and the program displays your selection in the To File scroll box.
6. Using the Using Index scroll box, select the indexed field in the second database that matches the linking field in the first database.
 - Click the scroll arrow to reveal your choices.
 - Click the field you want to select from the scroll list.
7. The selected field appears in the right Link Fields box.

NOTE: Under certain circumstances, some of your indexed field options will not appear on the list in the Using Index box. A New Index option appears instead. See The New Index Option below for further information.

NOTE: If you are using an index that indexes on two or more fields, all of those fields will appear in the Link Fields box. It will be necessary for you to add all of the corresponding link fields from your first database using the steps described in the Link from File box.

NOTE: Each time you add or remove a field or index, the linking instructions in the bottom box change to conform to your selection.

8. Select OK when finished. If you have specified valid links, Crystal Reports links the databases and displays the File Links dialog box.

NOTE: If you have specified invalid links, Crystal Reports displays a message detailing the problem.

The File Links dialog box displays the links you have created, and it enables you to delete or update existing links, create new links, or specify lookup options for certain kinds of links. For a complete discussion, see [File Links dialog box](#).

9. If the links are all in order, Click OK to return to the Report Editor.

From this point on, when you call up a field list, fields from all linked databases will be listed.

The New Index option

Crystal Reports automatically identifies all of the index files for Paradox and Btrieve databases, and it identifies all dBASE index files that have the same filename as the database (for example, for company.dbf it will identify the index file company.mdx or company.ndx, whichever exists). When you select a file in the To File scroll box, the program reads its corresponding index file(s) and lists all of the indexes it finds in those files in the Using Index scroll box (using the index tags [the key field(s) for each index] and the names of the associated index files as identifiers in the scroll list.).

If you are using:

- dBASE III or III+ and have multiple .ndx files for the link--to file database, or
- dBASE IV and have changed the default name of the primary .mdx file or created one or more additional .mdx files for the link--to file database,

the Using Index scroll list will not include all of your index options. It will include only those indexes found in the index files that have the same root name as the link--to file database.

The *New Index* option in the Using index scroll box enables you to make Crystal Reports aware of dBASE index files that it didn't identify automatically (and thus to add the indexes in those files to the Using index scroll list).

To use the New Index option

1. Click the scroll arrow on the *Using index* scroll box. A list of indexes will appear along with the *New Index* option.
2. Click the *New Index* option. The Choose New Index dialog box appears.

Choose New Index dialog box options

File Name edit box

This box displays the current index specification. By default, Crystal Reports uses a wild card character for both the name and the extension of the index (*.*):

-- If you know the name of the index you want to select, type the name in this edit box. Include the path if different than the path currently displayed in the Directories heading.

NOTE: When working with dBASE files, you must pick an index that resides in the same directory as its corresponding .DBF file.

File Name scroll box

This scroll box displays a list of those files in the selected directory that match the specification in the File Name edit box.

-- If you don't type an index in the File Name edit box, or if you are uncertain of the report name, select the index you want from the list of files that Crystal Reports displays in this scroll box.

List Files of Type scroll box

The List Files of Type scroll box enables you to specify the kind of files you want to appear on the list in the File Name scroll box. When you Click the scroll arrow on the List Files of Type scroll box, the following options appear:

User default

-- Enters the specification *.* in the File Name edit box. This causes all files in the selected directory to appear

dBase Indexes

-- Enters the specification for dBase index files (*.ndx;*.mdx) in the File Name edit box. This causes only those files with the extensions .ndx or .mdx to appear in the File Name scroll box.

Clipper Indexes

-- Enters the specification for Clipper index files (*.ntx) in the File Name edit box. This causes only those files with the extensions .ntx to appear in the File Name scroll box.

All Files

-- Enters the wild card specification *.* in the File Name edit box. This causes all files in the selected directory to appear in the File Name scroll box.

Directories heading

This heading displays the current path.

Directories scroll box

This box displays a list of directories on the currently logged drive. If the index is saved in a different directory than the one displayed in the Directories heading, use this scroll box to select the correct directory.

Drives scroll box

This scroll box contains a list of your system drives. If the index is saved on a different drive than the one displayed in the Directories heading, use this scroll box to select the correct drive.

3. Click OK when you have finished selecting your index. Crystal Reports returns you to the Define Link dialog box with the index tag(s) from the selected index file appearing in the Using Index scroll list. (You may have to Click the scroll arrow on the Using Index scroll box to reveal the new listing(s).)

See Also

[File Links dialog box](#)

File Links dialog box

The File Links dialog box appears when you select the Database|File Links command.

Use the File Links dialog box to display the links that have been set up among active databases. Use the dialog box also as your gateway:

- to creating new links,
- to updating (modify) existing links, and
- to deleting existing links.

File Links dialog box options

There are two boxes inside the dialog box:

File Links

The File Links box shows the file--to--file links, if any, that currently exist in your report.

Description

The Description box displays, as text, the specifics of the link including the name of the database files linked and the names of the linking field(s) and index.

Three buttons (besides the OK and Cancel buttons) appear on the right side of the box.

New

The New button allows you to set up a new file link. When you Click the New button, the Define Link dialog box appears. Set up your new link using the options available in this box and Click OK when finished.

Update

Update allows you to redefine the highlighted field and index link between databases. When you Click the Update button, the **Define Link dialog box** appears. The dialog box displays the details of the link you have highlighted in the **File Links** box. Make whatever changes are needed, and Click the OK button when you're finished.

Delete

Delete allows you to delete a file link. When you Click the **Delete** button, Crystal Reports deletes the link you have highlighted in the **File Links** box.

Options

The Options button is available only when you have a single database (we'll call it database A) linked to two other databases (database B and database C). This button enables you to specify the method you want Crystal Reports to use when looking in B and C for records that match records in A.

When you Click the Options button, the File Link Options dialog box appears. The dialog box displays three different options for looking up records:

- Look up both files at the same time.
- Look up all of one file, then all of the other.
- Look up all combinations of the two files.

Sample Data

Examples of the three different options for looking up records will be based on the following data:

Database A -- Customers

CustNum	Name
1	Jones
2	Smith
3	Miller

Database B -- Orders

OrderNum	CustNum	Amt1
11	1	10.00

22	1	20.00
33	2	30.00
44	2	40.00
55	3	30.00
66	3	30.00

Database C -- Credits

CreditNum	CustNum	Amt2
C1	1	10.00
C2	2	30.00
C3	2	40.00
C4	3	30.00

Lookup option 1 -- Look up both files at the same time.

For each record in A, this option looks for a matching record in B and a matching record in C, then it looks for the next matching record in B and the next matching record in C, etc. Once it finds all the matching records, it repeats the process with the next record in A, then the next, etc.

Using the example databases, Crystal Reports presents the data in this manner using this function:

CustNum	OrderNum	Amt1	CreditNum	Amt2
1	11	10.00	C1	10.00
1	22	20.00	C1	10.00
2	33	30.00	C2	30.00
2	44	40.00	C3	40.00
3	55	30.00	C4	30.00
3	66	30.00	C4	30.00

Lookup option 2 -- Look up all of one file, then all of the other.

For each record in A, this option looks for all the matching records in B and then all the matching records in C, then it repeats the process with the next record in A, then the next, etc.

Using the example databases, Crystal Reports presents the data in this manner using this function:

CustNum	OrderNum	Amt1	CreditNum	Amt2
1	11	10.00		
1	22	20.00		
1			C1	10.00
2	33	30.00		
2	44	40.00		
2			C2	30.00
2			C3	40.00
3	55	30.00		
3	66	30.00		
3			C4	30.00

Lookup option 3 -- Look up all combinations of the two files.

For each record in A, this option looks for a matching record in B, then it finds all the matching records in C. Once it finds all the matching records in C, it repeats the process with the next record in B, then the next, etc. When it finds matching C records for all the B records that match the first A record, it moves to the next A record and repeats the process.

Using the example databases, Crystal Reports presents the data in this manner using this function:

CustNum	OrderNum	Amt1	CreditNum	Amt2
1	11	10.00	C1	10.00
1	22	20.00	C1	10.00
2	33	30.00	C2	30.00
2	33	30.00	C3	40.00
2	44	40.00	C2	30.00
2	44	40.00	C3	40.00
3	55	30.00	C4	30.00
3	66	30.00	C4	30.00

- Define, update, or delete links as necessary using these buttons and the dialog boxes that they activate.

Insert Database Field dialog box

The Insert Database Field dialog box appears in two situations:

- when you select the Insert|Database Field command, and
- when you select File|New Report to begin a new report or File|New Mailing Labels Report and then select a database from the Choose Database File dialog box.

Use the Insert Database Field dialog box to select fields for inclusion in your report.

- The name of the current report appears at the top of the dialog box, just below the title bar.
- The available fields are listed in the scroll box. Fields are grouped by database in the scroll box list, and each group is headed by the alias selected for the database from which the fields come. You use the scroll box list to select (highlight) the field you want to insert in your report.

There are three buttons at the bottom of the dialog box:

Insert

Use the Insert button to insert the highlighted field. You can bypass the insert button by simply double clicking the field you want to insert.

Done

Use done to close out the dialog box when you are finished entering fields.

NOTE: If you Double--Click a file name in the scroll box, the list of fields from that file disappears and the Insert button changes to an Open button. If you highlight the file name and Click the Open button, the list of fields in that file reappears.

Browse Field Data

Use the Browse Field Data button to preview the data type, length, or content of any field on the list.

With the field of interest highlighted, Click the Browse Field Data button. A dialog box appears that has as its title the field you selected. The following field information is available in this dialog box:

Type

Type indicates the data type of the selected field (CHAR = character field, NUMBER = number field, DATE = Date field, MEMO = memo field.)

Length

Length indicates the number of spaces allotted for the field in the originating database.

NOTE: Length does not appear with all data types.

Scroll box

The scroll box displays the values in the field selected.

Done button

The Done button returns you to the Insert Database Field dialog box when you are done previewing the field.

Default Fonts dialog box

The Default Fonts dialog box appears when you Click the Default Section Fonts button in the Options dialog box while using the File|Options command.

Use the Default Fonts dialog box to change the default fonts for any and all sections of your report. The Default Fonts dialog box allows you:

- to specify different fonts for different sections of your report, and
- to specify one font for text elements and a different font for fields within a given section.
- For new reports, once the defaults are changed, Crystal Reports looks at the section in which each new text element is placed and formats it with the text font specified for that section. It also looks at the section in which each new data field or formula result element is placed and formats it with the field font specified for that section.
- For existing reports, the default font for text in a section stays the same. New reports will get the new default.

For example, you can specify one field font for all group values (subtotals, summary fields, etc.) and a completely different text font for the text labels you use to identify each of the group values. Crystal Reports automatically formats all group values with the default field font, and it formats any label you type in the group section with the default text font.

NOTE: The Default Fonts dialog box gives you the opportunity to customize the Crystal Reports Report Editor to best fit your needs. When you make changes via the dialog box, Crystal Reports simply changes the defaults so the fonts used in each section appear in the format you typically want them in. These default changes don't in any way limit the fonts available for use in any section of your report, however. You still have the ability to reformat text or field elements individually if you wish.

Default Fonts dialog box options

The Default Fonts dialog box contains two columns of buttons:

- the column on the left for changing the default fonts for fields, and
- the column on the right for changing the default fonts for text strings.

The buttons in each of the columns match sections of your report. Your options are:

Page Header

The Page Header Section, typically the part of your report that contains the report title, the date, the range of data included, and other identifying information.

Start of Group

The Group Header section. Of the two sections created each time you set up a group field (subtotal, summary field), this is the top section, the section that appears above the Details section.

Detail

The Details section, typically the body of your report.

End of Group

The Group section that displays or prints the group value. Of the two sections created each time you set up a group field (subtotal, summary field), this is the bottom section, the section that appears below the Details section.

Grand Total

The Grand Total section that typically appears at the end of the report.

Page Footer

The Page Footer section, typically the part of your report that contains the page number, words like (continued), and other identifying information.

To change the font for a specific section:

- determine first if you want to change the font for text or the font for fields and formulas. This tells you which list to use.
- determine the section for which you want to change the default.

- Click the button that matches the element and section for which you want to change defaults, and
- when the Font dialog box appears, change the default font to fit your needs.

Format Boolean dialog box

This dialog box appears in two different situations:

- when you Click the Boolean button in the Field Formats box in the Options dialog box while using the File|Options command, and
- when you select a Boolean field and then Click the Format Boolean button in the Field Format dialog box while using the Format|Field command (or Change Format option from the right mouse key menu).

Use this dialog box whenever you wish to change the format of a Boolean (Yes/No) field on your report.

Dialog box options

1. Click the scroll arrow in the box to reveal the following choices:

True or False

Spells out the words True and False

T or F

Uses the abbreviations T and F in place of the words True and False.

Yes or No

Spells out the words Yes and No.

Y or N

Uses the abbreviations Y and N in place of the words Yes and No.

1 or 0

Uses the digit 1 to represent Yes (True) and 0 to represent No (false).

2. Select the option that best fits your needs.

Format Date dialog box

This dialog box appears in two different situations:

- when you Click the Date button in the Field Formats box in the Options dialog box while using the File|Options command, and
 - when you select a date field and then Click the Format Date button in the Field Format dialog box while using the Format|Field command (or Change Format option from the right mouse key menu).
- Use this dialog box whenever you wish to change the format of a date field on your report.

The dialog box contains three smaller boxes.

- The top box allows you to set the *order* in which the elements of the date (Month, Day, and Year) are to appear.
- The center box allows you to set the *style* (numbers, abbreviated numbers, text, etc.) for each of the elements.
- The bottom box shows you the results of your formatting selections.

Order options (top) box

In this box, select the order in which you want the elements of the date to appear. Your options are:

MDY

MDY prints the date in the order Month, Day, Year.

DMY

DMY prints the date in the order Day, Month, Year.

YMD

YMD prints the date in the order Year, Month, Day.

Style options (center) box

In this box, select the style you want Crystal Reports to use for each of the elements.

Click the Month scroll arrow to reveal the following options:

3

3 prints a month as a number. If the month number is only a single digit, it prints the number without a leading zero.

03

03 prints the month as a number. If the month number is only a single digit, it prints the number with a leading zero.

Mar

Mar prints a three letter abbreviation for the month.

March

March spells out the full name of the month.

Click the Day scroll arrow to reveal the following options:

1

1 prints the day as a number. If the day number is only a single digit, it prints the number without a leading zero.

01

01 prints the day as a number. If the day number is only a single digit, it prints the number with a leading zero.

Click the Year scroll arrow to reveal the following options:

99

99 prints the year in its short, two digit format.

1999

1999 prints the year in its long, four digit format.

Separators

You use the edit boxes between the Month, Day, and Year scroll boxes to set the separator(s) you wish to use to separate the date elements. You can type in any character you choose for a separator, or use a blank space as a separator by leaving the box empty. For example, if you are using the format *January 1, 1999*, you will use a blank space as the separator between the Month and the Day, and a comma between the Day and the Year.

NOTE: The blank line below the last selection in each of the month, day, and year scroll boxes is a selection itself that means leave this part of the date blank. If you want your date to print as March--1999, for example, choose the blank space below the 01 option in the Day scroll box.

Field Format dialog box

The Field Format dialog box appears in two different situations:

- when you select any of the buttons in the [Field Formats box](#) in the [Options dialog box](#) when using the [File|Options](#) command, and
- when you select a field and then select the [Format|Field](#) command (or the Change Format option from the right mouse button menu).

The Field Format dialog box offers a fixed set of formatting options that are available for use with all data types:

Suppress if Duplicated

When activated, nothing is printed in a column if it duplicates data on the previous line; the data only prints once. For example, to print the customer number only once for each customer, activate the option for the customer number field.

Hide when printing

When activated, nothing will print in the column. This is useful if, for example, you want to put a field on the report to be used in calculations or sorting, but do not want the field to print.

Alignment

Alignment refers to the placement of the field value within the space allotted for the field on the report. You have the following choices:

Default

Default restores the default alignment (flush left for text, date, and Boolean fields, flush right for number and currency fields).

Left

Left places all field values flush left in the space allotted. The first character in the value is flush against the left margin of the column. Thus, when you select Left, the first character in each value is aligned.

Centered

Centered centers the field value within the space allotted.

Right

Right places all field values flush right in the space allotted. The last character in the value is flush against the right margin of the column. Thus, when you select Right, the last character in each value is aligned.

Additional formatting options

This dialog box also serves as a gateway to additional formatting options. Depending on the data type selected, one of the following buttons will appear at the bottom of the dialog box:

Format Number

Format Number appears in the dialog box only if you are formatting a number field. You use Format Number to specify the way you want the numbers in the selected field to appear on your report. When you select **Format Number**, the [Format Number dialog box](#) appears.

Format Currency

Format Currency appears in the dialog box only if you are formatting a dollar value field. You use Format Currency to specify the way you want the dollar values in the selected field to appear on your report. When you select **Format Currency**, the [Format Currency dialog box](#) appears.

Format Date

Format Date appears in the dialog box only if you are formatting a date value field. You use Format Date to specify the way you want the selected date value to appear on your report. When you select **Format Date**, the [Format Date dialog box](#) appears.

Format Boolean

Format Boolean appears in the dialog box only if you are formatting a Boolean (YES/NO) field. You

use **Format Boolean** to specify the way you want Boolean values to appear in the field. When you select **Format Boolean**, the [Format Boolean dialog box](#) appears.

Format String

Format String appears in the dialog box only if you are formatting a string (text) field. **Format String** enables you to specify if you want your string fields to print on multiple lines (if they require more than one line), and if so, to specify the maximum number of lines on which they should print. When you select **Format String**, the [Format String dialog box](#) appears.

Format Memo

Format Memo appears in the dialog box only if you are formatting a memo field. **Format Memo** enables you to specify if you want your memo fields to print on multiple lines (if they require more than one), and if so, to specify the maximum number of lines on which they should print. When you select **Format Memo**, the [Format Memo dialog box](#) appears.

- Select the option(s) you want and Click OK when finished. Crystal Reports formats the field to your specifications.

See Also

[Hiding blank lines, zeros, & duplicate values](#)

Format String dialog box

This dialog box appears in two different situations:

- when you Click the String button in the Field Formats box in the Options dialog box while using the File|Options command, and
- when you select a string field and then Click the Format String button in the Field Format dialog box while using the Format|Field command (or Change Format option from the right mouse key menu).

Use the Format String dialog box for formatting string fields in your report.

Format String dialog box options

Print on multiple lines

When activated, allows the field to print on multiple lines if necessary. When this option is checked, word wrap is activated. If a field is then resized, word wrap is adjusted accordingly.

Maximum number of lines (Enter 0 for no limit)

If print on multiple lines is checked, this option becomes active. Specify the maximum number of lines on which you want your string to print (use 0 if you want the program to use as many lines as are necessary). If the string requires more lines than you have specified, the string will end when it runs out of allotted space.

NOTE: The number of lines required to print the entire string is dependent on the field size you establish.

- Make your formatting selections and Click OK when finished.

Format Memo dialog box

The Format Memo dialog box appears whenever you select a memo field and then Click the Format Memo button in the [Field Format dialog box](#) while using the [Format|Field](#) command (or Change Format option from the right mouse key menu).

Use the Format Memo dialog box for formatting memo fields in your report.

Format Memo dialog box options

Print on multiple lines

When activated, allows the memo field to print on multiple lines if necessary. When this option is checked, word wrap is activated. If a field is then resized, word wrap is adjusted accordingly.

Maximum number of lines (Enter 0 for no limit)

If print on multiple lines is checked, this option becomes active. Specify the maximum number of lines on which you want your memo field to print (use 0 if you want the program to use as many lines as are necessary). If the memo field requires more lines than you have specified, the memo will end when it runs out of allotted space.

NOTE: The number of lines required to print the entire memo is dependent on the field size you establish.

- Make your formatting selections and Click OK when finished.

See Also

[Using memo fields with Crystal Reports](#)

[Memo field questions when upgrading from earlier version](#)

Format Number dialog box

This dialog box appears in two different situations:

- when you Click the Number or Currency button in the Field Formats box in the Options dialog box while using the File|Options command, and
- when you select a number or currency field and then Click the Format Number (or Format Currency) button in the Field Format dialog box while using the Format|Field command (or Change Format option from the right mouse key menu).

Use the Format Number dialog box for formatting numbers and currency values in your report.

NOTE: *The currency provision is included in this dialog box to make it easier for you to work with fields from dBASE databases, since dBASE doesn't offer a currency data type.*

Format Number Dialog Box Options

The following options are available for formatting numbers and currency:

Suppress if Zero

When activated, *Suppress if Zero* prevents a field from printing on your report if it contains a zero amount.

Rounding

Rounding allows you to round values that appear in your report to a specific number of decimal places.

Rounding options

None

No rounding

0.1

Rounds to the nearest tenth. 5,555,555.55 rounds to 5,555,555.60

1

Rounds to the nearest one. 5,555,555.55 rounds to 5,555,556.00

10

Rounds to the nearest ten. 5,555,555.55 rounds to 5,555,560.00

100

Rounds to the nearest hundred. 5,555,555.55 rounds to 5,555,600.00

1,000

Rounds to the nearest thousand. 5,555,555.55 rounds to 5,556,000.00

10,000

Rounds to the nearest ten thousand. 5,555,555.55 rounds to 5,560,000.00

100,000

Rounds to the nearest hundred thousand. 5,555,555.55 rounds to 5,600,000.00

1,000,000

Rounds to the nearest million. 5,555,555.55 rounds to 6,000,000.00

NOTE: *You can also round a number by putting the number in a formula and using the Round(x, # of decimal places) function.*

Leading Zero

Leading Zero allows you to include a zero, if you wish, before the decimal point in decimal amounts less than one. You have two choices:

Leading Zero options

0.17

This option includes a zero before the decimal point whenever you have a decimal amount less than one (0.001, 0.99999, 0.755)

.17

This option prints decimal amounts less than one without a leading zero.

Decimals

Decimals allows you to specify the number of decimal places you want to print for numeric values.

Decimals options

1.

This option prints 5.55555 as 5.

1.0

This option prints 5.55555 as 5.55

1.00

This option prints 5.55555 as 5.55

1.000

This option prints 5.55555 as 5.555

1.0000

This option prints 5.55555 as 5.5555

1.00000

This option prints 5.55555 as 5.55555

NOTE: *This option does not round values. It simply truncates (cuts off) unwanted decimal places when it prints numeric values.*

Decimal Separator

Decimal separator allows you to type in the character you want to use as a decimal separator. The default is a decimal point (.). If you want to change the separator, delete the decimal in the edit box and replace it with the separator of your choice.

Thousands Separator

Thousands separator allows you to choose the way you want numbers over 999 to appear on your reports.

Thousands Separator options

1,000.00

This choice activates the thousands separator character. It inserts a comma (,) or another separator of your choice as a thousands separator character for amounts over 999. When you select this option, your numbers are printed like this: 1,000.00, 10,000.00, 999,000.00.

1000.00

This choice deactivates the thousands separator character. When you select this option, your numbers are printed like this: 1000.00, 10000.00, 999000.00.

NOTE: *Thousands separator allows you additionally to type in a character to be used as a thousands separator. The default is a comma (,). If you want to change the separator, delete the comma in the edit box and replace it with the separator of your choice.*

Negatives

Negatives allows you to choose the way you want negative values to appear on your reports.

Negatives options

(1.23)

This option encloses negative values in parentheses [(100.00), (225.73), (1,000,000)]

--1.23

This option identifies negative values with a leading minus sign (--100.00, --225.73, --1,000,000).

1.23--

This option identifies negative values with a trailing minus sign (100.00--, 225.73--, 1,000,000.00--)

Currency Symbol

Currency Symbol allows you to specify if the dollar sign (or other currency symbol) is to be displayed and whether it is to appear in a fixed position or float with the length of the data.

Currency Symbol options

None

This option prevents the display of the currency symbol.

Fixed

Fixed puts the currency symbol in the first (far left) position in the field and fills the area between the symbol and the amount with spaces.

For example:

\$ 325.00

\$ 401,325.00

Float

Float aligns the currency symbol with the amount so there are never any extra spaces between the symbol and the amount.

For example:

\$401,325.00

\$325.00

Once Per Page

Once Per Page displays/prints a currency symbol with the first number/currency value that appears on the page and displays no currency symbol with any of the other values on the page.

Changing the currency symbol

If you wish to change the current symbol, delete the symbol in the box and type the new symbol in its place. Crystal Reports will accept up to four characters as a currency symbol.

Currency Position

Currency Position allows you to specify where you want the currency symbol to appear in relation to the dollar amount and negatives indicator. Your options are:

\$ Position	Negatives setting	Description
(\$1.23)	(1.23)	left of amount, inside brackets
\$(1.23)	(1.23)	left of amount, outside brackets
(1.23\$)	(1.23)	right of amount, inside brackets
(1.23)\$	(1.23)	right of amount, outside brackets
--\$1.23	--1.23	left of amount, inside minus sign
\$--1.23	--1.23	left of amount, outside minus sign
--1.23\$	--1.23	right of amount
\$1.23--	1.23--	left of amount
1.23\$--	1.23--	right of amount, inside minus sign
1.23--\$	1.23--	right of amount, outside minus sign

Format Section (formatting) dialog box

The Format Section (formatting) dialog box appears whenever you select a section to format from the Format Section (sections) dialog box while using the Format|Section command.

Use the Format|Section (formatting) dialog box to make formatting changes that affect entire sections of your report. This dialog box allows you to:

- hide a section (keep it from printing),
- print subtotals or group values only at the bottom of the page,
- insert a page break before the section is printed,
- insert a page break after the section is printed,
- reset the page number to one (1) after a group value prints,
- prevent page breaks from spreading data from a single record over two pages,
- prevent blank lines from printing, and
- create multiple columns.

Format Section dialog box options

The following options are available for formatting sections of your report:

Your options are:

Hide Section

When you select Hide Section, Crystal Reports does not print the section.

Print at Bottom of Page

Print at Bottom of Page causes each group value to print only at the bottom of a page. (Details continue to print in their normal positions.) The command is useful for printing invoices and other reports where you want a single group (i.e. line items grouped by order number) to appear on a page and the value for that group (subtotal, summary field, etc.) to print only at the bottom of the page. (See Creating invoices/orders/statements for a practical example of this option.)

New Page Before

New Page Before is an available format option for Group (Start and End), Grand Total, and Details sections. When you select this option, Crystal Reports inserts a page break before it prints the section. The page break thus comes before:

- the group (if you use the option with a Group End section), or
- each report record (if you use the option with a Details section).

The Page Header and Page Footer appear on each page.

- If you have a subtotal or summary field in a Group End section, you can use the New Page Before option to put these values on pages following the value being totaled.
- Use New Page Before in the Details section to print each report record on a separate page.

NOTE: If you want to get all of the details in a group, plus the Group Start and the Group End sections, to start on a new page, there are two techniques you can use to accomplish this.

Use New Page Before in the Group Start Section, or use New Page After in the Group End section. Both techniques produce the same output except at the end of the report.

- **With the first method (Group Start section), the Grand Total section prints on the same page as the last group.**
- **With the second method (Group End section), the Grand Total Section prints on a separate page.**

New Page After

When you select New Page After, Crystal Reports inserts a page break after it prints the section.

- The Page Header and Page Footer appear on each page.
- Use New Page After in the Group End section to print each group on a separate page. (See Creating invoices/orders/statements for a practical example of this option.)

Reset Page Number After

Reset Page Number After resets the page number to one (1) for the following page, after it prints a group total. When this option is used in conjunction with Print at Bottom of Page, Crystal Reports prints a single group on a page, prints the group value at the bottom of the page, and resets the page number to 1 for the next page. This option is useful whenever you are printing multiple reports from a single file (i.e. invoices), and you want each report to be numbered beginning with Page 1. (See Creating invoices/orders/statements for a practical example of this option.)

Keep Section Together

When you select Keep Section Together, Crystal Reports keeps all the lines of the section together, either on the current page (if there is room) or on the next (if not).

In a customer list, for example, data on a single customer (from a single record or linked records) may extend over several lines. If the standard page break falls within the data for a customer, the data will be split, part on one page, part on the next. But with Keep Section Together, Crystal Reports inserts the page break before the record begins so that all the data will be printed together, on the following page.

Suppress Blank Lines

When you select Suppress Blank Lines, Crystal Reports eliminates lines from your report that are blank due to fields being suppressed (zeros, duplicates, and hidden fields).

Format with Multiple Columns

When you select Format with Multiple Columns, Crystal Reports activates the Multi--Column Layout button. Clicking this button takes you to the Multi--Column Layout dialog box which enables you to set up your report in a multi--column format. That is, instead of having the data print straight down the page, you can set up multiple columns and have the data flow from column to column. You can also have your data print across then down the page, printing one record in each column, then printing a second record in each column, then a third, etc.

NOTE: Format with Multiple Columns is only available for the Details section of your report.

- Select the option(s) of interest, and Click OK to finish formatting the section.

NOTE: Not all options are available for formatting all sections. For example, New Page Before and New Page After are not available options when you are formatting the Page Header section: Crystal Reports already generates a page break before each Page Header section, and, since a header cannot stand alone on a page, there is no need for the Page Break After option.

Insert Formula dialog box

The Insert Formula dialog box appears whenever you select the [Insert|Formula Field](#) command.

Use the Insert Formula dialog box to:

- select an existing formula for inclusion in your report,
- delete an existing formula specification or
- to specify a name for a new formula.

Dialog box options

To select an existing formula for inclusion

Click the name of the formula of interest, then click OK to select it, or double click the name of the formula to select it.

To delete an existing formula

Click the name of the formula of interest, then click Delete to delete it.

NOTE: You must delete all uses of the formula in the report before you can use the delete command.

To specify a name for a new formula

1. Type in the name you want for the formula. The name can contain up to 28 characters, any combination of numbers, letters, symbols, and spaces.
2. Click OK when finished. Crystal Reports takes you to the [Formula Editor](#).

See Also

[Deleting formulas from your report](#)

[Formulas -- an overview](#)

[Index To Formula Topics](#)

Font dialog box

The Font dialog box appears under several circumstances:

- when you select text or a field and then select the **Format|Font** command (or Change Font from the right mouse key menu), and
- when you select a section from the **Default Fonts dialog box** while using the **File|Options** command.

Use the Font dialog box to change the fonts, the **font size**, and/or the **font style** you use for text and data fields on your reports.

Font dialog box options

Font

The *Font* box lists all the fonts that you have installed for Windows. When the box first appears, the font already in use for the selected element is highlighted.

- Select the new font you wish to use (if different from the highlighted font).

Font Style

The *Style* box lists four additional attributes that you can assign to the font selected:

Regular	The standard, unmodified style
Bold	Changes the font to boldface
Italic	Changes the font to italic
Bold Italic	Changes the font to Bold Italic

Click the style you wish to activate. Click another style if you wish to deactivate a style once you have selected it.

Size

The *Point Size* box lists common point sizes for the highlighted font. When the box first appears, the point size for the font already in use for the selected element is highlighted, and the highlighted point size appears in the edit box at the top.

- Select the point size you want (if different from the highlighted size). You can select directly from the list or type the new point size in the edit box at the top (if you know that you have additional sizes installed for the currently selected printer or if you are using scalable type).

Effects

The Effects box lists two additional options that you can use for highlighting the selected font.

Strikeout

Prints the strikeout character across the font

Underline

Underlines the font

You may select as many of the Effects as you wish.

Click the check box(es) next to the effects you wish to activate. Click a box a second time if you wish to deactivate a style once you have selected it.

Color

The Color box enables you to assign any of the 16 standard Windows colors to your font.

Click the color of interest. Click a different color if you decide to change it.

Samples

The Samples box displays a sample of the font you have selected. The sample shows the font, style, size, effects, and color you have specified. You can use this box to preview the results as you experiment with different formatting options.

- Click the box(es) next to the attribute(s) you wish to activate. Click a box a second time if you wish to deactivate an attribute once you have selected it.
- Select OK to apply the font changes to the selected report element, or select Cancel to cancel all font changes and leave the report unchanged.

NOTE: You can change the default field and text fonts used for each section of your report via the File|Options command.

NOTE: When you change fonts, Crystal Reports automatically adjusts line and letter spacing to accommodate your change.

See Also

Default Fonts dialog box

Options dialog box

Use the Options dialog box to change default settings for new reports. Using this dialog box you can preselect the way Crystal Reports will display and print many of the elements in your report.

NOTE: *Crystal Reports stores your default options in the file CRW.INI, located in the Windows directory.*

Dialog box options

The dialog box contains a number of buttons and boxes.

Data Directory edit box

Database Selectors edit box

Index Selector edit box

Report Directory edit box

Field Formats box

Default Section Fonts button

Use Indexes For Speed checkbox

Use Default Alias checkbox

Translate DOS Memos checkbox

Display Button Bar checkbox

Display Status Bar checkbox

Use Short Section Names checkbox

Show Field Names checkbox

Insert Detail Field Titles checkbox

Set Directory dialog box

This dialog box appears whenever you Click the Set Location button in either the Data Directory or Report Directory box in the Options dialog box when using the File|Options command.

Use this dialog box to select the default Data Directory and/or Report Directory.

How to use this dialog box

The current default directory appears in the Directory box at the top. To change the default directory do one of the following:

- Delete the current default and type the name of the new directory in the Directory box,
- Double Click the directory of choice from the Directories list, or
- Click to highlight the directory of choice and then Click OK to select it.

Print Report Definition dialog box

This dialog box appears when you select Print|Print Report Definition.

A report definition is a report on a report; it identifies the components of the report, and it provides important information about each of the components. Print Report Definition prints a copy of the report definition for the active report. You have the option of printing the report definition to the print preview window or to the printer.

Dialog box options

You have two choices in the dialog box:

Print to Window Prints the report definition to the Print Window for review.

Print to Printer Prints a hard copy of the report definition.

- Select the option that suits your needs. Crystal Reports prints the report definition for the selected report.

See Also

[Print Report Definition command](#)

Print To File Options dialog box

The Print To File Options dialog box appears whenever you select the Print|Print To File command. Use the Print To File Options dialog box to set up the parameters Crystal Reports is to use when saving your report to a disk file.

Print To File Options dialog box options

Comma separated values (CSV)

Encloses alphanumeric field data in quotes and separates fields with commas.

Tab separated values

Encloses alphanumeric field data in quotes and separates fields with tabs.

Tab separated text style

Saves the data in ASCII text format with all values separated by tabs.

Character separated values

Encloses alphanumeric field data in quotes and separates fields with the character of your choice.

Separator

Specifies the character you want to use to separate the fields in the Character separated value format.

Quote

Specifies double or single quotation marks to enclose alphanumeric field data in the Character separated value format.

Data interchange format (DIF)

Saves the data in DIF (data interchange format) format. This format is often used for the transfer of data between different spreadsheet programs.

Record style (columns of values)

Doesn't use commas or separators. Outputs every record with a fixed field width.

Text style

Saves the data in ASCII text format with all values separated by spaces. This style looks most like the printed page.

Same number formats as in report

Saves the numbers in the same format (decimal places, negatives, etc.) that you have used in the report. If you don't select this option, the program saves the numbers in a format that has been optimized for the file format you have selected.

Same date formats as in report

Saves the dates in the same format (MDY, DMY, etc.) that you used in the report. If you don't select this option, the program saves the dates in a format that has been optimized for the file format you have selected.

To specify Print To File parameters

1. Select the option(s) of interest.
2. Click OK when finished. The Choose Print To File Name dialog box appears.
3. Specify the name and the directory under which you want the file saved.

NOTE: The extension .txt is provided for all files. The program you want to use the data in, however, may look for specific extensions other than .txt. Consult the manual for the program you want to use the data in for instructions on the correct file extension to use, and change the extension accordingly.

Record Sort Order dialog box

The Record Sort Order dialog box appears whenever you select the [Print|Record Sort Order](#) command. Use the (Record) Sort Order dialog box to define how you want the records in your report to be sorted for printing. You can add and remove sort fields and define the sort direction (ascending or descending) for the data in your report.

Sort Order dialog box overview

Fields used in your report are listed in the **Report Fields** box; Sort fields (if any) are listed in the **Sort Fields** box.

- The **Add** button adds the highlighted report field to the Sort Fields list.
- The **Remove** button removes the highlighted sort field from the Sort Fields list.
- The **Sort Direction** box is used to set the sort direction to ascending or descending.

To set a record sort order

1. In the Report Fields box, highlight the first sort field you wish to use and select **Add** to enter it as your first sort field.
 2. Choose **Ascending** (1 to 9, A to Z) or **Descending** (9 to 1, Z to A) for the sort direction of the selected field. Crystal Reports marks your selection with an A (Ascending) or D (Descending).
 3. Repeat Steps 1 and 2 to select any additional sort fields you wish to use. You can use up to five sort fields.
- To remove a field from the sort list, highlight the field in the **Sort Fields** box and select **Remove** to remove it.
4. Select OK when finished. Crystal Reports sorts your report in the sort order selected.

NOTE: *Sorting is done automatically for all groups. For example, if you group on {file.Customer}, Crystal Reports knows to sort on {file.Customer}. The sorts specified in this dialog box will take lesser precedence.*

See Also

[Grouping data with Crystal Reports](#)

[Sorting report data by record](#)

[Sorting report data by group](#)

[How data types are sorted](#)

[Multiple field sorts](#)

[Print|Group Sort Order](#)

[Print|Record Sort Order](#)

[How to identify the "top" groups](#)

[Using Group Sort, Record Sort Order together](#)

[Changing subtotal/summary field sort direction](#)

[Sorting tips and tricks](#)

(Group) Sort Order dialog box

This dialog box appears whenever you select the [Print|Group Sort Order](#) command.

Use the (Group) Sort Order dialog box to change the order in which **groups** appear in your report. Your selection(s) in this box sort the groups in ascending or descending order based on group value (sum, maximum, minimum, average, or count). Your settings have no effect on the order of values within a group; they simply change the order of the groups in relation to one another.

Sort order dialog box overview

Groups established in your report are listed in the **Summary Fields** box on the left. Each group is identified as to the field grouped and the [sort and group by field](#) that triggers the grouping. For example, if the Amount field is the field grouped (subtotaled for our example), and the Customer field is the sort and group by field, the listing for that group will be:

Grouped by file

Customer Sum of Amount

If you have set up multiple groups, they will all be listed.

- The **Add** button adds the highlighted summary field to the Sort Fields list.
- The **Remove** button removes the highlighted sort field from the Sort Fields list.
- The **Sort Direction** box is used to set the sort direction to ascending or descending.

To set up a group sort order

1. In the Summary Fields box, highlight the group for which you want to change the sort order and Click the **Add** button to select the group as the sort group. The group description moves to the **Sort Fields** box.
 2. Select the sort direction for the group, either ascending or descending.
 3. Repeat Steps 1 and 2 if you want to use additional sort groups.
- To remove a group from the sort list, highlight the group in the **Sort Fields** box and select **Remove** to remove it.
4. Click OK when finished. When you print your report, Crystal Reports sorts the groups as specified.

See Also

[Grouping data with Crystal Reports](#)

[Sorting report data by record](#)

[Sorting report data by group](#)

[How data types are sorted](#)

[Multiple field sorts](#)

[Print|Group Sort Order](#)

[Print|Record Sort Order](#)

[How to identify the "top" groups](#)

[Using Group Sort, Record Sort Order together](#)

[Changing subtotal/summary field sort direction](#)

[Sorting tips and tricks](#)

Insert Subtotal dialog box

You use this dialog box to set the conditions that trigger the printing of a subtotal.

The top scroll box

The top scroll box contains a list of the fields and formulas being used in the report. Click the scroll arrow to reveal the list, and select from that list the field that you want the program to use for triggering subtotals.

- The program will first sort report data based on this field.
- Then it will go down the report and group and subtotal the data whenever the value in the field changes.

If you select a date or Boolean field, the program gives you the ability to further narrow your selection. See Date and Boolean conditions below.

The sort order scroll box

The next scroll box lists the two sort direction options, in Ascending order (1 to 9, A to Z) and in Descending order (9 to 1, Z to A). The default option is *in ascending order*. If you want to change the sort direction, Click the scroll arrow to reveal both options and make your selection from the list.

Date and Boolean conditions

When you subtotal based on changes in a Date or Boolean field, Crystal Reports displays another scroll box at the bottom of the dialog box. This scroll box enables you to further define your subtotal specification.

Date Conditions

This new scroll box contains a list of date ranges that define typical subtotalling periods. When you select a date condition, Crystal Reports first sorts your data by date. Then it breaks the data into groups and prints a subtotal whenever the date condition that you select is met.

Click the scroll arrow to reveal the list of date conditions. Your options are:

for each day

Prints a subtotal whenever the date changes

weekly

Prints a subtotal at the change from one week to the next (a week runs from Sunday through Saturday).

for each two weeks

Prints a subtotal every two weeks (weeks run from Sunday through Saturday).

for each half month

Prints a subtotal twice a month

for each month

Prints a subtotal at the end of each month.

for each quarter

Prints a subtotal at the end of each calendar quarter.

for each half year

Prints a subtotal at the end of each calendar half year.

for each year

Prints a subtotal at the end of each year.

Boolean Conditions

When you subtotal based on changes in a Boolean field, Crystal Reports gives you a selection of Boolean conditions that can trigger a a subtotal. The program first sorts your data. Then it breaks the data into groups and prints a subtotal whenever the condition you select is met. Click the scroll arrow

to reveal the list of Boolean conditions.

NOTE: *In the following conditions, Yes means Yes, True, or 1 (depending on the Boolean format you have selected for the field) and No means No, False, or 0).*

Your options are:

any change

Prints a subtotal whenever the value changes from Yes to No or from No to Yes.

Subtotal calculation with any change condition

Yes

Yes

Subtotal

No

Subtotal

Yes

Subtotal

No

No

Subtotal

change to Yes

Prints a subtotal whenever the value changes from No to Yes.

Subtotal calculation with change to Yes condition

Yes

Yes

No

Subtotal

Yes

No

No

Subtotal

change to No

Prints a subtotal whenever the value changes from Yes to No.

Subtotal calculation with change to No condition

Yes

Yes

Subtotal

No

Yes

Subtotal

No

No

Subtotal

every Yes

Prints a subtotal every time the value is Yes.

Subtotal calculation with every Yes condition.

Yes

Subtotal

Yes

Subtotal

No

Yes

Subtotal

No

No

Subtotal

every No

Prints a subtotal every time the value is *No*.

Subtotal calculation with every *No* condition.

Yes

Yes

No

Subtotal

Yes

No

Subtotal

No

Subtotal

next is Yes

Prints a subtotal whenever the next value is a *Yes*.

Subtotal calculation with *next is Yes* condition.

Yes

Subtotal

Yes

No

Subtotal

Yes

No

No

Subtotal

next is No

Prints a subtotal whenever the next value is a *No*.

Subtotal calculation with *next is No* condition.

Yes

Yes

Subtotal

No

Yes

Subtotal

No

Subtotal

No

Subtotal

-- Select the condition you want to use.

Insert Grand Total dialog box

The Insert Grand Total dialog box appears when you select the Insert|Grand Total command.

You use this dialog box to select the kind of grand total you want to appear on your report. Your options are:

Sum

Sum totals all the values in the selected field for the entire report.

Average

Average calculates the average (mean) value in the selected field for the entire report.

Maximum

Maximum identifies the highest value in the selected field for the entire report.

Minimum

Minimum identifies the lowest value in the selected field for the entire report.

Count

Count counts the number of values in the selected field for the entire report.

Sample Variance

Sample Variance determines the variance of all values in a set of values that is typically a subset of an entire population. This can be used for projecting the variance for an entire population based on just a sample of that population. It uses $(N-1)$ in its calculations. When you make this grand total selection, the program determines the sample variance for all values in the selected field for the entire report.

Sample Standard Deviation

Sample Standard Deviation determines the standard deviation of all values in a set of values that is typically a subset of an entire population. This can be used for projecting the standard deviation for an entire population based on just a sample of that population. It uses $(N-1)$ in its calculations. When you make this grand total selection, the program determines the sample standard deviation for all values in the selected field for the entire report.

Population Variance

Population Variance determines the variance of all values in an entire population. It uses (N) in its calculations. When you make this grand total selection, the program determines the population variance for all values in the selected field for the entire report.

Population Standard Deviation

Population Standard Deviation determines the standard deviation of all values in an entire population. It uses (N) in its calculations. When you make this grand total selection, the program determines the population standard deviation for all values in the selected field for the entire report.

NOTE: *You can't sum or average a text, Boolean, or date field.*

To use the Insert Grand Total dialog box

1. Click the scroll arrow on the scroll box to reveal a list of possible grand total operations.
2. Select the operation you want and Click OK to return to the Report Editor.

Crystal Reports calculates the grand total value, creates a Grand Total section for the report (if one has not already been created), and places the Grand Total value in that section.

Insert Summary dialog box

Use the Insert Summary dialog box to set up a summary operation on a field in your report.

- The top scroll box contains a list of the available summary operations. Click the scroll arrow to reveal the list. You have nine options in the scroll box:

Sum

Sum totals the values in the group. This is the same as a subtotal.

Average

Average calculates the average (mean) value in the group.

Maximum

Maximum identifies the highest value in the group.

Minimum

Minimum identifies the lowest value in the group.

Count

Count counts the number of values in the group.

Sample Variance

Sample Variance determines the variance of all values in a set of values that is typically a subset of an entire population. This can be used for projecting the variance for an entire population based on just a sample of that population. It uses $(N-1)$ in its calculations.

Sample Standard Deviation

Sample Standard Deviation determines the standard deviation of all values in a set of values that is typically a subset of an entire population. This can be used for projecting the standard deviation for an entire population based on just a sample of that population. It uses $(N-1)$ in its calculations.

Population Variance

Population Variance determines the variance of all values in an entire population. It uses (N) in its calculations.

Population Standard Deviation

Population Standard Deviation determines the standard deviation of all values in an entire population. It uses (N) in its calculations.

NOTE: *You can't sum or average a text, Boolean, or date field.*

- Select the option of interest.
- The second scroll box contains a list of the fields and formulas being used in the report. Click the scroll arrow to reveal the list, and select from that list the field that you want the program to use for triggering summaries.
 - The program will first sort report data based on this field.
 - Then it will go down the report and group and summarize the data whenever the value in the sort and group by field (the trigger field) changes.

If you select a date or Boolean field, the program gives you the ability to further narrow your selection. See *Date and Boolean* conditions below.

- The next scroll box lists the two sort direction options, in Ascending order (1 to 9, A to Z) and in Descending order (9 to 1, Z to A). The default option is *in ascending order*. If you want to change the sort direction, Click the scroll arrow to reveal both options and make your selection from the list.

Date and Boolean conditions

When you summarize based on changes in a Date or Boolean field, Crystal Reports displays another scroll box at the bottom of the dialog box. This scroll box enables you to further define your summary specification.

Date conditions

This scroll box contains a list of date ranges that define typical summarizing periods. When you select a date condition, Crystal Reports first sorts your data by date. Then it breaks the data into

groups and prints a summary whenever the date condition you select is met. Click the scroll arrow to reveal the list of date conditions and select the condition you want. For further information, see the discussion of [Date field conditions](#).

Boolean conditions

When you subtotal based on changes in a Boolean field, Crystal Reports gives you a selection of Boolean conditions that can trigger a subtotal. The program sorts your data. Then it groups the data and prints a subtotal whenever the condition you select is met. Click the scroll arrow to reveal those conditions and select the condition you want. For further information, see the discussion of [Boolean field conditions](#).

- Select OK when finished. Crystal Reports sorts, groups, and summarizes your data and inserts the summary in the group section of your report. You can then move it into position, wherever you want it to print in that section.

System Information dialog box

The System Information dialog box appears whenever you select the Help\System Information command.

You use the System Information dialog box to display important information about Crystal Reports and the computer and environment in which it is running. This information can be useful to you in solving system problems. This information also prints as part of a technical support request, and it provides technical support personnel with an overview of your system that it can use to solve your problems more quickly.

You also use this dialog box to enter and edit information about yourself, so technical support knows how to reach you.

System Information dialog box options

User Information box

Enter and edit information about yourself in the User Information box.

- To enter information, simply type it in the edit box of interest.
- To edit information, delete the text in the edit box of interest and type new text in its place.

System Information box

System information provides the following information about your system (in order of appearance in the System Information box):

Windows (environment)

The version of Microsoft Windows in use (3.0, 3.1), the mode in which Windows is running (Real, Standard, Enhanced), and the version of DOS in use (3.3, 4.0, 5.0).

Drive

The drive in use, whether the drive is local or network, and the kind of computer in use (286, 386, 386SX, etc.).

Video

The video display in use (EGA, VGA, etc.).

Printer

The printer, printer driver, and printer port in use.

Network

The kind of network in use (if any).

Free Memory

The amount of free memory available once Crystal Reports is up and running. Free memory is that part of base memory (the first 640K) that is unused after loading Crystal Reports.

Free Disk Space

The amount of free disk space available (on the active hard drive) over and above that needed for necessary swap files.

Free User Data

The percentage of the User storage area still available under Windows. This is the part of Windows that controls the keyboard, mouse, communications port, etc. For further information on this value, please consult the documentation that came with Microsoft Windows.

Free GDI Data

The percentage of the GDI (Graphics Device Interface) storage area still available under Windows. This is the part of Windows that controls printing and graphics. For further information on this value, please consult the documentation that came with Microsoft Windows. Windows and icons use this storage area.

EXE Size

The size of the executable file CRW.EXE (the main program file) in use. This value is helpful in determining if the original file has been corrupted in any way.

Using the System Information dialog box

1. Enter and/or edit information about yourself in the User Information edit boxes.
2. Click OK when finished. Crystal Reports stores the data you provided for later recall (via the System Information command). or printing (via the Technical Support Request command).

NOTE: No serial number appears in the User Information box until you have registered with the company, received your serial number, and entered the serial number in the Crystal Reports Registration dialog box which appears as the opening screen.

NOTE: The information in the System Information box (the right portion of the System Information dialog box) is determined internally by Crystal Reports. No input is required on your part nor is any direct modification of the data possible. Data in the System Information box changes only when you change the system (change the printer driver, activate programs that utilize more User Data, etc.), and then only after the System Information dialog box is closed and then called up again.

NOTE: To print the information in the System Information dialog box, select Help|Technical Support Request, and Click the Print button. Crystal Reports prints a technical support request form that includes the System Information dialog box information, the path statement, and other related data.

Technical Support Request dialog box

The Technical Support Request dialog box appears whenever you select the Help|Technical Support Request command.

Use the Technical Support Request dialog box to request assistance with Crystal Reports from the technical support department.

The dialog box provides you with a step--by--step procedure for getting technical support as well as a technical support request form. You can fill out the form in your computer, print it out, and then FAX it or mail it to the technical support department for a timely response.

To use the Technical Support Request dialog box

1. Read the instructions carefully at the top of the dialog box. The instructions provide a systematic approach to solving your problems.
2. If you are unable to solve your problems using on--line help, the manual, or Support Questions and Answers on the Help menu, fill in the information at the bottom of the dialog box.

NOTE: The Crystal Reports manual provides an extensive index, and this online--help facility provides comprehensive topical and alphabetical indexes and an extensive key--words search index. Additionally, Support Questions and Answers (on the Help menu) addresses specific areas in which questions are common. You may save considerable time by consulting these resources first.

3. Click the scroll arrow on the Category scroll box, and select the category of technical support request you are making.
4. Click the scroll arrow on the General scroll box and find the listing that best describes the area in which you are having a problem (installation, creating a report, etc.).
5. Type in the subject in the Subject text box. The subject is a one line description of your problem (garbage characters in font box, see--through dialog boxes, etc.).
6. Type a description of your problem in the Details box. Be as specific as possible. Include any information that you think might be helpful in solving the problem. Some things you may find it helpful to include (where they are appropriate to your request) are:
 - What you want to do and don't know how to do.
 - What you were trying to do and what the results were.
 - If a problem occurs, when it occurs (at start up, after a specific series of steps, etc.). Analyze the problem and try to reconstruct as best you can the circumstances that bring about the problem.
 - If a problem occurs, if it occur with every report or just one report. Analyze the reports and try to determine what is different about the problem report (database links, group selection formula, etc.).
 - If you have recently modified your system, what the modifications were (installing a new version of DOS or Windows, installing Adobe Type Manager, running Windows under Desqview, changing your config.sys or autoexec.bat files, using a new printer, etc.).
7. When finished, Click the Print button. Crystal Reports prints a hard copy of your technical support request. The request includes the information you have just entered as well as the contents of the System Information dialog box (information about you and your system).
8. Once the request is printed out, FAX it or mail it to the technical support department at (604) 681--7163. Technical support will FAX or mail back a response.

NOTE: You may find that, having asked yourself the questions necessary to fill out the request, you have identified some additional clues to solving your problem. For the quickest results and to build your confidence in working with the program, you may want to try to solve the problem yourself first.

File Open dialog box

The File Open dialog box appears whenever you select the File|Open Report command.

Use the File Open dialog box to select the report file you wish to open.

File Open dialog box options

File Name edit box

This box displays the current report specification. By default, Crystal Reports uses a wild card character in place of the name, and .rpt as the extension (*.rpt):

- If you know the name of the report you want to open, type the name in this edit box. Include the path if different than the path currently displayed in the **Directories** heading.

File Name scroll box

This scroll box displays a list of those files in the selected directory that match the specification in the File Name edit box.

- If you don't type a report name in the File Name edit box, or if you are uncertain of the report name, select the report you want from the list of .rpt files that Crystal Reports displays in this scroll box.

List Files of Type scroll box

The **List Files of Type** scroll box contains only a single entry, **CRW Reports (*.rpt)**. No choice is available in this scroll box because the program doesn't recognize any other type of report file.

Directories heading

This heading displays the current path.

Directories scroll box

This box displays a list of directories on the currently logged drive. If the report is saved in a different directory than the one displayed in the **Directories heading**, use this scroll box to select the correct directory.

Drives scroll box

This scroll box contains a list of your system drives. If the report is saved on a different drive than the one displayed in the **Directories heading**, use this scroll box to select the correct drive.

File Save As dialog box

This dialog box occurs in two situations:

- when you select the File|Save command while working on a new report that you haven't yet saved, and
- whenever you select the File|Save As command.
 - If you are working on a new report and haven't yet saved it, use this dialog box to specify the name (and path) under which you want to save your report file.
 - If you have made changes to an existing report file and want to save the changed version of your file under a different name than that of the original version, use this dialog box to specify the name under which you want to save your changed file. All changes you have made while working on the report will be saved to the new file. Your original report file will remain unchanged. If your original report is a new report, however, i.e., untitled, that file will not be saved.

File Save As dialog box options

File Name edit box

This box displays the current report specification. By default, Crystal Reports uses a wild card character in place of the name, and .rpt as the extension (*.rpt):

- If you want to save the report under a new name, type the name in this edit box. Include the path if different than the path currently displayed in the **Directories heading**.

File Name scroll box

This scroll box displays a list of those files in the selected directory that match the specification in the File Name edit box.

- If you want to save the file under the name of an existing report (and you haven't typed a report name in the File Name edit box), select the report name you want to use from the list of .rpt files that Crystal Reports displays in this scroll box.

NOTE: Saving the report under the name of an existing report overwrites the contents of the existing report file.

List Files of Type scroll box

The **List Files of Type** scroll box contains only a single entry, **CRW Reports (*.rpt)**. No choice is available in this scroll box because the program doesn't recognize any other type of report file.

Directories heading

This heading displays the current path.

Directories scroll box

This box displays a list of directories on the currently logged drive. If you want to save the report in a different directory than the one displayed in the **Directories heading**, use this scroll box to select the correct directory.

Drives scroll box

This scroll box contains a list of your system drives. If you want to save the report on a different drive than the one displayed in the **Directories heading**, use this scroll box to select the correct drive.

Using the File Save As dialog box

1. Using the dialog box edit and scroll boxes, specify the name (and path) under which you want to save the report.
2. Select OK when finished. Crystal Reports saves the report file using the name and path specified and changes the title for the active window.

Choose Database File dialog box

The Choose Database File dialog box appears in two situations:

when you select the File|New Report command, and

when you select the Database|Add File to Report command.

Use the **Choose Database File dialog box** to activate a database for use in your report.

File Open dialog box options

File Name edit box

This box displays the current database specification. By default, Crystal Reports uses a wild card character in place of the name, and .db* as the extension (*.db*):

- If you know the name of the database you want to activate, type the name in this edit box. Include the path if different than the path currently displayed in the **Directories** heading.
- If you don't know the name of the database you want to activate, but you do know the kind of database it is (.db, .dbf, etc.), type in the new specification or select the database type from the List Files of Type scroll box. This will change the current database specification to the database type of your choice.
- If you want to display all files, type in *.*.

File Name scroll box

This scroll box displays a list of those files in the selected directory that match the specification in the File Name edit box.

- If you haven't typed a report name in the File Name edit box, or if you are uncertain of the file name, select the database you want from the list of database files that Crystal Reports displays in this scroll box.

Btrieve files

To activate a Btrieve file, you can select any .ddf file. Crystal Reports draws in all of the relevant files in the active directory so no linking is necessary.

NOTE: .ddf files are data dictionary files created by Novell's Xtrieve utility. You will need to create .ddf files using this utility before you can use Btrieve files with Crystal Reports.

.db files

To activate a Paradox .db file, select the file. If you select additional files using the Database|Add File to Report command, it will be necessary for you to specify linking fields via the File Links dialog box.

- Crystal Reports works with Paradox 3.5 and 4.0 files and indexes (including secondary indexes).

.dbf files

To activate a dBASE, Clipper, or FoxPro .dbf file, select the file. If you select additional files using the Database|Add File to Report command, it will be necessary for you to specify linking fields via the File Links dialog box.

Crystal Reports works with the following indexes:

- .ndx dBASE III+
- .mdx dBASE IV
- .ntx Clipper
- .idx FoxPro
- .cdx FoxPro 2

List Files of Type scroll box

The **List Files of Type** scroll box enables you to specify the kind of files you want to appear on the list in the File Name scroll box. When you click the scroll arrow on the List Files of Type scroll box, the following options appear:

Option	Action
---------------	---------------

User default	Enters the specification *.db* in the File Name edit box. This causes all files in the
---------------------	--

selected directory to appear in the File Name scroll box.

xBase Files (*.dbf) Enters the specification for dBASE files (*.dbf) in the File Name edit box. This causes only those files with the extension .dbf to appear in the File Name scroll box.

Paradox Files (*.db) Enters the specification for Paradox files (*.db) in the File Name edit box. This causes only those files with the extension .db to appear in the File Name scroll box.

Btrieve Dictionaries (*.ddf) Enters the specification for Btrieve dictionary files (*.ddf) in the File Name edit box. This causes only those files with the extension .ddf to appear in the File Name scroll box.

All Files Enters a full wildcard specification (*.*) in the File Name edit box. This causes all files in the selected directory to appear in the File Name scroll box.

- Select the option of interest. Crystal Reports places your specification in the File Name edit box and displays those files in the File Name scroll box that match your specification.

Directories heading

This heading displays the current path.

Directories scroll box

This box displays a list of directories on the currently logged drive. If the report is saved in a different directory than the one displayed in the **Directories heading**, use this scroll box to select the correct directory.

Drives scroll box

This scroll box contains a list of your system drives. If the report is saved on a different drive than the one displayed in the **Directories heading**, use this scroll box to select the correct drive.

Print Setup dialog box

The Print Setup dialog box appears whenever you select the Print|Select Printer command.

Use the **Print Setup dialog box** to select the printer, page orientation, and paper size you want to use to print the report. If you don't select a printer, Crystal Reports will print to the Windows default printer.

Dialog box options

The dialog box is divided into three boxes:

Printer

Allows you to specify whether Crystal Reports is to use the Default Printer to print the active report or one of the other printers you have set up in windows.

Orientation

Allows you to specify whether the program is to print in Portrait or Landscape orientation.

Paper

Allows you to select the paper size and source (from among those available for the printer). The sizes and sources available depend on the printer you have selected and they change when you change printers.

Using the dialog box

1. Select the printer of interest from the Printer box, the orientation from the Orientation box, and the paper size and source from the Paper box.
2. If you want to review and/or use other options available for your printer, Click the Options button. This takes you to the Options dialog box. The Options dialog box is a Windows dialog box that changes with the printer selected. For a complete explanation of dialog box options, Click the Help button in the Options dialog box.

Choose Print To File Name dialog box

The Choose Print To File Name dialog box appears when you Click the OK button in the Print To File Options dialog box when using the Print|Print To File command.

Use the Choose Print To File Name dialog box to specify the file name (and path) to which you want to print the file.

File Open dialog box options

File Name edit box

This box displays the current file specification. By default, Crystal Reports uses a wild card character in place of the name, and .txt as the extension (*.txt):

- If you want to specify a new file name, type the name in this edit box. Include the path if different than the path currently displayed in the **Directories** heading.

NOTE: The extension .txt is provided for all files. The program you want to use the data in, however, may look for specific extensions other than .txt. Consult the manual for the program you want to use the data in for instructions on the correct file extension to use, and change the extension accordingly.

File Name scroll box

This scroll box displays a list of those files in the selected directory that match the specification in the File Name edit box.

- If you want to print to file using the name of an existing file, select the file name from the list of files that Crystal Reports displays in this scroll box.

NOTE: Printing to file under the name of an existing file overwrites the contents of the existing file.

List Files of Type scroll box

The **List Files of Type** scroll box contains only a single entry, **Print to file (*.txt)**. No choice is available in this scroll box; the program uses the .txt extension as a default for all file formats.

NOTE: You can print to a file with a different extension if you wish, but you will have to specify the new extension via the File name edit box.

Directories heading

This heading displays the current path.

Directories scroll box

This box displays a list of directories on the currently logged drive. If you want to print to a file in a different directory than the one displayed in the **Directories heading**, use this scroll box to select the new directory.

Drives scroll box

This scroll box contains a list of your system drives. If you want to print to a file on a different drive than the one displayed in the **Directories heading**, use this scroll box to select the new drive.

To choose a Print To File Name

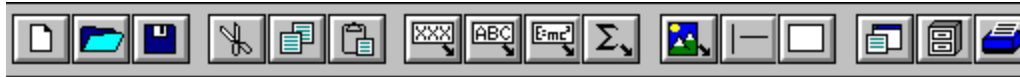
1. Enter your print to file name:

- If you wish to print to an existing file name, select the file name from the list in the File Name scroll box or type the new name in the File Name edit box at the top.
- If you wish to print to a file with a new file name, type the new name in the File Name edit box at the top.
- If you wish to print to an existing file in a different directory or disk location, select the new location using the Directories scroll box. When you make a change in this box, Crystal Reports displays the new path beneath the Directories heading. Then select the file name from the list in the File Name scroll box.

2. Click the OK button. Crystal Reports prints the report to file using the file name you have chosen.

The Button Bar

Crystal Reports groups several commonly--used commands on a Button Bar that remains on screen at all times (unless you choose to turn it off).



The Button Bar buttons produce the following actions:

- New Report
- Open Report
- Save
- Cut
- Copy
- Paste



Insert Database Field



Insert Text Field



Insert Formula Field



Insert Summary



Insert Graphic



Insert Line



Insert Box



Print to Window



Print to File



Print to Printer

You activate Button Bar commands by clicking the appropriate button one time with the left mouse button.

The Button Bar eliminates some of the steps needed to activate the included commands, and it can thus greatly speed your work in creating reports.

NOTE: You can toggle the Button Bar on and off via the Display Button Bar checkbox in the Options dialog box.

Crystal Reports Registration dialog box

The Crystal Reports Registration dialog box appears whenever you start Crystal Reports unless you have registered your copy of the program with the company, received a serial number, and entered it in the Enter serial number... edit box to disable this opening dialog box.

There are two good reasons to register your copy of Crystal Reports:

- Registration entitles you to technical support should you ever require assistance in using the product.
- Registration assures you that you will be notified whenever the product is upgraded to offer new features, benefits, and efficiencies.

Crystal Reports Registration dialog box options

Enter serial number... edit box

Use this edit box to enter the serial number that Crystal Services sends you when you register the program. Be careful to enter the serial number correctly.

Proceed to Crystal Reports button

Use this button to close out the dialog box and go directly into the Crystal Reports program. The button will be useful until you receive and enter your registration serial number. At that time the Crystal Reports Registration dialog box will no longer appear when you start the program.

Edit Registration Info button

Use this button to enter/edit product registration information. The Edit Registration Info button takes you to the Crystal Reports Registration dialog box. Use this dialog box to enter your name, company name, and phone and fax numbers. Crystal Reports stores this information and displays it and/or prints it out automatically when you print out the registration form, call up system information (via the [Help|System Information command](#)), or send in a technical support request (via the [Help|Technical Support Request command](#)).

Print Registration Form button

Use this button to print a copy of the completed registration form.

How to register your copy of Crystal Reports

Registering your copy of Crystal Reports is easy to do.

1. Click the Edit Registration Info button. The Crystal Reports Registration dialog box appears.
2. Enter your name, address, phone, and fax in the edit boxes provided, and Click OK when finished to return to the Crystal Reports Registration dialog box.
3. Click the Print Registration Form button. Crystal Reports prints out a copy of your completed registration form.
4. Fax the form to Crystal Services at (604) 681--5147 or mail it to Crystal Services at the address that appears on the form.
5. In a few days, the company will mail or fax you back your serial number.
6. Enter the serial number in the *Enter serial number...* edit box, and Click the *Proceed to Crystal Reports* button when finished. This takes you to Crystal Reports and disables the dialog box so it no longer appears when you start the program.

Format Section (sections) dialog box

The Format Section (sections) dialog box appears when you select the Format|Section command. Use this dialog box to select the report section you wish to format.

Dialog box overview

The Sections list in the dialog box lists all of the sections in the current report.

By default the Sections list contains three listings:

- the Page header section,
 - the Details section, and
 - the Page footer section.
- If you have added groups or subtotals, Crystal Reports creates a group header section (Group header #n) and a group footer section (Group footer #n) for each unique group.
- If you have added summaries, Crystal Reports creates a group header section (Group header #n) and a group footer section (Group footer #n) for each summary.

NOTE: *Group sections are numbered consecutively in the order created, and they appear on the list in the format:*

Group header #n:file.triggerfieldname

or

Group footer #n:file.triggerfieldname

- If you have added a grand total (Sum, Average, Count, etc.), the program creates a Grand Total section to hold the value. Only one Grand Total section will appear on the list.

How to use the Format Sections (sections) dialog box

- Select the section you want to format and Click OK. Crystal Reports takes you to the Format Section (formatting) dialog box which enables you to select the formatting desired.

Format Border & Colors dialog box

The dialog box contains a variety of buttons and switches for formatting field text, the field fill (background), the field border, for adding drop shadows, and for controlling the size of the border box that encloses the selected field.

Text Color buttons

Use the Text Color buttons to specify the color you want for the text that appears in the selected field. You can choose from any of the 16 standard Windows colors.

When you Click a Text Color button:

- a black box appears around the button as a highlight (a white box appears around the color *black*), and
- the program displays the name of the highlighted color to the right of the Text Color buttons.

NOTE: You can also change text color via the Format|Font command.

Fill Color buttons and checkbox

The Fill Color checkbox and the Fill Color buttons have somewhat different functions.

The Fill Color checkbox

Fill is the color (if any) that you want the program to use to fill the selected field. Use this checkbox to toggle fill on and off.

- A check mark in the box means that fill is turned on.
- No check mark means that fill is turned off.

You simply Click the checkbox to toggle fill *on*, and Click it again to toggle fill *off*. By default fill is toggled *Off*.

NOTE: Whenever you Click a Fill Color button, the program automatically toggles the Fill Color checkbox on (puts a check mark in the box). It assumes that if you want to specify the color, you want your box to be filled.

NOTE: When you toggle the Fill Color checkbox Off (no check mark), you turn fill off and the description None appears to the right of the Fill Color buttons. It is important that you specify a border when you turn the fill off. Otherwise there is no border or fill color to define your box and the box disappears.

Fill Color buttons

Use the Color buttons to specify the color you want to fill the selected field. You can choose from any of the 16 standard Windows colors.

When you Click a Fill Color button:

- a black box appears around the button as a highlight (a white box appears around the color *black*), and
- the program displays the name of the highlighted color to the right of the Fill Color buttons.

Border Color buttons and checkbox

The Border Color checkbox and the Border Color buttons have somewhat different functions.

The Border Color checkbox

Use this checkbox to toggle the border on and off.

- A check mark in the box means the border is turned on.
- No check mark means the border is turned off.

You simply Click the checkbox to toggle the border *on*, and Click it again to toggle the border *off*. By default the border is toggled Off.

NOTE: Whenever you Click a border Color or Style button (or a Sides checkbox), the program automatically toggles the Border Color checkbox on (puts a check mark in the box). It assumes that if you want to specify the color, style, or side, then you must want a border to appear.

NOTE: When you toggle the Border Color checkbox Off (no check mark), you turn the border off and the description None appears to the right of the Border Color buttons. It is important that you specify a fill color when you turn the border off, otherwise there is no border or color to define your box and the box disappears.

Border Color buttons

Use the Border Color buttons to specify the color for the border of the selected field. You can choose from any of the 16 standard Windows colors.

When you Click a Border Color button:

- a black box appears around the button as a highlight (a white box appears around the color *black*), and
- the program displays the name of the highlighted color to the right of the style buttons.

Style buttons

Use the Style buttons to specify the line style you want the program to use as a border for the selected field. When you Click a Style button:

- a black box appears around the button as a highlight, and
- the program displays a text description of the highlighted style to the right of the style buttons.

Your choices are:

Single line

Prints a single solid line.

Double line

Prints a double solid line

Dashed line

Prints a single dashed line.

Dotted line

Prints a single dotted line.

Sides checkboxes

Use the sides checkboxes to specify (put a check mark by) the sides of the field on which you want the border to appear (if you want a border but don't want it to fully enclose the field).

For example,

- if you want a border (line) to appear only below a field, you check the *Bottom* check box and leave the other checkboxes empty,
- if you want vertical lines to appear to the right and left of the field (with no lines above or below), you check the Left and Right checkboxes and leave the other checkboxes empty, or

Your choices are:

Left

Puts a border on the left side of the field.

Top

Puts a border on the top side of the field.

Right

Puts a border on the right side of the field.

Bottom

Puts a border on the bottom side of the field.

NOTE: When you check the Border checkbox, Crystal Reports automatically puts a check mark in each of the four Sides checkboxes. If you want to eliminate the border for one or more sides of the box, Click the Sides checkboxes for the sides that you want to deactivate and the check marks will disappear.

Drop Shadow checkbox

Put a check mark in this checkbox if you want to print a drop shadow below and to the right of the field value. When the checkbox is not active (no check mark), the program prints no drop shadow.

NOTE: The drop shadow will not print unless you have specified a border on at least one side of the field.

Width buttons

Use the width buttons to specify the width of the box (or horizontal border if an entire box isn't specified). You have two options:

Width of Field

This option prints a box with a size based on the number of characters allotted for the field in the database. For example, if a database allots ten characters for a field but the current field value is only five characters long, Crystal Reports still prints a box (or horizontal border) large enough to accommodate the full ten characters when this option is selected. Field boxes are all the same size, regardless of the size of the value they contain. Crystal Reports uses Width of Field as the default.

Width of Data

The option adjusts the size of the box to the actual size of the value in the field. For example, if a database allots ten characters for a field but the current field value is only five characters long, Crystal Reports prints a custom box (or horizontal border) just large enough to accommodate the five characters when this option is selected. Field boxes are different sizes to accommodate different sized field values.

Height buttons

When multiple fields appear in a given row on a report, Crystal Reports adjusts line spacing (the spacing between rows of data) to accommodate the largest font size used in that row. For example, if one field is formatted with a 12 point font and another field in the same row is formatted with a 36 point font, Crystal Reports expands the height allotted for the row to accommodate the 36 point font.

Use the Height buttons to set the size of boxes to the absolute height allotted for the row or to the actual height of the field data.

You have two options:

Height of Line

The Height of Line option prints a box based on the height allotted for the row, regardless of how big the data field data is. With this option, all boxes (and vertical

borders) are the same height; box height is identical for fields formatted with small fonts and for fields formatted with large fonts. Crystal Reports uses Height of Line as the default.

Height of Font

This option bases the height of the box (or vertical border) on the font size of the value in the field. A field formatted with a large font will get a taller box while a field formatted with a small font will get a shorter box.

Box Format dialog box

Dialog box options

The dialog box contains four rows of formatting buttons in addition to the standard OK, Cancel, and Help buttons.

Fill Color buttons and checkbox

The Fill Color checkbox and the Fill Color buttons have somewhat different functions.

The Fill Color checkbox

Fill is the color (if any) that you want the program to use to fill up the selected box. Use this checkbox to toggle fill on and off.

- A check mark in the box means that Fill is turned on.
- No check mark means that Fill is turned off.

You simply Click the checkbox to toggle Fill *on*, and Click it again to toggle Fill *off*. By default Fill is toggled *Off*.

NOTE: Whenever you Click a Fill Color button, the program automatically toggles the Fill Color checkbox on (puts a check mark in the box). It assumes that if you want to specify the color, you want your box to be filled.

NOTE: When you toggle the Fill Color checkbox Off (no check mark), you turn fill off and the description None appears to the right of the Fill Color buttons. It is important that you specify a border when you turn the fill off. Otherwise there is no border or fill color to define your box and the box disappears.

Fill Color buttons

Use the Color buttons to specify the color you want to fill the selected box. You can choose from any of the 16 standard Windows colors.

When you Click a Fill Color button:

- a black box appears around the button as a highlight (a white box appears around the color *black*), and
- the program displays the name of the highlighted color to the right of the Fill Color buttons.

Border Color buttons and checkbox

The Border Color checkbox and the Border Color buttons have somewhat different functions.

The Border Color checkbox

Use this checkbox to toggle the border on and off.

- A check mark in the box means the border is turned on.
- No check mark means the border is turned off.

You simply Click the checkbox to toggle the border *off*, and Click it again to toggle the border *on*. By default the border is toggled On.

NOTE: Whenever you Click a border Color, Width, or Style button, the program automatically toggles the Border Color checkbox on (puts a check mark in the box). It assumes that if you want to specify the color, width, or style, you want a border to appear.

NOTE: When you toggle the Border Color checkbox Off (no check mark), you turn the border off and the description None appears to the right of the Border Color buttons. It is important that you specify a fill color when you turn the border off, otherwise there is no border or color to define your box and the box disappears.

Border Color buttons

Use the Border Color buttons to specify the color for the border of the selected box. You can choose from any of the 16 standard Windows colors.

When you Click a Border Color button:

- a black box appears around the button as a highlight (a white box appears around the color *black*), and
- the program displays the name of the highlighted color to the right of the style buttons.

Width buttons

Use the Width buttons to specify the width (thickness) for the border of the selected box. When you Click a width button,

- a black box appears around the button as a highlight, and
- the program displays a text description of the highlighted width to the right of the style buttons.

Your choices include hairline and a number of point sizes from 0.50 points to 3.50 points.

NOTE: A hairline is one pixel wide, based on the output device in use. For example, if your video output shows 70 pixels to the inch, a hairline will display as 1/70th of an inch wide. The same hairline, when printing on a 300 dpi laser printer will print as 1/300th of an inch wide.

Style buttons

Use the Style buttons to specify the line style you want the program to use as a border for the selected box. When you Click a Style button:

- a black box appears around the button as a highlight, and
- the program displays a text description of the highlighted style to the right of the style buttons.

Your choices are:

single line

- Prints a single solid line.

dashed line

- Prints a single dashed line.

dotted line

- Prints a single dotted line.

NOTE: All colors are fixed; they cannot be edited.

NOTE: While a box with a white fill looks no different than a box with no fill when the two boxes are standing alone, there is a major difference between them. The fill color white is a solid color and thus it can block out parts of boxes it overlaps. If you want a transparent box, toggle the Fill Color checkbox off (None).

NOTE: The program uses a transparent box (no fill) with a black single line border of hairline width as a default.

NOTE: Text always prints over the top of boxes, as if the boxes were on a separate, lower layer.

File Link Options dialog box

The dialog box displays three different options for looking up records:

- Look up both files at the same time.
- Look up all of one file, then all of the other.
- Look up all combinations of the two files.

Sample Data

Examples of the three different options for looking up records will be based on the following data:

Database A -- Customers

CustNum	Name
1	Jones
2	Smith
3	Miller

Database B -- Orders

OrderNum	CustNum	Amt1
11	1	10.00
22	1	20.00
33	2	30.00
44	2	40.00
55	3	30.00
66	3	30.00

Database C -- Credits

CreditNum	CustNum	Amt2
C1	1	10.00
C2	2	30.00
C3	2	40.00
C4	3	30.00

Lookup option 1 -- Look up both files at the same time.

For each record in A, this option looks for a matching record in B and a matching record in C, then it looks for the next matching record in B and the next matching record in C, etc. Once it finds all the matching records, it repeats the process with the next record in A, then the next, etc.

Using the example databases, Crystal Reports presents the data in this manner using this function:

CustNum	OrderNum	Amt1	CreditNum	Amt2
1	11	10.00	C1	10.00
1	22	20.00	C1	10.00
2	33	30.00	C2	30.00
2	44	40.00	C3	40.00
3	55	30.00	C4	30.00
3	66	30.00	C4	30.00

Lookup option 2 -- Look up all of one file, then all of the other.

For each record in A, this option looks for all the matching records in B and then all the matching records in C, then it repeats the process with the next record in A, then the next, etc.

Using the example databases, Crystal Reports presents the data in this manner using this function:

CustNum	OrderNum	Amt1	CreditNum	Amt2
1	11	10.00		
1	22	20.00		
1			C1	10.00
2	33	30.00		
2	44	40.00		
2			C2	30.00
2			C3	40.00
3	55	30.00		
3	66	30.00		
3			C4	30.00

NOTE: If you want the C data to appear in your report before the B data, you will need to change your links so the A to C link comes first, then the A to B link. You do this via the File Links dialog box. To change the order of the links, delete the existing links and set up new links in the order you want.

NOTE: For a step--by--step discussion of building a report using Option 2, see [A to B, A to C reports](#).

Lookup option 3 -- Look up all combinations of the two files.

For each record in A, this option looks for a matching record in B, then it finds all the matching records in C. Once it finds all the matching records in C, it repeats the process with the next record in B, then the next, etc. When it finds matching C records for all the B records that match the first A record, it moves to the next A record and repeats the process.

Using the example databases, Crystal Reports presents the data in this manner using this function:

CustNum	OrderNum	Amt1	CreditNum	Amt2
1	11	10.00	C1	10.00
1	22	20.00	C1	10.00
2	33	30.00	C2	30.00
2	33	30.00	C3	40.00
2	44	40.00	C2	30.00
2	44	40.00	C3	40.00
3	55	30.00	C4	30.00
3	66	30.00	C4	30.00

NOTE: If you want the program to look up the first matching record in the C database, then find all matching records in the B database (the reverse of the current process), you will need to change your links so the A to C link comes first, then the A to B link. You do this via the [File Links dialog box](#). To change the order of the links, delete the existing links and set up new links in the order you want.

Verify Database dialog box

This dialog box appears when you use the Verify Database command to check the structure of the underlying database, looking for changes:

- If the underlying database is unchanged, you will get the following message:

Database is up to date.

Click OK to return to the Report Editor.

- If the underlying database has changed, you will get the following message:

The database file (filename) has changed. Proceed to fix up the report?

- If you select *Yes*, Crystal Reports adapts the database to the current version of the database.
- If you select *No*, Crystal Reports attempts to print the report without first adapting it to the current version of the database.

Edit Record Selection Formula dialog box

This dialog box appears whenever you select the Edit Record Selection Formula command. You use the dialog box to set up a record selection formula that limits the records the program uses when preparing your report. This is the same dialog box that appears when you use the Insert|Formula Field command.

1. You can use the full range of operators, functions, and data fields to create a formula which restricts the range of data to print. For example, if you want to extract only those records where the item number begins with AA, you can use the Subscript operator in the selection formula:

```
{file.Item number} [1 to 2] = AA
```

See Edit Formula for a discussion of how to work with the various elements of the Edit Formula dialog box.

2. Enter your formula.
3. Select Accept when finished. Crystal Reports limits the report to the records specified.

NOTE: No insertion cursor appears when you create a selection formula; the formula is simply stored in the Crystal Reports report.

NOTE: Your record selection formula must be Boolean, that is, it must result in a Yes or No answer.

NOTE: You can't use commas in numbers you enter in a formula. Enter only the number itself.

Edit Group Selection Formula dialog box

This dialog box appears whenever you select the Edit Group Selection Formula command. You use the dialog box to set up a group selection formula that limits the groups the program uses when preparing your report. This is the same dialog box that appears when you use the Insert|Formula Field command.

1. You can use the full range of operators, functions, and data fields to create a formula which restricts the range of data to print.

Example: when printing a sales report grouped by sales rep, you may want to restrict the report to those salesreps who are below quota. You could do that with a formula such as the following:

```
Sum({file.Sales},{file.RepNumb}) < Quota
```

-- Crystal Reports would calculate Sales on the first pass and group the sales figures by RepNumb. On the second pass it would compare each subtotal for the Sales field to the value in the Quota field and print only those groups in which the Sales subtotal was less than the Quota value.

See Edit Formula for a discussion of how to work with the various elements of the Edit Formula dialog box.

2. Enter your formula.
3. Select Accept when finished. Crystal Reports limits the report to the groups specified.

NOTE: You can use Page Number and Record Number fields in a group selection formula via the PageNumber and RecordNumber functions.

NOTE: No insertion cursor appears when you create a selection formula; the formula is simply stored in the report.

NOTE: Your group selection formula must be Boolean, that is, it must result in a Yes or No answer.

NOTE: You can't use commas in numbers you enter in a formula. Enter only the number itself.

Browse Field Data dialog box

This dialog box appears when you Click the Browse Field Data button in the Insert Database Field dialog box or when you choose the Browse Field Data command.

You use the dialog box to preview the data type, length, and/or content of any field available in the Insert Database Field dialog box or in the Report Editor.

- The source of the field (alias) and the field name appear as the title for the dialog box.
- The data type for the field (string, number, etc.) appears just below the title.
- A list of field values appears in the scroll box.

When you're finished reviewing the field data, Click the Done button.

NOTE: A Browse Field Data button also appears in the Select Records dialog box. A Browse Field Data option also appears on the right mouse button pop--up menu whenever you select a report field, in the Insert Database Field dialog box, in the Formula Editor, and in other dialog boxes in which reviewing field data might be useful.

Browse and Paste Field Data dialog box

This dialog box appears when you Click the Browse Field Data button in the Formula Editor or in the Select Records and Select Groups dialog boxes.

You use the dialog box to preview the data type, length, and/or content of any field and to paste a value into your formula or selection criteria.

- The source of the field (alias) and the field name appear as the title for the dialog box.
- The data type for the field (string, number, etc.) appears just below the title.
- A list of field values appears in the scroll box.

When you're finished reviewing the field data, Click the Done button or highlight a value and Click the Paste Data button to paste the value into your formula.

NOTE: If you need to select multiple values (for example, if you want to include records in which the field value is one of three values), the insertion point automatically moves to the next text box as soon as it finishes pasting data in the previous box.

NOTE: A Browse Field Data button also appears in the Select Records dialog box. A Browse Field Data option also appears on the right mouse button pop-up menu whenever you select a report field, in the Insert Database Field dialog box, in the Formula Editor, and in other dialog boxes in which reviewing field data might be useful.

Format Currency dialog box

The dialog box contains a variety of options for formatting currency fields in your report.

NOTE: dBASE does not offer a currency data type. To format currency fields from dBASE files, use the currency options in the Format Number dialog box.

The dialog box contains the following options:

Suppress if Zero

When activated, Suppress if Zero prevents a field from printing on your report if it contains a zero amount.

Rounding

Rounding allows you to round currency values that appear in your report to a specific number of decimal places. Your options are:

None

No rounding

0.1

Rounds to the nearest tenth. 5,555,555.55 rounds to 5,555,555.60

1

Rounds to the nearest one. 5,555,555.55 rounds to 5,555,556.00

10

Rounds to the nearest ten. 5,555,555.55 rounds to 5,555,560.00

100

Rounds to the nearest hundred. 5,555,555.55 rounds to 5,555,600.00

1,000

Rounds to the nearest thousand. 5,555,555.55 rounds to 5,556,000.00

10,000

Rounds to the nearest ten thousand. 5,555,555.55 rounds to 5,560,000.00

100,000

Rounds to the nearest hundred thousand. 5,555,555.55 rounds to 5,600,000.00

1,000,000

Rounds to the nearest million. 5,555,555.55 rounds to 6,000,000.00

NOTE: You can also round a currency field by putting the field in a formula and using the Round(x, # of decimal places) function.

Leading Zero

Leading Zero allows you to include a zero, if you wish, before the decimal point in dollar amounts less than one. You have two choices:

0.17

This option includes a zero before the decimal point whenever you have a dollar amount less than one (0.01, 0.99, 0.75)

.17

This option prints dollar amounts less than one without a leading zero (.01, .99, .75).

Decimals

Decimals allows you to specify the number of decimal places you want to print for currency values. Your options are:

1.

This option prints 5.55555 as 5.

1.0

This option prints 5.55555 as 5.5

1.00

This option prints 5.55555 as 5.55

1.000

This option prints 5.55555 as 5.555

1.0000

This option prints 5.55555 as 5.5555

1.00000

This option prints 5.55555 as 5.55555

NOTE: This option does not round values. It simply truncates (cuts off) unwanted decimal places when it prints currency values.

Decimal Separator

Decimal separator allows you to type in a character to be used as a decimal separator. The default is a decimal point (.).

Thousands Separator

Thousands Separator allows you to choose the way you want currency values over \$999 to appear on your reports. Thousands Separator gives you two choices:

1,000.00

This choice activates the thousands separator character. It inserts a comma (or another separator of your choice) as a thousands separator character for currency values over \$999. When you select this option, your currency values are printed like this: \$1,000.00, \$10,000.00, \$999,000.00.

1000.00.

This choice deactivates the thousands separator character. When you select this option, your currency values are printed like this: \$1000.00, \$10000.00, \$999000.00.

NOTE: Thousands separator allows you additionally to type in a character to be used as a thousands separator. The default is a comma (,).

Negatives

Negatives allows you to choose the way you want negative values to appear on your reports. Negatives gives you three options:

(1.23)

This option encloses negative values in parentheses: (100.00), (225.73), (1,000,000)

--1.23

This option identifies negative values with a leading minus sign: --100.00, --225.73, --1,000,000.

1.23--

This option identifies negative values with a trailing minus sign: 100.00--, 225.73--, 1,000,000.00--

Currency Symbol

Currency Symbol allows you to specify if the dollar sign (or other currency symbol) is to be displayed and whether it is to appear in a fixed position or float with the length of the data. Your options are:

None

This option prevents the display of the currency symbol.

Fixed

Fixed puts the currency symbol in the first (far left) position in the field and fills the area between the symbol and the amount with spaces.

For example:

\$ 325.00

\$ 401,325.00

Float

Float aligns the currency symbol with the amount so there are never any extra spaces between the symbol and the amount.

For example:

\$401,325.00

 \$325.00

Once Per Page

Once Per Page displays/prints a currency symbol with the first number/currency value that appears on the page and displays no currency symbol with any of the other values on the page.

Changing the currency symbol

The currency symbol in use appears in the edit box to the right of the float option. If you wish to change the symbol, delete the symbol in the box and type the new symbol in its place. Crystal Reports will accept up to four characters as a currency symbol.

Currency Position

Currency Position allows you to specify where you want the currency symbol to appear in relation to the dollar amount and negatives indicator.

Graphic Format dialog box

You use this dialog box to format bit--mapped graphics.

The dialog box contains a number of smaller boxes, buttons, and checkboxes:

Cropping of original

Cropping refers to cutting away those portions of your graphic that you don't want to print (although you can use cropping to add white space between the graphic and the frame that surrounds it as well). Using the cropping box, specify the size of the piece you want to cut off the top, bottom, left, and/or right side of your graphic.

NOTE: All cropping activities begin at the outer edge of the graphic.

- **Positive numbers cut into the graphic the amount specified.**
- **Negative numbers add the specified amount of white space between the outer edge of the graphic and the frame.**

For an examination of the cropping process and a discussion about adding white space around a graphic, see [Cropping graphics](#).

Scaling

Scaling refers to the length and width of a graphic as a percentage of the original length and width. For example, if the original graphic is one inch wide, that width is automatically assigned a width scaling value of 100% by the program. To double the width of the graphic using the Scaling options, you would change Scaling Width to 200% (twice the size of the original). Likewise, to reduce the width of the graphic to one--half inch (half the size of the original), you would change Scaling Width to 50%. Scaling Height works in the same way.

If you want to resize the graphic as a percentage of the original height and width, enter the new scaling percentages.

NOTE: Crystal Reports stores a copy of each graphic in its original size. All scaling settings refer back to that original size. For example, if you have a graphic that was originally a four inch square and you have resized it to a two inch square, the Scaling box will show settings of Width = 50% and Height = 50%. Those percentages refer back to the original. If you want to resize the graphic again to a one inch square, you will have to enter scaling values that again refer back to the original Width and Height, not the current values. Entering values of Width = 25% and Length = 25% will reduce the original four inch square to a one inch square.

Size

Size refers to the absolute (measured) length and width of a graphic. For example, if a graphic is originally a one inch square, each of the Size settings will initially be set at one inch. To double the length and width of the graphic (to make a two inch square), reset the Size settings to two inches each. To reduce the size of the graphic to a half inch square, reset the Size settings to a half inch each.

NOTE: When you change the Size settings, Crystal Reports automatically recalculates the Scaling settings, and when you change the Scaling settings, Crystal Reports automatically recalculates the Size settings. The recalculated settings appear when you next open the Graphic Format dialog box.

Original Size

The Original Size box displays the original dimensions of the graphic (its dimensions when first inserted into the report). Sizing, scaling, and cropping don't affect this figure nor can you change it directly; it is simply provided as a reference.

Hide when printing checkbox

Graphics contain masses of data that take time for computers and printers to process. It follows, then, that when you have graphics in your report, the report pages print more slowly than they would without graphics. While slower printing shouldn't be a problem on your final printing, it may be a bit of an annoyance when doing multiple test prints (to window or printer) while developing your report. This checkbox was provided to eliminate that annoyance.

When you Click the checkbox to activate it, Crystal Reports ignores all graphics when it prints. With the checkbox inactive, the program prints the graphics it finds.

A typical way to use the Hide when printing option is this:

- Leave it inactive while you are placing, sizing, and cropping your graphic.
- Once you have the graphic the way you want it, Click the checkbox so no graphics print when you make test prints.
- When you're ready to print your final report, Click the checkbox off and print the report, graphics and all.

Position button

Use the Position button any time you want to reposition a graphic by specifying its absolute position within a section.

Graphic Position dialog box

You can use this dialog box to set the absolute position of a bit--mapped graphic in your report.

The dialog box has two settings:

Top

- Use Top to set the position of the top of the graphic relative to the top of the section.

Left

- Use Left to set the position of the left side of the graphic relative to the left edge of the section.

NOTE: All settings are in either inches or centimeters, based on your settings in the International section of the Windows' Control Panel.

Insert your new settings and Click OK when finished to return to the Graphic Format dialog box.

NOTE: The numeric position of a graphic (as shown in the Graphic Position dialog box) is relative to the page margins you have set. For example, if you have set a left page margin of 1.00 inches and you place your graphic, numerically, with a Left setting of 0.5 inches, the graphic will print 1.5 inches in from the left edge of the paper, 0.5 inches in from the left margin.

NOTE: The settings displayed when you first call up this dialog box indicate the current position of the graphic in the section.

NOTE: A setting of Top = 0.00, Left = 0.00 positions the graphic flush in the upper left hand corner of the section.

NOTE: You can also reposition a graphic using a mouse if you want to determine its final position visually rather than by the numbers. For complete instructions on repositioning a graphic with a mouse, see [Inserting, moving, and deleting graphics](#).

Line Format dialog box

You use this dialog box to format a selected line. The dialog box contains three sets of formatting buttons and the standard OK, Cancel, and Help buttons.

Color buttons

Use the Color buttons to specify the color of the selected line. You can choose from any of the 16 standard Windows colors. When you Click a color button,

- a black box appears around the button as a highlight (a white box appears around the color *black*), and
- the program displays the name of the highlighted color to the right of the style buttons.

Width buttons

Use the Width buttons to specify the width (thickness) of the selected line. When you Click a width button,

- a black box appears around the button as a highlight, and
- the program displays a text description of the highlighted width to the right of the style buttons.

Your choices include hairline and a number of point sizes from 0.50 points to 3.50 points.

NOTE: A hairline is one pixel wide, based on the output device in use. For example, if your video output shows 70 pixels to the inch, a hairline will display as 1/70th of an inch wide. The same hairline, when printing on a 300 dpi laser printer will print as 1/300th of an inch wide.

NOTE: The program uses a black single line of hairline width as a default.

Style buttons

Use the Style buttons to specify the line style you want the program to use when displaying or printing the selected line. When you Click a Style button:

- a black box appears around the button as a highlight, and
- the program displays a text description of the highlighted style to the right of the style buttons.

Your choices are:

single line

- Prints a single solid line.

dashed line

- Prints a single dashed line.

dotted line

- Prints a single dotted line.

Mailing Labels dialog box

The Mailing Labels dialog box is a powerful control panel. The dialog box enables you to print your data on virtually any labels that are commercially available for line printers (dot matrix) or page printers (laser, ink jet). Using the dialog box settings and Crystal Reports formatting commands, you can fine tune your printing so your labels come out just the way you want them.

The Mailing Labels dialog box offers two ways to set up labels:

1. automatically, by Avery label number, and
2. manually.

Automatically, by Avery label number

To make your work easier, Crystal Reports has come with preset templates for the most popular Avery labels. Those labels are listed, by number, in the Choose Mailing Label Type scroll box.

To set up Avery labels automatically

- Click the scroll arrow and scroll down to see if the Avery Label you're using is listed.
- If it is, select the number and Crystal Reports will automatically set up the specifications for that label.
- Click OK and the program takes you directly to the Label Editor.

Manually

If your label isn't on the Choose Mailing Label Type scroll list, you will need to set up the label manually using the various settings in the Mailing Labels dialog box. Select User Defined Label and then change the remaining dialog box settings to conform to the label you're going to use.

Dialog box options

Besides the Choose Mailing Label Type box, the Mailing Labels dialog box contains five smaller boxes:

Printing direction

The Printing direction box enables you to specify the path Crystal Reports follows when printing the data on your labels.

-- Across then Down

Prints data left to right across the first row of labels, then across the second row, etc..

-- Down then across

Prints data down the first column of labels, then down the second column, etc.

Numbers of Labels

The Number of Labels box displays the maximum number of labels that can print across the page and the maximum number that can print down the page based on your settings in the Page Margins, Label Size, and Gap Between Labels boxes.

NOTE: The program displays only the number of complete labels it can print. For example, if it determines that there is space available to print 2.75 labels across the page, it displays 2 as the Across Page setting and prints only two labels across the page.

NOTE: If you want to print fewer labels across than the number calculated (fewer columns), increase the size of the right margin until the calculation changes to the number across that you want.

Page Margins box

The Page Margins box enables you to set the top, bottom, left, and right margins of your page.

- Measure the margins and enter the values in the respective edit boxes.

NOTE: All margins are figured from the edge of the paper. For example, a setting of .5 inches sets a half--inch margin.

NOTE: The margin settings that appear when you first open the dialog box represent the non--printing region defined for the default printer. While you can set margins that fall inside the non--printing areas, parts of your report may be clipped off if you do.

NOTE: You cannot use page margin settings to set the paper size; you must set the paper size via the Paper Size scroll box in the Print Setup dialog box. You can call up that dialog box by selecting Print\Select Printer or via the Printers icon in the Windows control panel. To specify a new, user--defined paper size, use the Printers facility in the Windows Control Panel.

Label Size

The Label Size box enables you to specify the dimensions (height and width) of one label. This information can usually be found on the box or folder the labels come in.

- Enter the height and width values in the respective edit boxes.

Gap Between Labels

The Gap Between Labels box enables you to specify the empty area (gap, gutter, etc.) between labels. Horizontal = the gaps between labels going across the page, Vertical = the gaps between labels going down the page. One--up (one across) labels don't have any horizontal gaps.

- Measure the gaps and then enter the horizontal and vertical values in the respective edit boxes.

NOTE: Alternately, on labels that come two, three, or more across the page you can:

- **measure the distance from the left edge of one label to the left edge of the next (including any intervening gap) , enter your measurement as the width setting in the label size box, and leave the horizontal gap setting at 0, and**
- **measure the distance from the top of one label to the top of the next (including any intervening gap), enter your measurement as the height setting in the label size box, and leave the vertical gap setting at 0.**

This procedure shouldn't cause you any problems unless there are large gaps between the labels.

NOTE: The unit of measurement used in the dialog box (inches or centimeters) is based on the Measurement setting in the International section of the Windows Control Panel (English = inches, Metric = Centimeters).

NOTE: For more information, see instructions for setting up labels with borders and setting up round labels.

Multi Column Layout dialog box

The Multi--Column Layout dialog box enables you to set up your report in a multi--column format. That is, instead of having the data print straight down the page, you can set up multiple columns and have the data flow from column to column. You can also have your data print across then down the page, printing one record in each column, then printing a second record in each column, then a third, etc. The dialog box is divided into four smaller boxes.

Detail Size

The Detail Size box enables you to specify the dimensions (height and width) of one detail. Determine how wide you want each detail to be (based on number of characters, font size, etc.) and enter that value in the Width edit box.

Determine how high you want each detail to be (based on number of lines in the detail, font size, etc.) and enter that value in the Height edit box.

Gap Between Details

The Gap Between Details box enables you to specify the empty area (gap, gutter, etc.) you want to allow between details. Horizontal = the gaps between details going across the page, Vertical = the gaps between details going down the page.

Determine the gaps you want to allow. Enter the horizontal gap in the Horizontal edit box and enter the vertical gap in the Vertical edit box.

Printing Direction

The Printing direction box enables you to specify the path Crystal Reports follows when printing the details on a report page.

Across then Down

Prints details across the columns, one detail in the first column, one in the next, one in the next, etc. Then, when all the columns have a detail, the program moves down the page and prints a second detail in the first column, then in the second, etc.

Down then across

Prints details down the first column, then down the second column, etc.

Number of Details

The Number of Details box displays the number of details that can print across the page and the number that can print down the page based on your settings in the Detail Size and Gap Between Details boxes and in the Printer Margins dialog box.

NOTE: The program displays only the number of complete details it can print. For example, if it determines that there is space available to print 2.75 details across the page, it displays 2 as the Across Page setting and prints only two details across the page.

Print Window

As Crystal Reports is preparing your report, it displays a window that shows the number of records being read and sorted, and the percentage of the total that has already been processed. For a discussion of the various Record Counter values, see [Records Counter](#).

The arrow buttons at the top of the print window (similar in design to VCR buttons) enable you to move backwards and forwards in your report. The buttons are activated only if you have a multi--page report. The action of those buttons is as follows:

{bml frstpage.bmp}	Moves you to the first page of your report
{bml prevpage.bmp}	Moves you to the previous page
{bml nextpage.bmp}	Moves you to the next page
{bml lastpage.bmp}	Moves you to the last page of your report
{bml cancel.bmp}	Closes out the Print Window
{bml maglass.bmp}	Previews the page to be printed
{bml printer.bmp}	Sends your report to the printer

NOTE: You can also use the keyboard to move around in the print window. *Ctrl+Home* moves you to the first page, *Pg Up* moves you to the previous page, *Pg Dn* moves you to the next page, *Ctrl--End* moves you to the last page, and *Esc* closes the print window.

NOTE: You can also use the scroll bars to move around individual pages of the report.

Print Preview

Crystal Reports enables you to preview your completed report before you print. The magnifying glass button is the print preview button. This button lets you see each page in its entirety, as it will print. This gives you the opportunity to evaluate the overall page look (balance, white space, highlights, etc.) When you Click this button, the program displays the page that's currently in the print window, reduced in size so the entire page fits in the print window at one time.

NOTE: The size of the preview page is directly proportional to the size of the print window. Thus, you can increase the size of the preview page by expanding the print window.

Once you are in the print preview mode, you can scroll through the report pages using the arrow buttons just as you can in the standard (non--preview) mode.

Printing to the printer

The printer button is always activated. You can use that button to send the report to the printer to print a hard copy. Using the Print To Window option and this button together, you can first review your report on screen, and, if it's the way you want it, print it out.

Printer Margins dialog box

Use this dialog box to set the print margins for your report (the white space between your report and the edge of the page) The dialog box displays default margins when it first appears.

To use this dialog box, accept the default margins or enter your new margins.

- To accept the default margins, Click OK and the program returns you to the Report Editor.
- To change the margins, enter your new margins in the Top, Left, Bottom, and/or Right Margin edit boxes. When you change any of the default margins, the program turns the Use Default Margins checkbox *Off*.
- To restore changed margins to their default settings, Click the Use Default Margins checkbox.

For additional information on setting margins, see [Creating Margins](#).

NOTE: Crystal Reports uses the non--printing areas established for your printer as default printer margins. Those margin settings appear in the Printer Margins dialog box. While you can set margins that fall inside the non--printing areas, parts of your report may be clipped off if you do.

Print dialog box

Use the Print dialog box to set up the specifications for your print job. The dialog box appears whenever you select the Print To Printer command (or Click the printer icon in the Print Window).

Print Range Options

All

Select All if you want Crystal Reports to print your entire report.

Pages

Select Pages if you want Crystal Reports to print a partial report.

When you select Pages the insertion point moves to the *From* edit box. Enter the first page you want to print in the *From* edit box and the last page you want to print in the *To* edit box. Crystal Reports prints the pages specified plus all the pages in between.

NOTE: To print a single page, enter the number of the page you want to print in both boxes.

Other Options

Copies

Specify the number of copies you want to print. The default is one (1) copy.

Collate copies

Leave this check box empty if you want to print multiple copies of a multiple page report in the following page order: 1,1,1,2,2,2,3,3,3, etc.

Activate this check box if you want to print multiple copies of a multiple page report in the following page order: 1,2,3...,1,2,3..., etc.

Edit Text Field dialog box

You use the Edit Text Field dialog box to insert or change the content of text fields. You can add text, delete text, rearrange text, or change the spelling of text in any text field in your report.

Enter your text in the Enter Text edit box, and Click OK when finished.

NOTE: You cannot copy text fields via the Windows Copy command, but you can copy freeform text using that command. That is about the only thing that you cannot do with text fields that you can do with freeform text.

Word wrap and return characters

Crystal Reports will word wrap within the space allotted if you have activated the *Print on multiple lines* option in the Format String dialog box. If you expand or narrow the field, word wrap will adjust to the available space (where possible), again, if the Print on multiple lines option is activated.

NOTE: If your text field includes return characters, Crystal Reports interprets them to provide the line breaks you specify in the text field (where possible).

NOTE: While the effective limit on text field size is 32K (including carriage return and line feed characters), it is recommended that text fields be used only for more manageable sized blocks of text.

Edit Report Title dialog box

Use the Edit Report Title dialog box to:

- change the title that appears on the title bar of your report, and
- to enter and/or edit non-printing comments that you want to accompany the report.

Using the dialog box

- If you want to change the report title, enter the title in the Title edit box. If you enter a title that is too long to fit in the report title bar, the program will truncate all remaining characters once the title bar is full.
- If you want to include a comment with your report, enter your comment in the Comments edit box. Word wrap is active in the edit box. Thus, on multi-line comments, Crystal Reports automatically breaks the lines so they fit within the margins of the edit box.
- If you want to add to existing comments, position the I-beam cursor where you want the new text to begin, Click the left mouse button to place the insertion point, and enter your new text.
- If you want to delete existing comments, place the insertion point and delete a character at a time using the Backspace or Del key. To delete blocks of text, select the text you want to remove by dragging the I-beam cursor over it. With the text selected, press the Del key.

NOTE: The Windows' Cut, Copy, and Paste commands are active in the Comments facility.

Click the Accept button when finished.

Choose New Index dialog box

File Name edit box

This box displays the current index specification. By default, Crystal Reports uses a wild card character for both the name and the extension of the index (*.*):

-- If you know the name of the index you want to select, type the name in this edit box. Include the path if different than the path currently displayed in the Directories heading.

NOTE: *When working with dBASE files, you must pick an index that resides in the same directory as its corresponding .DBF file.*

File Name scroll box

This scroll box displays a list of those files in the selected directory that match the specification in the File Name edit box.

-- If you don't type an index in the File Name edit box, or if you are uncertain of the report name, select the index you want from the list of files that Crystal Reports displays in this scroll box.

List Files of Type scroll box

The List Files of Type scroll box enables you to specify the kind of files you want to appear on the list in the File Name scroll box. When you Click the scroll arrow on the List Files of Type scroll box, the following options appear:

User default

-- Enters the specification *.* in the File Name edit box. This causes all files in the selected directory to appear

dBase Indexes

-- Enters the specification for dBase index files (*.ndx;*.mdx) in the File Name edit box. This causes only those files with the extensions .ndx or .mdx to appear in the File Name scroll box.

Clipper Indexes

-- Enters the specification for Clipper index files (*.ntx) in the File Name edit box. This causes only those files with the extensions .ntx to appear in the File Name scroll box.

All Files

-- Enters the wild card specification *.* in the File Name edit box. This causes all files in the selected directory to appear in the File Name scroll box.

Directories heading

This heading displays the current path.

Directories scroll box

This box displays a list of directories on the currently logged drive. If the index is saved in a different directory than the one displayed in the Directories heading, use this scroll box to select the correct directory.

Drives scroll box

This scroll box contains a list of your system drives. If the index is saved on a different drive than the one displayed in the Directories heading, use this scroll box to select the correct drive.

Large Btrieve files

Btrieve .ddf files are different than other files used with Crystal Reports in that each .ddf file may contain multiple database files. Large Btrieve files may contain, ten, twenty, or more database files. If the Insert Database Field dialog box were to list all fields in all files as they do with other database files (.dbf, .db), you could end up with hard-to-manage scroll lists in each of these dialog boxes, each listing hundreds and hundreds of fields. Because of this, Crystal Reports initially lists only the file names not the individual field names for any .ddf file that includes more than four database files. From the list of files you select and open the files of interest. The program then lists the fields for the selected files only, giving you an abbreviated scroll list that includes only those fields that you might want to include in your report.

To use the dialog box with large Btrieve files.

1. Click the file of interest and Click the Open button (or Double Click the file of interest). Crystal Reports opens and lists the fields in the selected database.
2. Repeat the process for each additional database you want to open from the .ddf file.
3. Select and place fields from the open database(s) as you would from any other database.

NOTE: To close an open database, Click the database you want to close and Click the Close button. (When you Click a closed database, the left button changes to Open. When you Click an open database, the left button changes to Close.)

Date field conditions

When you subtotal based on changes in a Date field, Crystal Reports first sorts your data by date. Then it breaks the data into groups and prints a subtotal whenever the date condition that you select is met.

When you select a Boolean field condition from the Insert Summary, Insert Group Section, or Insert Subtotal dialog box, your options are:

for each day

Prints a subtotal whenever the date changes.

weekly

Prints a subtotal at the change from one week to the next (a week runs from Sunday through Saturday).

for each two weeks

Prints a subtotal every two weeks (weeks run from Sunday through Saturday).

for each half month

Prints a subtotal twice a month.

for each month

Prints a subtotal at the end of each month.

for each quarter

Prints a subtotal at the end of each calendar quarter.

for each half year

Prints a subtotal at the end of each calendar half year.

for each year

Prints a subtotal at the end of each year.

Boolean field conditions

When you subtotal based on changes in a Boolean field, Crystal Reports gives you a selection of Boolean conditions that can trigger a subtotal. The program first sorts your data. Then it breaks the data into groups and prints a subtotal whenever the condition you select is met.

NOTE: In the following conditions, Yes means Yes, True or 1 (depending on the Boolean format you have selected for the field) and No means No, False, or 0.

When you select a Boolean field condition from the Insert Summary, Insert Group Section, or Insert Subtotal dialog box, your options are:

on change to yes or no

Prints a subtotal whenever the value changes from Yes to No or from No to Yes.

on change to Yes

Prints a subtotal whenever the value changes from No to Yes.

on change to No

Prints a subtotal whenever the value changes from Yes to No.

on every Yes

Prints a subtotal every time the value is Yes.

on every No

Prints a subtotal every time the value is No.

on next is Yes

Prints a subtotal whenever the next value is a Yes.

on next is No

Prints a subtotal whenever the next value is a No.

Select OK when finished. Crystal Reports inserts the subtotal in the group section of your report. If you have already set up other subtotals on the same field, Crystal Reports creates a new section for the new subtotal.

Insert Group Section dialog box

You use this dialog box to set the conditions under which data is to be grouped.

The top scroll box contains a list of the fields and formulas being used in the report. Click the scroll arrow to reveal the list, and select from that list the field that you want the program to use for triggering groups.

- The program will first sort report data based on this field.
 - Then it will go down the report and group the data whenever the value in the field changes.
- If you select a date or Boolean field, the program gives you the ability to further narrow your selection. See *Date and Boolean* conditions below.

The next scroll box lists the two sort direction options, Ascending (1 to 9, A to Z) and Descending (9 to 1, Z to A). The default option is *in ascending order*. If you want to change the sort direction, Click the scroll arrow to reveal both options and make your selection from the list.

Date and Boolean conditions

When you group based on changes in a Date or Boolean field, Crystal Reports displays another scroll box at the bottom of the dialog box. This scroll box enables you to further define your grouping specification.

Date conditions

This new scroll box contains a list of date ranges that define typical grouping periods. When you select a date condition, Crystal Reports sorts your data by date and breaks it into groups whenever the condition you select is met. Click the scroll arrow to reveal those conditions and select the condition you want. For further information, see the discussion of [Date field conditions](#).

Boolean conditions

When you break data into groups based on changes in a Boolean field, Crystal Reports gives you a selection of Boolean conditions that can trigger a grouping. The program sorts your data and breaks it into groups whenever the condition you select is met. Click the scroll arrow to reveal those conditions and select the condition you want. For further information, see the discussion of [Boolean field conditions](#).

When you select OK, Crystal Reports creates a group section in the report editor for this group, and groups your data according to the conditions you have specified.

Field Format (strings) dialog box

This dialog box appears whenever you click the String button in the Field Format section of the Options dialog box.

You use the Field Format (strings) dialog box to set default formatting specifications for string fields that appear on your report. You use this dialog box to suppress printing of duplicate string field data and to align values within string fields. You also use it as a gateway to the Format String dialog box which contains additional formatting options.

Dialog box options

Suppress if Duplicated

When activated, nothing is printed in a column of string field data if it duplicates data on the previous line; the data only prints once. For example, to print the customer number only once for each customer, activate this option for the customer number field. The value will print again on a new page.

Alignment

Alignment refers to the placement of the field value within the space allotted for the field on the report. You have the following choices:

Default

Default restores the default alignment for the field values: string fields are left aligned by default.

Left

Left places all field values flush left in the space allotted. The first character in the value is flush against the left margin of the field box. Thus, when you select Left, the first character in each value is aligned.

Centered

Centered centers the field value within the space allotted by the field box.

Right

Right places all field values flush right in the space allotted. The last character in the value is flush against the right margin of the column. Thus, when you select Right, the last character in each value is aligned.

Format String button

When you Click the Format String button, the [Format String dialog box](#) appears. You use that dialog box to specify the number of lines you want the program to use when printing each string field value.

Field Format (numbers) dialog box

This dialog box appears whenever you click the Number button in the Field Format section of the Options dialog box.

You use the Field Format (numbers) dialog box to set default formatting specifications for number fields that appear on your report. Specifically, you use this dialog box:

- to suppress printing of duplicate number field data,
- to set number fields to conform to Windows' default format, and
- to call up the Format Number dialog box which contains additional formatting options.

Dialog box options

Suppress if Duplicated

When activated, nothing is printed in a column of number field data if it duplicates data on the previous line; the data only prints once. The duplicate value will print again on a new page if the duplicate values continue to a new page.

Use Windows Default Format

Uses the number and currency formats from the International dialog box in the Windows' Control Panel.

Alignment

Alignment refers to the placement of the field value within the space allotted for the field on the report. You have the following choices:

Default

Default restores the default alignment for the field values: number fields are right aligned by default.

Left

Left places all field values flush left in the space allotted. The first character in the value is flush against the left margin of the field box. Thus, when you select Left, the first character in each value is aligned.

Centered

Centered centers the field value within the space allotted by the field box.

Right

Right places all field values flush right in the space allotted. The last character in the value is flush against the right margin of the column. Thus, when you select Right, the last character in each value is aligned.

Format Number button

The Format Number button takes you to the [Format Number dialog box](#). The dialog box contains a variety of options for formatting numbers as numbers, and additional options for formatting numbers as currency.

NOTE: The currency provision is included in this dialog box to make it easier for you to work with fields from dBASE databases since dBASE doesn't offer a currency data type.

Field Format (currency) dialog box

This dialog box appears whenever you click the Currency button in the Field Format section of the Options dialog box.

You use the Field Format (currency) dialog box to set default formatting specifications for currency fields that appear on your report. Specifically, you use this dialog box:

- to suppress printing of duplicate currency field data,
- to set currency fields to conform to Windows' default format, and
- to call up the Format Currency dialog box which contains additional formatting options.

Dialog box options

Suppress if Duplicated

When activated, nothing is printed in a column of currency field data if it duplicates data on the previous line; the data only prints once. The duplicate value will print again on a new page if the duplicate values continue to a new page.

Use Windows Default Format

Uses the currency formats from the International dialog box in the Windows' Control Panel.

Alignment

Alignment refers to the placement of the field value within the space allotted for the field on the report. You have the following choices:

Default

Default restores the default alignment for the field values: currency fields are right aligned by default.

Left

Left places all field values flush left in the space allotted. The first character in the value is flush against the left margin of the field box. Thus, when you select Left, the first character in each value is aligned.

Centered

Centered centers the field value within the space allotted by the field box.

Right

Right places all field values flush right in the space allotted. The last character in the value is flush against the right margin of the column. Thus, when you select Right, the last character in each value is aligned.

Format Currency button

The Format Currency button takes you to the [Format Currency dialog box](#). The dialog box contains a variety of additional options for formatting numbers.

Field Format (date) dialog box

This dialog box appears whenever you click the Date button in the Field Format section of the Options dialog box.

You use the Field Format (date) dialog box to set default formatting specifications for date fields that appear on your report. Specifically, you use this dialog box:

- to suppress printing of duplicate date field data,
- to set date fields to conform to Windows' default format, and
- to call up the Format Date dialog box which contains additional formatting options.

Dialog box options

Suppress if Duplicated

When activated, nothing is printed in a column of date field data if it duplicates data on the previous line; the data only prints once. The duplicate value will print again on a new page.

Use Windows Default Format

Uses the date formats from the International dialog box in the Windows' Control Panel.

Alignment

Alignment refers to the placement of the field value within the space allotted for the field on the report. You have the following choices:

Default

Default restores the default alignment for the field values: date fields are left aligned by default.

Left

Left places all field values flush left in the space allotted. The first character in the value is flush against the left margin of the field box. Thus, when you select Left, the first character in each value is aligned.

Centered

Centered centers the field value within the space allotted by the field box.

Right

Right places all field values flush right in the space allotted. The last character in the value is flush against the right margin of the column. Thus, when you select Right, the last character in each value is aligned.

Format Date button

The Format Date button takes you to the [Format Date dialog box](#). The dialog box contains a variety of additional options for formatting dates.

Field Format (Boolean) dialog box

This dialog box appears whenever you click the Boolean button in the Field Format section of the Options dialog box.

You use the Field Format (Boolean) dialog box to set default formatting specifications for Boolean fields that appear on your report. Specifically, you use this dialog box to suppress printing of duplicate Boolean field data and to align Boolean fields. You also use it as a gateway to the Format Boolean dialog box which contains additional formatting options.

Dialog box options

Suppress if Duplicated

When activated, nothing is printed in a column of Boolean field data if it duplicates data on the previous line; the data only prints once. The duplicate value will print again on a new page if the duplicate data continues to a new page.

Alignment

Alignment refers to the placement of the field value within the space allotted for the field on the report. You have the following choices:

Default

Default restores the default alignment for the field values: Boolean fields are left aligned by default.

Left

Left places all field values flush left in the space allotted. The first character in the value is flush against the left margin of the field box. Thus, when you select Left, the first character in each value is aligned.

Centered

Centered centers the field value within the space allotted by the field box.

Right

Right places all field values flush right in the space allotted. The last character in the value is flush against the right margin of the column. Thus, when you select Right, the last character in each value is aligned.

Format Boolean button

When you Click the Format Boolean button, the [Format Boolean dialog box](#) appears. You use this dialog box to specify the way you want Boolean values to appear on your report.

Edit Group Section (sections) dialog box

The Edit Group Section (sections) dialog box appears when you select the Edit|Group Section command. Use this dialog box to select the group section you wish to edit.

Dialog box overview

The Sections list in the dialog box lists all of the group sections in the current report.

NOTE: *Group sections are numbered consecutively in the order created, and they appear on the list in the format:*

Group #n:file.triggerfieldname

How to use the Edit Group Section (sections) dialog box

- Select the section you want to format and Click OK. Crystal Reports takes you to the Edit Group Section (edit) dialog box which enables you to edit the selected section to meet your needs.

Delete Section dialog box

The Delete Section dialog box appears when you select the Edit|Delete Section command. Use this dialog box to select the group section you wish to delete.

Dialog box overview

The Sections list in the dialog box lists all of the group sections in the current report.

NOTE: *Group sections are numbered consecutively in the order created, and they appear on the list in the format:*

Group #n:file.triggerfieldname

How to use the Delete Group Section dialog box

- Select the section you want to delete and Click OK (or Double Click the section you want to delete. Crystal Reports deletes the selected section.

Edit Group Section (edit) dialog box

The Edit Group Section (edit) dialog box appears once you have selected a group section to edit from the Edit Group Section (sections) dialog box. Use this dialog box to change the sorting and grouping specifications (sort and group by field, sort direction, etc.) for any of the groups on your report.

Dialog box options

The top scroll box

The top scroll box contains a list of the fields and formulas being used in the report. Click the scroll arrow to reveal the list, and select from that list the field that you want the program to use for triggering group sections.

- The program will first sort report data based on this field.
 - Then it will go down the report and group the data whenever the value in the field changes.
- If you select a date or Boolean field, the program gives you the ability to further narrow your selection. See Date and Boolean conditions below.

The sort order scroll box

The next scroll box lists the two sort direction options, in Ascending order (1 to 9, A to Z) and in Descending order (9 to 1, Z to A). The default option is *in ascending order*. If you want to change the sort direction, Click the scroll arrow to reveal both options and make your selection from the list.

Date and Boolean conditions

When your groups are based on changes in a Date or Boolean field, Crystal Reports displays another scroll box at the bottom of the dialog box. This scroll box enables you to further define your sorting and grouping specification.

Date Conditions

This new scroll box contains a list of date ranges that define typical grouping periods. When you select a date condition, Crystal Reports first sorts your data by date. Then it breaks the data into groups and prints a subtotal whenever the date condition that you select is met. Click the scroll arrow to reveal the [list of Date conditions](#).

Boolean Conditions

This new scroll box contains a list of Boolean conditions that define typical grouping situations. When you select a date condition, the program first sorts your data. Then it breaks the data into groups whenever the Boolean condition you select is met. Click the scroll arrow to reveal the [list of Boolean conditions](#).

Hide and Show

The Hide and Show options allow you to hide a report section that is showing or to show a report section that is hidden.

- When you Click a visible report section in the gray area at the left of the Report Editor and then Click the right mouse button, the Hide option appears on the pop--up menu. Click Hide and Crystal Reports hides the selected section.
- When you Click a hidden report section in the gray area at the left of the Report Editor and then Click the right mouse button, the Show option appears on the pop--up menu. Click Show and Crystal Reports redisplay the selected section.

NOTE: The Status Bar displays the name of the section the cursor is in when the cursor is in the gray area to the right of the Report Editor. This includes hidden sections. When a hidden section name appears on the Status Bar, you can Click the right mouse button and select Show from the pop--up menu to redisplay the section.

Select Records dialog box

This dialog box appears whenever you choose Print|Select Records.

You can use this dialog box to select the records you want to include in your report (if you don't want them all included). For example, you may have a customer database that contains records for customers from every state and Canadian province but you want to do a report only on Texas customers. Using this dialog box you can restrict your report so that only Texas customers are included.

You set your selection criteria in this dialog box and Crystal Reports automatically generates a record selection formula based on your responses to dialog box questions.

NOTE: This command allows you to set up reasonably complex selection criteria, but it does not have the flexibility of Print|Edit Record Selection Formula.

Dialog Box Options

The Select Records dialog box is a dynamic box. Different data types and selection criteria change your dialog box options.

All dialog boxes begin with the expression:

```
Select all records where:
```

followed by the name of the field you have selected and a selection criteria scroll box.

Using the scroll box, select the condition that best finishes this sentence:

```
"I want to select all records where the value in the field I have selected..."
```

You can select from any of the following conditions (depending on the data type of the field you have selected):

Primary conditions

These conditions appear whenever you use Select Records with number, currency, string, or memo fields.

is any value

Select records that have any value in the selected field. Use this option to include all records in the report; no records are excluded.

is equal to

Select records for which the value in the selected field is equal to another value to be specified.

```
Customer is equal to Acme
```

```
« Include all records that show Acme as the customer. »
```

```
OrderDate is equal to January 15, 1992
```

```
« Include all records that show an order date of January 15, 1992. »
```

is not equal to

Select records for which the value in the selected field is not equal to another value to be specified.

```
Customer is not equal to Acme
```

```
« Include all records that show anyone but Acme as the customer. »
```

```
OrderDate is not equal to January 15, 1992
```

```
« Include all records that show anything but January 15, 1992 as the order date. »
```

is less than

Select records for which the value in the selected field is less than another value to be specified.

Quantity is less than 5

« Include all records that show a quantity smaller than five. »

Amount is less than 1000.00

« Include all records that show an amount smaller than 1000.00. »

is greater than

Select records for which the value in the selected field is greater than another value to be specified.

Quantity is greater than 5

« Include all records that show a quantity bigger than 5. »

Amount is greater than 1000.00

« Include all records that show an amount bigger than 1000.00. »

is less than or equal to

Select records for which the value in the selected field is less than or equal to another value to be specified.

Quantity is less than or equal to 5

« Include all records that show a quantity of 5 or smaller. »

Amount is less than or equal to 1000.00

« Include all records that show an amount of 1000.00 or smaller. »

is greater than or equal to

Select records for which the value in the selected field is greater than or equal to another value to be specified.

Quantity is greater than or equal to 5

« Include all records that show a quantity of 5 or more. »

Amount is greater than or equal to 1000.00

« Include all records that show an amount of 1000.00 or more. »

is between

Select records for which the value in the selected field falls between or matches one of two values to be specified.

OrderDate is between January 1, 1992 and March 31, 1992

« Include all records in which the order date falls between (or matches either) January 1, 1992 and March 31, 1992. »

ZIP is between 90000 and 99999

« Include all records in which the ZIP code falls between (or matches either) 90000 and 99999. »

is not between

Select records for which the value in the selected field does not fall between or match one of two values to be specified.

OrderDate is not between January 1, 1992 and March 31, 1992.

« Include all records in which the order date does not fall between (or match either) January 1, 1992 and March 31, 1992. »

ZIP is not between 85200 and 85300

« Include all records in which the ZIP code does not fall between (or match either) 85200 and 85300. »

is one of

Select records for which the value in the selected field is one of two or more values to be specified.

`OrderDate` is one of January 15, 1992, or January 16, 1992

« Include all records in which the order date is either January 15, 1992, or January 16, 1992. »

`ZIP` is one of 85201 or 85202 or 85203.

« Include all records in which the ZIP code is either 85201, 85202, or 85203. »

is not one of

Select records for which the value in the selected field is not one of two or more values to be specified.

`OrderDate` is not one of January 15, 1992, or January 16, 1992.

« Include all records in which the order date is something other than January 15, 1992 or January 16, 1992. »

`ZIP` is not one of 85201 or 85202 or 85203.

« Include all records in which the ZIP code is something other than 85201, 85202, or 85203. »

satisfies the test below

Select records for which the value in the selected field satisfies the test in the Selection Test box below. When you make this selection, the program expands the dialog box and includes a selection text box at the bottom. The text box was designed to display selection conditions that were entered via the Print|Record Selection Formula command and that don't fit any of the standardized conditions in the Select Records scroll list.

When you have previously entered a formula via the Print|Edit Record Selection Formula command and the *satisfies the test below* option is highlighted, the section of formula code that doesn't meet the fixed selection criteria will be displayed in the Selection Text box.

NOTE: *While you can use this text box to write in a custom selection condition using the Crystal Reports formula language if you wish, you will have access to more tools if you enter that condition via Print|Edit Record Selection Formula.*

Date conditions

If you use Select Records on a date field, all of the primary condition options will appear plus the following two options:

is in the period

Select records for which the value in the selected field falls within the date range specified. When you select this condition, the dialog box displays a scroll list of all Crystal Reports date conditions. Select the condition you want from the list.

`header.DATE` is in the period Calendar1stQtr

« Include all records in which the date falls within the calendar first quarter of the year. Dates from January 1 to April 30 (including January 1 and April 30) will be included; all other dates will be excluded. »

is not in the period

Select records for which the value in the selected field does not fall within the date range specified. When you select this condition, the dialog box displays a scroll list of all Crystal Reports date conditions. Select the condition you want from the list.

header.DATE is not in the period Calendar1stQtr

« Include all records in which the date falls outside the calendar first quarter of the year. Dates from January 1 to April 30 (including January 1 and April 30) will be excluded, all other dates will be included. »

Boolean conditions

If you use Select Records on a Boolean field, your condition options will include only *is any value* and *satisfies the test below* from the primary condition list above plus the following two options:

is True

Select records for which the value in the selected field is true.

file.REGISTERED is True

« Include all records in which the value in the file.REGISTERED field is True. »

is False

Select records for which the value in the selected field is false.

file.REGISTERED is False

« Include all records in which the value in the file.REGISTERED field is false. »

Browse Field Data button

The Browse Field Data button has been included as an aid in selecting the values that define your selection formula. When you Click this button, the program displays a list of field values for the first 20 records in the database. If the value you want is on the list, highlight the value and Click the Paste Data button. The program enters the value selected in the active text box (the text box displaying the insertion point).

NOTE: If you need to select multiple values (for example, if you want to include records in which the field value is one of three values), the insertion point automatically moves to the next text box as soon as it finishes pasting data in the previous box.

- Enter your selection criteria in the dialog box and Click OK when finished to return to the Report Editor. Crystal Reports will generate a selection formula based on your specifications and limit the report to the records you have specified.

NOTE: To view or edit the selection formula generated by Crystal Reports, select Print|Edit Record Selection Formula. The formula will appear in the Formula Editor.

NOTE: Print|Select Records and Print|Edit Record Selection Formula are interactive. That is, record selection criteria you enter via Print|Select Records automatically generates a record selection formula that you can review and modify via Print|Edit Record Selection Formula. Likewise, record selection formulas and modifications to existing record selection formulas automatically update the Print|Select Records selection criteria.

Because of this interactivity, you can use the two commands together as a tutorial for learning the Crystal Reports formula language. To use the commands this way:

- **Set up your selection criteria using Print|Select Records.**
- **Open Print|Edit Record Selection Formula and review the formula the program generated based on your criteria.**
- **Change your selection formula using Print|Select Records.**
- **Review the updated formula using Print|Edit Record Selection Formula.**
- **As you gain confidence, make formula changes using Print|Edit Record Selection Formula.**
- **Review the results of those changes via Print|Select Records. Select each field used in the record selection formula and see how the program translates your formula into selection criteria. Note that selection formula components that don't fit any of the Select Records fixed criteria will not be translated; instead, the section of code that doesn't conform will be displayed in the Selection Test box.**

Select Groups dialog box

This dialog box appears whenever you select Print|Select Groups.

The dialog box enables you to select the groups you want to include in your report (if you don't want them all included) without the need to understand Crystal Reports formula language. When you set up your selection criteria using this dialog box, Crystal Reports automatically generates a group selection formula based on your responses to dialog box questions.

NOTE: The Select Groups command allows you to set up reasonably complex selection criteria, but it does not have the flexibility of Print|Edit Group Selection Formula.

Dialog Box Options

The Select Groups dialog box is a dynamic box. Different data types and selection criteria change your dialog box options.

All dialog boxes begin with the expression:

```
Select all groups where:
```

followed by the name of the group field you have selected and a selection criteria scroll box.

Using the scroll box, select the condition that best finishes this sentence:

```
"I want to select all groups where the value in the group field I have selected..."
```

You can select from any of the following conditions (depending on the data type of the group field you have selected):

Primary conditions

These conditions appear whenever you use Select Groups with number, currency, or string group fields.

NOTE: You cannot summarize memo fields.

is any value

Select groups that have any value in the selected group field. Use this option to include all groups in the report; no groups are excluded.

is equal to

Select groups for which the value in the selected group field is equal to another value to be specified.

```
Count of file.ORDERS is equal to 10
```

```
« Include all groups that show 10 as the group count. »
```

```
Min of file.Qty is equal to 5
```

```
« Include all groups that show 5 as a group minimum. »
```

is not equal to

Select groups for which the value in the selected group field is not equal to another value to be specified.

```
Count of file.ORDERS is not equal to 10
```

```
« Include all groups that show anything but 10 as the group count. »
```

Min of file.Qty is not equal to 5

« Include all groups that show anything but 5 as a group minimum. »

is less than

Select groups for which the value in the selected group field is less than another value to be specified.

Sum of file.Amount is less than 5000

« Include all groups that show a subtotal (sum of...) smaller than 5000 (5000 not included). »

Avg of file.Amount is less than 10500

« Include all groups that show a group average smaller than 10500 (10500 not included)

is greater than

Select groups for which the value in the selected group field is greater than another value to be specified.

Min of file.Amount is greater than 1000

« Include all groups that show a group minimum value greater than 1000 (1000 not included). »

StdDev of file.scores is greater than 8.5 (8.5 not included)

« Include all groups that show an group standard deviation of more than 8.5 (8.5 not included). »

is less than or equal to

Select groups for which the value in the selected group field is less than or equal to another value to be specified.

Min of file.Amount is less than or equal to 1000

« Include all groups that show a group minimum value that is 1000 or smaller (1000 included) »

Sum of file.Amount is less than or equal to 5000

« Include all groups that show a subtotal (sum of...) that is 5000 or smaller (5000 included). »

is greater than or equal to

Select groups for which the value in the selected group field is greater than or equal to another value to be specified.

Min of file.Amount is greater than or equal to 1000

« Include all groups that show a group minimum value greater than or equal to 1000 (1000 included). »

StdDev of file.scores is greater than or equal to 8.5

« Include all groups that show a group standard deviation of 8.5 or more (8.5 included). »

is between

Select groups for which the value in the selected group field falls between or matches one of two values to be specified.

Count of file.QTY is between 10 and 20

« Include all groups in which the group count falls between (or matches either) 10 and 20. »

StdDev of file.RESULTS is between 1.5 and 2.5

« Include all groups in which the group standard deviation falls between (or matches either) 1.5 and 2.5. »

is not between

Select groups for which the value in the selected group field does not fall between or match one of two values to be specified.

Count of file.QTY is not between 10 and 20.

« Include all groups in which the group count does not fall between (or match either) 10 and 20. »

StdDev of file.RESULTS is not between 1.5 and 2.5

« Include all groups in which the group standard deviation does not fall between (or match either) 1.5 and 2.5. »

is one of

Select groups for which the value in the selected group field is one of two or more values to be specified.

Count of file.Amount is one of 1000 or 5000 or 10000

« Include all groups in which the group count is either 1000, or 5000, or 10000. »

Min of file.QTY is one of 1 or 5.

« Include all groups in which the group minimum is either 1 or 5. »

is not one of

Select groups for which the value in the selected group field is not one of two or more values to be specified.

Count of file.Amount is not one of 1000 or 5000.

« Include all groups in which the group count is something other than 1 or 5. »

Min of file.QTY is not one of 1 or 5.

« Include all groups in which the group count is something other than 1 or 5. »

satisfies the test below

Select groups for which the value in the selected group field satisfies the test in the Selection Test box below. When you make this selection, the program expands the dialog box and includes a selection text box at the bottom. The text box was designed to display selection conditions that were entered via the Print|Group Selection Formula command and that don't fit any of the standardized conditions in the Select Groups scroll list.

When you have previously entered a formula via the Print|Edit Group Selection Formula command and the *satisfies the test below* option is highlighted, the section of formula code that doesn't meet the fixed selection criteria will be displayed in the Selection Text box.

NOTE: While you can use this text box to write in a custom selection condition using the Crystal Reports formula language if you wish, you will have access to more tools if you enter that condition via Print|Edit Group Selection Formula.

Date conditions

You have three options when summarizing a date field:

- you can count the values in the group,
- you can calculate the maximum value in the group, and
- you can calculate the minimum value in the group.

- If you select a group field that counts the date values in the group, all of the options in the primary condition list above are available to you.

- If you select a group field that calculates the minimum or maximum date value in the group, all of the conditions in the primary condition list above are available to you plus the two following conditions:

is in the period

Select groups for which the value in the selected group field falls within the date range specified. When you select this condition, the dialog box displays a scroll list of all Crystal Reports date ranges. Select the range you want from the list.

Max of file.DATE is in the period Calendar1stQtr

« Include all groups in which the group maximum date falls within the calendar first quarter of the year. Dates from January 1 to April 30 (including January 1 and April 30) will be included; all other dates will be excluded. »

is not in the period

Select groups for which the value in the selected group field does not fall within the date range specified. When you select this condition, the dialog box displays a scroll list of all Crystal Reports date ranges. Select the range you want from the list.

Min of file.DATE is not in the period Calendar1stQtr

« Include all groups in which the group minimum date falls outside the calendar first quarter of the year. Dates from January 1 to April 30 (including January 1 and April 30) will be excluded, all other dates will be included. »

Boolean conditions

You have three options when summarizing a Boolean field:

- you can count the values in the group,
- you can calculate the maximum value in the group, and
- you can calculate the minimum value in the group.

- If you select a group field that counts the boolean values in the group, all of the options in the primary condition list above are available to you.

- If you select a group field that calculates the minimum or maximum boolean value in the group, all of the conditions in the primary condition list above are available to you plus the two following conditions:

is True

Select groups for which the value in the selected group field is true.

file.REGISTERED is True

« Include all records in which the value in the file.REGISTERED field is True. »

is False

Select groups for which the value in the selected group field is false.

file.REGISTERED is False

« Include all records in which the value in the file.REGISTERED field is false. »

Browse Field Data button

The Browse Field Data button has been included so you can review field data.

- Click the button and a dialog box appears listing the field values for the first 20 records in the database.
- Click the Done button when finished.

NOTE: The values listed in the Browse Field Data scroll list are field values, not group values.

NOTE: No Paste Data option is available with Select Groups.

Enter your selection criteria in the dialog box and Click OK when finished to return to the Report Editor.

Crystal Reports will generate a selection formula based on your specifications and limit the report to the groups you have specified.

NOTE: To view or edit the selection formula generated by Crystal Reports, select Print|Edit Group Selection Formula. The formula will appear in the Formula Editor.

NOTE: Print|Select Groups and Print|Edit Group Selection Formula are interactive. That is, group selection criteria you enter via Print|Select Groups automatically generates a group selection formula that you can review and modify via Print|Edit Group Selection Formula. Likewise, group selection formulas and modifications to existing group selection formulas automatically update the Print|Select Groups selection criteria.

Because of this interactivity, you can use the two commands together as a tutorial for learning the Crystal Reports formula language. To use the commands this way:

- ***Set up your selection criteria using Print|Select Records.***
- ***Open Print|Edit Group Selection Formula and review the formula the program generated based on your criteria.***
- ***Change your selection formula using Print|Select Groups.***
- ***Review the updated formula using Print|Edit Group Selection Formula.***
- ***As you gain confidence, make formula changes using Print|Edit Group Selection Formula.***
- ***Review the results of those changes via Print|Select Groups. Select each group field used in the group selection formula and see how the program translates your formula into selection criteria.***

Note that selection formula components that don't fit any of the Select Groups fixed criteria will not be translated; instead, the section of code that doesn't conform will be displayed in the Selection Test box.

Create Program Item dialog box

This dialog box appears whenever you select the File|Compile Report command and select a file name (and path) for your compiled report.

The dialog box enables you to create an icon (if you wish) for your executable (compiled) report. It also enables you to create a program group for that icon or to specify an existing program group to hold the icon.

Dialog box options

The Program Group text box

If you want Crystal Reports to make an icon for your compiled report, enter the name of the program group to which you want the icon to be assigned.

- If you enter the name of an existing program group, the program will assign the icon to that group.
- If you enter the name of a new program group, the program will create a new program group with the name specified and assign the icon to that group.

The Create Item button

If you want the program to create an icon for your report and assign it to a program group, Click the Create Item button. Crystal Reports compiles your report, creates an icon, and assigns it to the specified program group (creating that program group if necessary).

The Do Not Create Item button

If you don't want the program to create an icon for your compiled report, Click the Do Not Create Item button. Crystal Reports compiles your report and leaves it as an executable (.exe) file with no icon.

NOTE: When you Click this button, the program will not create an icon even if you have a program group specified.

Change Position command - right mouse button menu

This command takes you to the Graphic Position dialog box. You can use that dialog box to set the absolute position of the selected bit-mapped graphic in your report.

Dialog box options

The dialog box has two settings:

Top

- Use Top to set the position of the top of the graphic relative to the top of the section.

Left

- Use Left to set the position of the left side of the graphic relative to the left edge of the section.

NOTE: All settings are in either inches or centimeters, based on your settings in the International section of the Windows' Control Panel.

Insert your new settings and Click OK when finished to return to the Graphic Format dialog box.

NOTE: The numeric position of a graphic (as shown in the Graphic Position dialog box) is relative to the page margins you have set. For example, if you have set a left page margin of 1.00 inches and you place your graphic, numerically, with a Left setting of 0.5 inches, the graphic will print 1.5 inches in from the left edge of the paper, 0.5 inches in from the left margin.

NOTE: The settings displayed when you first call up this dialog box indicate the current position of the graphic in the section.

NOTE: A setting of Top = 0.00, Left = 0.00 positions the graphic flush in the upper left hand corner of the section.

NOTE: You can also reposition a graphic using a mouse if you want to determine its final position visually rather than by the numbers. For complete instructions on repositioning a graphic with a mouse, see [Inserting, moving, and deleting graphics.](#)

Index -- Crystal Custom Control for Visual Basic

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The Crystal Custom Control

Visual Basic is an extensible programming language: it has been designed so that developers can readily add new capabilities as they see the need. One of the ways the program can be extended is through custom controls. Custom controls are programs that add tools to the Visual Basic toolbox. Once in the toolbox, these tools can be used on any form just as if they were part of the original Visual Basic language.

- Custom controls can produce objects that are visible at design time and at runtime. These objects (stylish buttons, dials, etc.) can be used to add visual impact and increased functionality to your applications.

- Custom controls can also produce objects that are visible at design time but invisible at runtime. These kinds of objects were designed to make it easier for your applications to access the capabilities available in Dynamic Link Libraries (DLL's). By setting the properties for these objects in the Properties dialog box, you eliminate the need for a lot of manual coding.

Crystal Reports comes with a custom control in the second category: visible at design time but invisible at runtime. When you place the object on your form and set the properties, you can add sophisticated reporting capabilities to your application without the need for writing extensive code.

The Crystal Reports package

You can think of the Crystal Reports package as containing two separate elements: Crystal Reports, and the Crystal Custom Control. Used together, these two elements give you the ability to generate custom reports, transparently, via your application.

- Crystal Reports is a powerful Windows report writer that you can use to design a nearly endless variety of custom reports. Using Crystal Reports, you can design the report or reports you want your users to be able to call up from your application. (See [Index to Crystal Reports Help](#).)

- The Crystal Custom Control is a set of tools that makes it easy for you to build the connection between your application and the print engine. Using these tools you can have your application generating reports in a very short time. (See [Index -- Crystal Custom Control for Visual Basic](#).)

How to install the CRW Custom Control

Crystal Reports and the Crystal Custom Control can be installed when you install Visual Basic or at a later time.

Installation when you install Visual Basic

When you install Visual Basic,

- if you elected a complete installation, Crystal Reports was installed in the \VB\REPORT directory and the Crystal Custom Control (CRYSTAL.VBX) was installed in the \WINDOWS\SYSTEM directory or the directory you specified.
- if you elected a custom installation and selected the Crystal Reports option, the program and the Crystal Custom Control were installed in the same directories as in the complete installation.

Installation at a later time

If you elected not to install Crystal Reports when you installed Visual Basic, you can install it at a later time. Simply begin the Visual Basic installation procedure, select Custom Installation, and select only the Crystal Reports option from the options presented.

For complete instructions on installing the Crystal Custom Control, see the installation instructions that accompany Visual Basic.

Adding the Crystal Custom Control to your project

You add the Crystal Custom Control to your project using the File|Add File command on the Visual Basic menu bar.

To add the Crystal Custom Control:

1. Open Visual Basic.
2. Open the project to which you want to add the Custom Control.
3. Select File|Add File. The Add File dialog box appears.
4. Select the file CRYSTAL.VBX from the \WINDOWS\SYSTEM directory or the directory in which you had Crystal Reports installed. Visual Basic adds the Crystal Custom Control to your toolbox. The tool looks like this:



5. When you want to add the program to a form, Double--Click the tool and the program installs it on the active form.

NOTE: CRYSTAL.VBX can be added to AUTOLOAD.MAK to automatically load the Custom Control to your project.

Using the Crystal Custom Control

Once you have the Crystal Custom Control object on your form, you build the connection between your application and the print engine by setting the object's properties via the control's Properties list. Using the properties list you specify:

- the name of the report you want to print in response to an application event,
- the destination for that report (window, file, or printer),
- the number of copies you want to print (if your report is going to the printer),
- print file information (if your report is going to a file),
- print window sizing and positioning information (if your report is going to a window),
- selection formula information (if you want to limit the records in your report),
- sorting information, and
- other related properties.

Changing CRYSTAL.VBX properties

To change the value for a property, highlight the property and then do the following:

- If the settings box displays an inactive (grayed-out) arrow, enter your new value in the settings box.
- If the settings box displays an active (black) arrow, Click the arrow to reveal your alternatives and select a value from the drop down list that appears. Alternately you can Double-Click the property itself to cycle through the list of values. Move on to the next property when the value you want is displayed.
- If an ellipses (...) appears at the right of the settings box, Click the ellipses to reveal a dialog box you can use to define your setting. Alternately you can Double-Click the property itself to call up the dialog box. Define your setting in the dialog box and Click OK when finished.

Setting CRYSTAL.VBX properties at runtime

You can set most of the Crystal Custom Control properties at runtime by adding simple entries to your procedure code. Runtime property settings replace settings you make via the Properties list at design time. Use the following sample code as a reference for coding property settings at runtime:

Action

```
Report1.Action = 1  
    « prints the specified report »
```

Connect

```
Report1.Connect = "DSN = Accounting;UID = 13321;PWD = HARDDISK; DSQ =  
Orders"  
    « Logs on to the Orders database on the network server "Accounting" using the I.D. 13321 and the  
password HARDDISK »
```

CopiesToPrinter

```
Report1.CopiesToPrinter = 3  
    « prints three copies of the specified report »
```

DataFiles

```
Report1.DataFiles(0) = "C:\VB\orders.mdb"  
    « sets the new location of orders.mdb to the C:\VB directory »
```

Destination

```
Report1.Destination = 0  
    « sends the specified report to a print window »
```

Formulas

```
Report1.Formulas(0) = "EXTEND= {file.QTY} * {file.PRICE}"  
    « sets the value of the formula @EXTEND to "{file.QTY} * {file.PRICE}" »
```

GroupSelectionFormula

```
Report1.GroupSelectionFormula = "Count (header.Amount, {header.CustNum}) >  
15"  
    « with the values in the Amount field grouped each time the value in the CustNum field changes  
and the values in each group counted, limits the report to only those groups for which the group  
count is greater than 15 »
```

GroupSortFields

```
Report1.GroupSortFields(0) = "+ Max ({orders.Amount}, {orders.Customer})"  
    « with the Amount field sorted and grouped each time the value in the Customer field changes and  
the maximum value calculated for each group, this string sorts those groups in ascending order so  
that the group with the lowest maximum value comes first, then the next lowest, etc. »
```

LastErrorNumber

```
If Result <> 0 Then  
    MsgBox Report.LastErrorNumber  
End If  
    « directs the last error number to be displayed in a message box is the call is unsuccessful »
```

LastErrorString

```
If Result <> 0 Then  
    MsgBox Report1.LastErrorString  
End If
```

« directs that the last error string be displayed in a message box if the call is unsuccessful »

Left

```
Report1.Left = 3120
```

« sets the Left coordinate to 3120 twips »

Name

You cannot change the Name property at runtime.

Password

```
Report1.Password = "Schoolboy"
```

« sends the password "Schoolboy" to open an Access .mdb file »

PrintFileName

```
Report1.PrintFileName = "c:\vb\report\cust_rpt.txt"
```

« prints the report to a file named "cust_rpt.txt" in the c:\vb\report directory »

PrintFileType

```
Report1.PrintFileType = 1
```

« prints the report to a file in a tab separated format »

ReportFileName

```
Report1.ReportFileName = "c:\vb\report\company.rpt"
```

« prints the report named "company.rpt" that is located in the c:\vb\report directory »

SelectionFormula

```
Report1.SelectionFormula = "{file.STATE} = 'CA'"
```

« limits the report to records that have the value 'CA' in the STATE field (only California records) »

NOTE: Note the single quotes used in the formula ('CA') and the double quotes surrounding the formula.

SortFields

```
Report1.SortFields(0) = "{bmc endash.bmp}{order.DATE}"
```

« sorts the report data by date and prints the data in descending date order »

Top

```
Report1.Top = 1800
```

« sets the Top coordinate to 1800 twips »

UserName

```
Report1.UserName = "JohnG"
```

« sends the user name "JohnG" to open an Access .mdb file »

WindowBorderStyle

```
Report1.WindowBorderStyle = 2
```

« sets a sizable border style (Style #2) for the print window »

WindowControlBox

```
Report1.WindowControlBox = True
```

« specifies that a control box (system menu) is to appear in the print window »

WindowHeight

```
Report1.WindowHeight = 300
```

« sets the height of the print window to 300 pixels »

WindowLeft

```
Report1.WindowLeft = 100
```

« sets the left edge of the print window 100 pixels from the left edge of the screen »

WindowMaxButton

```
Report1.WindowMaxButton = False
```

« specifies that no Maximize button is to appear in the print window »

WindowMinButton

```
Report1.WindowMinButton = True
```

« specifies that a Minimize button is to appear in the print window »

WindowParentHandle

```
Report1.WindowParentHandle = Form1.hWnd
```

« sets the WindowParentHandle to the handle of Form1. This specifies that the print window is to be a child of Form1 »

WindowTitle

```
Report1.WindowTitle = "Quarterly Earnings"
```

« sets the title of the print window (the string that appears on the title bar) to "Quarterly Earnings" »

WindowTop

```
Report1.WindowTop = 100
```

« sets the top edge of the print window 100 pixels from the top of the screen »

WindowWidth

```
Report1.WindowWidth = 480
```

« specifies a print window 480 pixels wide »

The Crystal Custom Control sample application

When you installed Crystal Reports, the sample application CRVBXSAM.MAK and its accompanying files were installed in the \VB\REPORT directory (or the directory you specified).

The sample application CRVBXSAM.MAK demonstrates the way you can use the Crystal Custom Control:

- to add report writing capabilities to your application, and
- to enable your users to customize a report before they print it.

With the application running, when you Click the Print Report button on Form1, the program prints an order report. The report details orders by order number, and for each order it details the quantity, item number, and price of each item ordered, and the order total.

The application consists of three forms (Form1, Form2, and Form3), the CRYSTAL.BAS file, and the Crystal Custom Control (CRYSTAL.VBX).

Form1 enables users to set the range of orders they want to appear on the report (if they don't want the report to include all orders, and it also lets them specify the print destination for the report (window, printer, or file).

- If users specify a printer as the print destination, the application displays Form2 which lets users specify the number of copies they want printed.
- If users specify a file as the print destination, the application displays Form3 which lets the users specify the file type (tab separated, text, DIF, etc.) and the file name for the printed report.

To accomplish all of these things:

- you set a number of fixed properties using the Crystal Custom Control properties list at design time, and
- you write the procedure code that sets the flexible properties (properties that can be customized by the user) at runtime.

Fixed properties

Several of the control properties have been set at design time. You can select F4 (Properties) when the focus is on the Crystal Reports icon to view these properties. For example, the ReportName property has been set to ordvbx.rpt. This report file was included in the Crystal Reports sample data. Window size, style, and location properties have also been set, so if your users elect to print to a window, no window size, style, or location properties need to be set at runtime.

Flexible properties

The application includes procedure code to set the following properties at runtime:

- CopiesToPrinter
- PrintFileName
- PrintFileType
- Destination
- SelectionFormula

Each of these properties is set to user specifications using standard Visual Basic controls.

NOTE: Three variables are declared in the CRYSTAL.BAS file:

- **Number_Of_Copies**
- **Output_File_Type**
- **Output_File_Name**

These variables are declared so they can be accessed globally, by all forms in the project. This allows the application to assign values to these variables from one form and read the values from another form.

See also

[Dissecting CRVBXSAM.MAK Form 1, Main Form](#)

[Dissecting CRVBXSAM.MAK Form 2, Printer Options](#)

[Dissecting CRVBXSAM.MAK Form 3, Print To File Settings](#)

Dissecting CRVBXSAM.MAK -- Form 1

Form 1 is the main form of the Crystal Custom Control sample application, CRVBXSAM.MAK. When you call up Form1, note that the Crystal Custom Control icon is near the lower righthand corner of the form.

Form1 includes a combo box for setting the print destination, two text boxes for setting the range of orders to be included in the report, and a command button to print the report.

We'll begin by looking at the procedure code for the icon itself, then the code for the form, and finally the code for each of the controls.

The Crystal Custom Control icon

Double--Click the icon to call up the general directions declarations. The following code appears:

```
Dim StrBuffer As String * 250
```

This code sets up a 250 character buffer to hold an error string if one is generated in response to a problem.

The Form

Double--Click the form to call up the Form_Load procedure code. The following code appears:

```
Sub Form_Load ()
    OutputList.AddItem "Window"
    OutputList.AddItem " Printer"
    OutputList.AddItem "File"
    OutputList.Text = "Window"
    RangeStart.Text = "1"
    RangeEnd.Text = "9999"
EndSub
```

This code is used to load the options in the print destination combo box, to set the default print destination to "Window," and to set the *From* default to "1" and the *To* default to "9999." This is all done using standard Visual Basic code.

The Print Destination combo box

Double--Click the Print Destination combo box and the following code appears:

```
Sub OutputList_Click ()
    If OutputList.Text = "Printer" Then
        Form2.Show
    Else
        If OutputList.Text = "File" Then
            Form3.Show
        End If
    End If
End Sub
```

This code is standard Visual Basic code that calls up other forms in response to user selections from the Print Destination combo box list.

- If the user selects "Printer" as a print destination, the application is to display Form2 (the form for specifying the number of copies).
- If the user selects "File" as a print destination, the application is to display Form3 (the form for specifying the print file name and type).

The Order Number *From* text box

Double--Click the Order Number From text box and the following code appears:

```
Sub RangeStart_GotFocus ()
    RangeStart.SelStart = 0
```

```
RangeStart.SelLength = Len(RangeStart.Text)
End Sub
```

This code automatically selects all of the text in the RangeStart text box whenever you move the focus to that box. If the code isn't included, nothing will be selected when you go into the box.

The Order Number To text box

Double--Click the Order Number *From* text box and the following code appears:

```
Sub RangeEnd_GotFocus ()
    RangeEnd.SelStart = 0
    RangeEnd.SelLength = Len(RangeEnd.Text)
End Sub
```

This code automatically selects all of the text in the RangeEnd text box whenever you move the focus to that box. If the code isn't included, nothing will be selected when you go into the box.

The Print Report button

When you're running this application and you Click the Print Report button, the program sets a number of properties including one to display an error message if something goes wrong. We'll look at the Print Report procedure code in sections to understand how all the individual pieces work.

```
Sub Print_Report_Click ()
    If OutputList.Text = "Window" Then
        OutputDestination = 0
    Else
        If OutputList.Text = "Printer" Then
            OutputDestination = 1
            Report1.CopiesToPrinter = Number_Of_Copies
        Else
            If OutputList.Text = "File" Then
                OutputDestination = 2
                Report1.PrintFileName = Output_File_Name
                Report1.PrintFileType = Output_File_Type
            End If
        End If
    End If
    Report1.Destination = OutputDestination
End Sub
```

This code does a number of things based on the print destination selected:

- It sets the Destination property at runtime.
- It reads the text for the specified destination in the Print Destination combo box (OutputList.Text) and assigns a value to the OutputDestination variable based on the text it finds.
- Finally, it sets the Destination property (Report1.Destination) to the value in the OutputDestination variable.
 - If the value is 1 (Printer), it also sets the CopiesToPrinter property (Report1.CopiesToPrinter) to the value it finds in the Number_of_Copies variable. The value in this variable is determined by the choices the user makes on Form2.
 - If the value is 2 (File), it also sets the PrintFileName property (Report1.PrintFileName) to the value it finds in the Output_File_Name variable. The value in this variable is determined by the choices the user makes on Form3.
 - Additionally (if the value is 2), it sets the PrintFileType property (Report1.PrintFileType) to the value it finds in the Output_File_Type variable. The value in this variable is also determined by the choices the user makes on Form3.

The record selection formula

```
FmlaText$ = "{detail.ORDERNUM} in '" + Trim(RangeStart.Text) + "' to '"  
+ Trim(RangeEnd.Text) + "'"
```

```
Report1.SelectionFormula = FmlaText$
```

This code sets the selection formula property.

It arranges values in a string and assigns the string to the variable `FmlaText$`. Specifically, it arranges in the string the values it finds in the Order Number From text box (`RangeStart.Text`) and Order Number To text box (`RangeEnd.Text`). After Trimming leading and trailing spaces from those values, concatenating a number of substrings, and enclosing the resulting text in double quotes, the string has the appropriate syntax for a record selection formula. That string is assigned to the variable `FmlaText$`, and the selection formula property (`Report1.SelectionFormula`) is then set to the value of the `FmlaText$` variable.

Executing the print call with runtime error trapping

```
On Error GoTo ErrorHandler  
    Report1.Action = 1  
    Exit Sub  
ErrorHandler:  
    MsgBox Error$  
    Exit Sub  
End Sub
```

NOTE: You can also do this error trapping using Report1.LastErrorString.

On Error GoTo ErrorHandler sets up an error handling routine and specifies `ErrorHandler` as the location for that routine. If the call to print the report fails, the program is to display a message box with an error string identifying the error.

Report1.Action = 1 says to print the report assigned to the `Report1` object (the Crystal Custom Control named `Report1`). The call sends the necessary code to Crystal Reports and the program prints the report specified in the properties list (`ordvbx.rpt`).

See also

[Dissecting CRVBXSAM.MAK Form 2, Printer Options](#)

[Dissecting CRVBXSAM.MAK Form 3, Print To File Settings](#)

Dissecting CRVBXSAM.MAK -- Form 2, Printer Options

Form 2 is a contingent form in the Crystal Custom Control sample application, CRVBXSAM.MAK. The form appears whenever the user selects "Printer" as the print destination on Form 1. Using this form, users can specify the number of copies they want of the printed report.

The Accept Number of Copies button

Double--Click this button and the following code appears:

```
Sub Command1_Click ()
    Number_Of_Copies = Num_Copies
    Form2.Hide
End Sub
```

This code says that when the button is Clicked, the program is to take the value in the number of copies text box (Num_Copies), assign it to the Number_Of_Copies variable, and then hide the form.

The Reset Number of Copies button

Double--Click this button and the following code appears:

```
Sub Command2_Click ()
    Num_Copies.SetFocus
    Num_Copies.Text = "1"
End Sub
```

This code says that when the button is Clicked, the program is to move the focus to the number of copies text box (Num_Copies) and reset the value in that text box (Num_Copies.Text) to "1."

See also

[Dissecting CRVBXSAM.MAK Form 1](#)

[Dissecting CRVBXSAM.MAK Form 3, Print To File Settings](#)

Dissecting CRVBXSAM.MAK -- Form 3, Print To File Settings

Form 3 is a contingent form in the Crystal Custom Control sample application, CRVBXSAM.MAK. The form appears whenever the user selects "File" as the print destination on Form 1. Using this form, users can specify the type of file they want to output and the name under which they want the file to be saved.

The form

Double--Click the form itself and the following code appears:

```
Sub Form_Load ()
    OutputFiletype.AddItem "Comma Separated"
    OutputFiletype.AddItem "Tab Separated"
    OutputFiletype.AddItem "Record Format"
    OutputFiletype.AddItem "Text Format"
    OutputFiletype.AddItem "DIF Format"
    OutputFiletype.AddItem "Tab Separated Text"
    OutputFiletype.SelText = "Comma Separated"
End Sub
```

This code loads the file type options in the *Select the output type* combo box and sets the default file type to "Comma Separated."

The Accept Settings button

Double--Click the Accept Settings button and the following code appears:

```
Sub Command1_Click ()
    Output_File_Name = OutputFileName.Text
    Rem {bmc endash.bmp} Set PrinterFileType property
    If OutputFiletype = "Record Format" Then
        Output_File_Type = 0
    Else
        If OutputFiletype = "Tab Separated" Then
            Output_File_Type = 1
        Else
            If OutputFiletype = "Text Format" Then
                Output_File_Type = 2
            Else
                If OutputFiletype = "DIF Format" Then
                    Output_File_Type = 3
                Else
                    If OutputFiletype = "Comma Separated Value" Then
                        Output_File_Type = 4
                    Else
                        If OutputFiletype = "Tab Separated Text" Then
                            Output_File_Type= 6
                        End If
                    End If
                End If
            End If
        End If
    End If
End Sub
```

```
Rem Close form
    Form3.Hide
End Sub
```

This code reads the text in the *Select the output type* text box and assigns a number to the Output_File_Type variable based on the text it finds. If the user elects to print to file, the PrintFileType property is set to the value of this variable when the user Clicks the Print Report button. For example, if the user elects to print to file and then elects "Comma Separated Value" as the file type, the program assigns the value 4 to the Output_File_Type variable (Comma Separated Value = 4). Then, when the user Clicks the Print Report button on Form 1, the program sets the PrintFileType property to 4, the value in the Output_File_Type variable. This prints the report to a Comma Separated file.

The Modify Settings button

```
Sub Command2_Click ()
    OutputFiletype.SetFocus
End Sub
```

This code simply moves the focus to the *Select the output type* combo box (OutputFileType) so the user can select a different file type.

See also

[Dissecting CRVBXSAM.MAK Form 1](#)

[Dissecting CRVBXSAM.MAK Form 2, Printer Options](#)



The Crystal Custom Control -- An overview

[Properties](#)

[Error Messages](#)

Visual Basic is an extensible programming language: it has been designed so that developers can readily add new capabilities as they see the need. One of the ways the program can be extended is through custom controls. Custom controls are programs that add tools to the Visual Basic toolbox. Once in the toolbox, these tools can be used on any form just as if they were part of the original Visual Basic language.

- Custom controls can produce objects that are visible at design time and at runtime. These objects (stylish buttons, dials, etc.) can be used to add visual impact and increased functionality to your applications.
- Custom controls can also produce objects that are visible at design time but invisible at runtime. These kinds of objects were designed to make it easier for your applications to access the capabilities available in Dynamic Link Libraries (DLL's). By setting the properties for these objects in the Properties dialog box, you eliminate the need for a lot of manual coding.
Crystal Reports comes with a custom control in the second category: visible at design time but invisible at runtime. When you place the object on your form and set the properties, you can add sophisticated reporting capabilities to your application without the need for writing extensive code.

The Crystal Reports package

You can think of the Crystal Reports package as containing two separate elements: Crystal Reports, and the Crystal Custom Control. Used together, these two elements give you the ability to generate custom reports, transparently, via your application.

- Crystal Reports is a powerful Windows report writer that you can use to design a nearly endless variety of custom reports. Using Crystal Reports, you can design the report or reports you want your users to be able to call up from your application. (See [Index to Crystal Reports Help](#).)
- The Crystal Custom Control is a set of tools that makes it easy for you to build the connection between your application and the print engine. Using these tools you can have your application generating reports in a very short time. (See [Index -- Crystal Custom Control for Visual Basic](#).)

Adding the Crystal Custom Control to your project

You add the Crystal Custom Control to your project using the File|Add File command on the Visual Basic menu bar.

To add the Crystal Custom Control:

1. Open Visual Basic.
2. Open the project to which you want to add the Custom Control.
3. Select File|Add File. The Add File dialog box appears.
4. Select the file CRYSTAL.VBX from the \WINDOWS\SYSTEM directory or the directory in which you had Crystal Reports installed. Visual Basic adds the Crystal Custom Control to your toolbox. The tool looks like this:



5. When you want to add the program to a form, Double--Click the tool and the program installs it on the active form.

NOTE: CRYSTAL.VBX can be added to AUTOLOAD.MAK to automatically load the Custom Control to your project.

Using the Crystal Custom Control

Once you have the Crystal Custom Control object on your form, you build the connection between your application and Crystal Reports by setting the object's properties via the control's Properties list. Using the properties list you specify:

- the name of the report you want to print in response to an application event,
- the destination for that report (window, file, or printer),
- the number of copies you want to print (if your report is going to the printer),
- print file information (if your report is going to a file),
- print window sizing and positioning information (if your report is going to a window),
- selection formula information (if you want to limit the records in your report),
- sorting information, and
- other related properties.

Changing the value for a property

To change the value for a property, highlight the property and then do the following:

- If the settings box displays an inactive (grayed-out) arrow, enter your new value in the settings box.
- If the settings box displays an active (black) arrow, Click the arrow to reveal your alternatives and select a value from the drop down list that appears. Alternately you can Double-Click the property itself to cycle through the list of values. Move on to the next property when the value you want is displayed.
- If an ellipsis (...) appears at the right of the settings box, Click the ellipsis to reveal a dialog box you can use to define your setting. Alternately you can Double-Click the property itself to call up the dialog box. Define your setting in the dialog box and Click OK when finished.

For help with any of the individual properties, highlight the property of interest and Click F1.

Distribution Note When you create and distribute applications that use the Crystal Custom Control, you need to install certain files on your customer's hard drive. You will find those files specified in [Runtime File Requirements](#).

The Visual Basic Setup Kit included with the Professional Edition provides tools to help you write setup programs that install your applications correctly.

CopiesToPrinter Property, Crystal Custom Control

Description

Specifies the number of copies to be printed if you are printing to a printer (if the value you assign to the Destination property is *1 -- Printer*).

Usage

[form.]Report.CopiesToPrinter[= *NumCopies%*]

For example:

Report1.CopiesToPrinter = 3

« prints three copies of the specified report. »

Remarks

The number you enter must not be a zero or a negative value.

Data Type

Integer

Availability

Design time; Runtime

Destination Property, Crystal Custom Control

Description

Specifies the destination to which your report is to be printed (Window, Printer, or File).

Usage

[*form.*]Report.**Destination**[= *Destination%*]

For example:

```
Report1.Destination = 0
```

« sends the specified report to a print window. »

Remarks

Select one of the following print destinations:

- 0 = Window (sends the report to a print window)
- 1 = Printer (sends the report to a printer)
- 2 = File (prints the report to a disk file for printing at a later time or for importing into other applications. If you select this property, you will also have to set the PrintFileName and PrintFileType properties.)

Data Type

Integer (Enumerated)

Availability

Design time; Runtime

PrintFileName Property, Crystal Custom Control

Description

Specifies the name of the file to which the report is to be printed.

Usage

[*form.*]Report.**PrintFileName**[= *FileName*]

For example:

```
Report1.PrintFileName = "c:\vb\report\cust_rpt.txt"
```

« prints the report to a file named "cust_rpt.txt" in the c:\vb\report directory. »

Remarks

- You can Double-Click this property or Click the Ellipsis in the Settings box to call up the Choose Print Filename dialog box. In that dialog box, select the name of the file and the path to which you want the program to print the report.

- Select a value for this property only if you are printing to a file (if the value you assigned to the Destination property is 2 -- *File*).

NOTE: If you want to specify the PrintFileName at runtime, make certain that you enclose it in quotes in your code.

Data Type

String

Availability

Design time; Runtime

PrintFileType Property, Crystal Custom Control

Description

Specifies the type of print file used when printing a report to a file.

Usage

[*form.*]Report.**PrintFileType**[= *FileType%*]

For example:

```
Report1.PrintFileType = 1
```

« prints the report to a file in a tab separated format. »

Remarks

Select one of the following print file types if you are printing to a file (if the value you assigned to the Destination property is 2 -- *File*).

0 -- Record

Record style (columns of values). Doesn't use commas or separators. Outputs every record with a fixed field width.

1 -- Tab separated

Tab separated values. Presents data in tabular form. Encloses alphanumeric field data in quotes and separates fields with tabs.

2 -- Text

Text style. Saves the data in ASCII text format with all values separated by spaces. This style looks most like the printed page.

3 -- DIF

Saves the data in DIF (data interchange format) format. This format is often used for the transfer of data between different spreadsheet programs.

4-- CSV

Comma separated values. Encloses alphanumeric field data in quotes and separates fields with commas.

5 -- Reserved

6 -- Tab separated text

Saves the data in ASCII text format with all values separated by tabs.

Data Type

Integer (Enumerated)

Availability

Design time; Runtime

ReportFileName Property, Crystal Custom Control

Description

Specifies the report to be printed.

Usage

[*form.*]Report.**ReportFileName**[= *ReportName*\$]

For example:

```
Report1.ReportFileName = "c:\vb\report\company.rpt"
```

« prints the report named "company.rpt" that is located in the c:\vb\report directory. »

Remarks

You can Double-Click this property or Click the Ellipsis in the Settings box to call up the Choose Report File dialog box. In that dialog box, select the name and path of the report you want the program to print in response to a CRW Custom Control event.

NOTE: If you want to specify the ReportFileName at runtime, make certain that you enclose it in quotes in your code.

Data Type

String

Availability

Design time; Runtime

SelectionFormula Property, Crystal Custom Control

Description

Specifies the records to be used when printing the report.

Usage

[*form.*]Report.**SelectionFormulaProperty**[= *SelectionFormula*]

Enter the selection formula just as you would enter it in the [Formula Editor](#) in Crystal Reports. For example, to include only those records that have a quantity bigger than 5 in the {file.Qty} field, you would enter "{file.QTY} > 5" as your selection formula, i.e., Report1.SelectionFormula = "{file.QTY} > 5"

Remarks

- Make certain that you enclose your selection formula in double quotes.
- If your selection formula includes internal quotes, for example:
`{file.STATE} = "CA"`
change all of the internal double quotes to single quotes and then surround the entire selection formula in double quotes like this:
`"{file.STATE} = 'CA'"`
- If you have created a selection formula in your report at design time, any selection formula you enter here will be appended to that selection formula. Thus, your records will be selected based on a combination of the two selection formulas.

Data Type

String

Availability

Design time; Runtime

See Also

[Edit Record Selection Formula](#)

WindowBorderStyle Property, Crystal Custom Control

Description

Specifies the type of border for the print window.

Usage

[*form.*]Report.**WindowBorderStyle**[= *BorderStyle%*]

For example:

```
Report1.WindowBorderStyle = 2
```

« sets a sizable border style (Style #2) for the print window. »

Remarks

Select one of the following border styles for the print window:

- 0 -- None (creates a window with no border)
- 1 -- Fixed Single (creates a window of a fixed size with a single line border)
- 2 -- Sizeable (creates a window that can be resized by the user)
- 3 -- Fixed Double (creates a window of fixed size with a double line border)

Select a value here only if you are printing to a window (if Destination = 0).

Data Type

Integer (Enumerated)

Availability

Design time; Runtime

WindowControlBox Property, Crystal Custom Control

Description

Specifies whether or not the print window is to have a control (system menu) box in the upper left hand corner when the report is printed to a window.

Usage

[*form.*]Report.**WindowControlBox**[= {*True|False*}]

For example:

```
Report1.WindowControlBox = True
```

« specifies that a control box (system menu) is to appear in the print window. »

Remarks

- Select True if you want the window to contain a control box. Select False if you don't.
- Select a value here only if you are printing to a window (if Destination = 0).

Data Type

Integer (Boolean)

Availability

Design time; Runtime

WindowHeight Property, Crystal Custom Control

Description

Sets the height of the print window when the report is printed to a window.

Usage

[*form.*]Report.**WindowHeight**[= *Height%*]

For example;

```
Report1.WindowHeight = 300
```

« sets the height of the print window to 300 pixels. »

Remarks

- If you are not satisfied with the default settings, enter the external height you want for your print window in pixels.
- Select a value here only if you are printing to a window (if Destination = 0).

Data Type

Integer

Availability

Design time; Runtime

WindowLeft Property, Crystal Custom Control

Description

Sets the distance, in pixels, that the print window is to appear from the left edge of the parent window. If the print window is a top level window, then the distance is measured from the left edge of the screen.

Usage

[*form.*]Report.**WindowLeft**[= *Distance%*]

For example:

```
Report1.WindowLeft = 100
```

« sets the left edge of the print window 100 pixels from the left edge of the screen. »

Remarks

- If you are not satisfied with the default settings, enter the number of pixels you want between the left edge of the screen and the left edge of your window.
- Select a value here only if you are printing to a window (if Destination = 0).

Data Type

Integer

Availability

Design time; Runtime

WindowMaxButton Property, Crystal Custom Control

Description

Specifies whether or not the print window is to have a maximize button when the report is printed to a window.

Usage

[*form.*]Report.**WindowMaxButton**[= {*True|False*}]

For example:

```
Report1.WindowMaxButton = False
```

« specifies that no Maximize button is to appear in the print window. »

Remarks

- Select True if you want the window to contain a maximize button. Select False if you don't.
- Select a value here only if you are printing to a window (if Destination = 0).

Data Type

Integer (Boolean)

Availability

Design time; Runtime

WindowMinButton Property, Crystal Custom Control

Description

Specifies whether or not the print window is to have a minimize button when the report is printed to a window.

Usage

[*form.*]Report.**WindowMinButton**[= {*True|False*}]

For example:

```
Report1.WindowMinButton = True
```

« specifies that a Minimize button is to appear in the print window. »

Remarks

- Select True if you want the window to contain a minimize button. Select False if you don't.
- Select a value here only if you are printing to a window (if Destination = 0).

Data Type

Integer (Boolean)

Availability

Design time; Runtime

WindowTitle Property, Crystal Custom Control

Description

Specifies the title you want to appear in the print window title bar when the report is printed to a window.

Usage

[*form.*]Report.**WindowTitle**[= *Title*\$]

For example:

Report1.WindowTitle = "Quarterly Earnings"

« sets the title of the print window (the string that appears on the title bar) to "Quarterly Earnings" »

Remarks

Make sure that the title is enclosed in quotes.

Select a value here only if you are printing to a window (if Destination = 0).

Data Type

String

Availability

Design time; Runtime

WindowTop Property, Crystal Custom Control

Description

Sets the distance, in pixels, that the print window is to appear from the top edge of the parent window. If the print window is a top level window, then the distance is measured from the top edge of the screen.

Usage

[*form.*]Report.**WindowTop**[= *Distance%*]

For example:

```
Report1.WindowTop = 100
```

« sets the top edge of the print window 100 pixels from the top of the screen. »

Remarks

- If you are not satisfied with the default setting, enter the number of pixels you want between the top of the screen and the top of your window.
- Select a value here only if you are printing to a window (if Destination = 0).

Data Type

Integer

Availability

Design time; Runtime

WindowWidth Property, Crystal Custom Control

Description

Specifies the width of the print window in pixels.

Usage

[*form.*]Report.**WindowWidth**[= *Width%*]

For example:

```
Report1.WindowWidth = 480
```

« specifies a print window 480 pixels wide. »

Remarks

- If you are not satisfied with the default setting, enter the external width of your window, in pixels.
- Select a value here only if you are printing to a window (if Destination = 0).

Data Type

Integer

Availability

Design time; Runtime

DataFiles Property, Crystal Custom Control

Description

Specifies the location of the database files used in the report.

Usage

[*form.*]Report.**DataFiles**(ArrayIndex)[= *Location*\$]

----Enter the file name and path of each database file in your report for which you want to change the location.

----Use a separate line of code for each file for which you want to change the location.

----The order of files in the array must conform to the order of files in the report. (You can use Database| File Location to determine the order of files in the report.)

----The first file in the report is array index (0), the second file is (1), etc.

For example, to change the location of the first and third files in a report (first.mdb and third.mdb) to the c:\new directory use the following syntax:

```
Report1.DataFiles(0) = "c:\new\first.mdb"
```

```
Report1.DataFiles(2) = "c:\new\third.mdb"
```

Remarks

- DataFiles is an array property that is available at runtime only.
- Use this property if you want to run the report with files in different locations than specified in the report.
- If you use this property, you do not have to change the locations of all files in the report. Just make certain that the array index for each file you do change matches the position of that file in the report.
- This property is cleared once the print job is printed. If you print a second time, the program reverts to the locations as originally specified in the report.

Data Type

Array of strings

Availability

Runtime

Action Property, Crystal Custom Control

Description

Action is the property that triggers the printing of the report.

Usage

```
[form.]Report.Action = 1
```

For example:

```
Report1.Action = 1
```

```
« prints the report. »
```

Remarks

Set the Action property to 1 in your procedure code (Report1.Action = 1) to print the report in response to a user event.

Data Type

Integer

Availability

Write-only at runtime

Connect Property, Crystal Custom Control

Description

Logs on to a SQL server.

Usage

[*form.*]Report.**Connect**[= *Name;UserID;Password;DatabaseQualifier*]

For example:

```
Report1.Connect = "DSN = Accounting;UID = 734;PWD = bigboard;DSQ = Administration"
    « connects to the "Administration" database on the "Accounting" server using the user ID #734 and
    the password "bigboard" »
```

Remarks

Enter the parameters necessary to log on to the SQL server that you need to be activated for your report.

Parameters should be in the following format:

```
DSN = name;UID = userID;PWD = password;DSQ = database qualifier
```

---- *name* is the server name.

---- *user ID* is the name you have been assigned for logging onto the SQL server.

---- *password* is the password you have been assigned for logging onto the SQL server.

---- *database qualifier* = the database name if your server uses the database concept.

NOTE: Before you can use this property, you must:

- ***install the ODBC driver for whatever SQL database you are planning to use, and***
- ***put the Database/BIN location in your path.***

NOTE: This parameter is required only when it is applicable to the ODBC driver you are using.

Data Type

String

Availability

Design time;Runtime

Formulas Property, Crystal Custom Control

Description

Specifies a new string for an existing formula.

Usage

```
[form.]Report.Formulas(ArrayIndex) [= "FormulaName= FormulaText"]
```

Enter the formula name and the string that you want to replace the existing string for each formula that you want to change in your report.

For example, to change a formula @COMMISSION to {file.SALES}*0.1, and a second formula @TOTAL to {file.SALES} + {file.COMMISSION}, enter the following:

```
Report1.Formulas(0) = "COMMISSION= {file.SALES} * .1"
```

```
Report1.Formulas(1) = "TOTAL= {file.SALES} + {file.COMMISSION}"
```

Remarks

- Formulas is an array property that is available at runtime only.
- Use a separate line of code for each formula you want to change.
- Change only those formulas that you want to change.
- The first formula you change must be assigned array index (0), the second must be assigned array index (1), etc.
- The new formula string must conform to Crystal Reports syntax requirements.
- This property is cleared once the print job is printed. If you print a second time, the program reverts to the formulas as originally specified in the report.

NOTE: Spaces are significant in formula names. For this reason, the equal sign must follow the formula name with no intervening spaces.

NOTE: The @ sign is not used when designating a formula name in this property.

NOTE: You cannot use this property to create new formulas. You can only use it to change existing formulas.

Data Type

Array of strings

Availability

Runtime (read and write)

GroupSelectionFormula Property, Crystal Custom Control

Description

Specifies the groups to be used when printing the report.

Usage

[form.]Report.**GroupSelectionFormula**[= "GroupSelectionFormula"]

Enter the group selection formula just as you would enter it in the Formula Editor. For example, to limit your report to those groups with a subtotal on the header.AMOUNT field less than \$10,000 (with subtotals triggered by changes in the header.CUSTNUMB field), you would enter the following as a group selection formula:

```
Sum ( {header.AMOUNT}, {header.CustNumb}) < $10000
```

Remarks

If your group selection formula includes internal quotes, change all of the internal double quotes to single quotes and then surround the entire selection formula in double quotes.

NOTE: If you have created a group selection formula in your report at design time, any group selection formula you enter here will be appended to that group selection formula, connected by an "and." Thus, your records will be selected based on a combination of the two formulas

Data Type

String

Availability

Design time; Runtime

GroupSortFields Property, Crystal Custom Control

Description

Specifies the group field(s) that are to be used to sort your data when the report is printed.

Usage

```
[form.]Report.GroupSortFields(ArrayIndex) [= "{+|-}GroupField"]
```

Enter the group field(s) on which you want your report to be sorted.

For example, assume that you have broken your data into state groups and had Crystal Reports count the number of customers in each group. In order to print the group with the highest count first, then the group with the next highest count, etc. (descending order), you would enter a string similar to the following:

```
Report1.GroupSortFields(0) = "--Count ({customer.CUSTOMER},{customer.STATE})"
```

Remarks

- GroupSortFields is an array property available at runtime only.
- Use a separate line of code to specify each group sort field.
- Enter group sort fields in the order that you want them to sort your report. For example, if you want your report to be sorted first on group sort field A and then on group sort field B, specify group sort field A in your first line of code and group sort field B in your second line of code.
- The first group sort field you specify must be assigned array index 0, the second group sort field must be assigned array index 1, etc.
- The index values you assign must be continuous; no gaps are allowed (0,1,2 = OK, 0,1,3 = wrong)
- Array index values must be subscripted in the code immediately after the property name, i.e., Report1.GroupSortFields(0) = .
- If you have specified sort fields for your report at design time, any sort fields you enter here will replace the sort fields in your report.
- If you don't use this property, the program will use the sorting instructions that you specified in the report.
- If you want to clear the group sort fields in your report, use an empty string (Report1.GroupSortFields(0) = "")
- This property is cleared once the print job is printed. If you print a second time, the program reverts to the group sort fields as originally specified in the report.

NOTE: The group sort field entry must follow the sort direction sign (+ or --) with no intervening space.

NOTE: To find the correct syntax for any group in your report using Crystal Reports for Visual Basic:

- **select Insert\Formula field,**
 - **enter any formula name in the Insert Formula Dialog box when it appears,**
 - **Click the scroll button on the Fields list in the Formula Editor when it appears, and**
 - **Double-Click the group field of interest.**
- Crystal Reports enters the group field name in the Formula Text box. Use the name and syntax from that text box when constructing your group sort field string.**

Data Type

Array of strings

Availability

Runtime

LastErrorNumber Property, Crystal Custom Control

Description

Returns the error code for the last runtime error.

Usage

[*form.*]Report.**LastErrorNumber**

For example:

 'If error occurs, go to Error Handler

 ErrorHandler:

 MsgBox Report1.**LastErrorNumber**

 « if an error occurs, this code calls up a message box that displays the error number. »

Remarks

LastErrorNumber is a runtime----only property.

NOTE: LastErrorNumber must come after the Action call in order to display relevant values. After you have printed your report, you can refer to this property to get an error number (if any). If there was no error in printing, LastErrorNumber = 0.

Data Type

Integer

Availability

Runtime (read and write)

LastErrorString Property, Crystal Custom Control

Description

Returns the error string for the last runtime error.

Usage

[*form.*]Report.**LastErrorString**

For example:

 'If error occurs, go to Error Handler

 ErrorHandler:

 MsgBox Report1.**LastErrorString**

 « if an error occurs, this code calls up a message box that displays the error string. »

Remarks

LastErrorString is a runtime----only property.

NOTE: LastErrorString must come after the Action call in order to display relevant values. After you have printed your report, you can refer to this property to get an error string (if any). If there was no error in printing, LastErrorNumber = 0.

Data Type

String

Availability

Runtime (read and write)

Password Property, Crystal Custom Control

Description

Enters the password needed to use database tables on a restricted Access .mdb file.

Usage

[*form.*]Report.**Password**[= *Password*]

For example:

Report1.Password = "dogsncats"

« enters the password "dogsncats" »

Remarks

Enter the password you have been assigned.

Data Type

String

Availability

Design time; Runtime

SortFields Property, Crystal Custom Control

Description

Specifies the field(s) that are to be used to sort your data when the report is printed.

Usage

```
[form.]Report.SortFields(ArrayIndex)[= "{+|-}SortField"]
```

Enter the fields on which you want the data in your report to be sorted.

For example, to sort an order database alphabetically by customer, and then by order date, you can enter code similar to this:

```
Report1.SortFields(0) = "+{orders.CUSTOMER}"
```

```
Report1.SortFields(1) = "+{orders.ORDERDATE}"
```

Remarks

----SortFields is an array property available only at runtime.

----Use a separate line of code to specify each sort field.

----Enter sort fields in the order that you want them to sort your report. For example, if you want your report to be sorted first on field A and then on field B, specify sort field A in your first line of code and sort field B in your second line of code.

----The sort field you specify must be assigned array index 0, the second sort field must be assigned array index 1, etc.

----The index values you assign must be continuous; no gaps are allowed (0,1,2 = OK, 0,1,3 = wrong)

----Array index values must be subscripted in the code immediately after the property name, i.e.,
Report1.SortFields(0) =

----If you have specified sort fields for your report at design time, any sort fields you enter here will replace the sort fields in your report.

----If you don't use this property, the program will use the sorting instructions that you specified in the report.

----If you want to clear the sort fields in your report, use an empty string (Report1.SortFields(0) = "")

----Enclose field names in braces.

----Sort fields can be database fields or formula fields. If you sort on a formula field, use the @ sign before the formula name, i.e., @FORMULANAME.

Data Type

Array of strings

Availability

Runtime (read and write)

UserName Property, Crystal Custom Control

Description

Enters the name given to a user for logging on to a protected Access .mdb file to obtain data files needed by the report.

Usage

[*form.*]Report.**UserName**[= *Name*]

For example:

```
Report1.UserName = "MIS"
```

« enters the user name "MIS" »

Remarks

- Enter the name you have been assigned.
- The name must be enclosed in quotes.

Data Type

String

Availability

Design time; Runtime

WindowParentHandle Property, Crystal Custom Control

Description

Specifies the handle of the parent window if the print window is to be the child of another window.

Usage

[*form.*]Report.**WindowParentHandle**[= *ParentHandle%*]

Remarks

This is a runtime-only property.

For example:

```
Report1.WindowParentHandle = Form1.hWnd
```

« sets the WindowParentHandle to the handle of Form1. This specifies that the print window is to be a child of Form1 »

Data Type

Integer

Availability

Runtime (read and write)

Properties

All of the properties for this control are listed in the following table. Properties that apply only to this control, or require special consideration when used with it, are marked with an asterisk(*). See the *Visual Basic Language Reference* or Help for documentation of the remaining properties.

<u>*Action</u>	Left	<u>*WindowControlBox</u>	
<u>*Connect</u>	Name	<u>*WindowHeight</u>	
<u>*CopiesToPrinter</u>		Parent	<u>*WindowLeft</u>
<u>*DataFiles</u>	<u>*Password</u>	<u>*WindowMaxButton</u>	
<u>*Destination</u>	<u>*PrintFileName</u>		<u>*WindowMinButton</u>
<u>*Formulas</u>	<u>*PrintFileType</u>		<u>*WindowParentHandle</u>
<u>*GroupSelectionFormula</u>		<u>*ReportFileName</u>	<u>*WindowTitle</u>
<u>*GroupSortFields</u>		<u>*SelectionFormula</u>	<u>*WindowTop</u>
HelpContextID	<u>*SortFields</u>	<u>*WindowWidth</u>	
Index	Top		
<u>*LastErrorNumber</u>		<u>*UserName</u>	
<u>*LastErrorString</u>		<u>*WindowBorderStyle</u>	

Error Messages, Crystal Custom Control

The following table lists the trappable run-time errors for the Crystal Custom Control:

Error number	Message explanation
20500	Not Enough Memory For Operation or Not Enough Memory To Get Selection Formula or Cannot Get Selection Formula. There is not enough memory available to complete the call.
20501	Invalid Job Number. Internal error.
20502	Invalid Text Handle or Parent Window Cannot Be An MDI Form or Invalid Parent Window Handle. You have specified an invalid window handle, or you have specified an MDI form as the parent of a print window.
20503	Buffer Too Small For String. Internal error.
20504	Report Not Found. You have specified a report that does not exist.
20505	No Print Destination Specified or Invalid Print Destination. The Destination property must be 0, 1, or 2. You have specified a print destination other than one of these values.
20506	Invalid File Number. You have tried to set an Nth file name and the file number you specified is out of the existing range: $0 \leq \text{fileN} < N$ files.
20507	Invalid File Name. There is an error in the file name you specified.
20508	Invalid Field Number. Internal error.
20509	Invalid Field Name. You specified an invalid database field for a sort field. The program can't add the sort field name you specified.
20510	Invalid Formula Name. The formula name you specified is invalid or non-existent.
20511	Invalid Sort Direction. Internal error.
20512	Print Engine Not Open. Internal error.
20514	Print File Exists. The name you have specified for the print file already exists. You must delete the file and print again or specify a different file.
20515	Error In Formula. There is a formula error in the replacement formula text. Review the formula syntax and retry.
20517	Print Engine Already In Use. Internal error.
20520	Print Job Already Started. You are trying to start a print job that has already been started. This can happen if the

user starts a print job and then tries to start printing again before the previous printing has finished.

Programmer's Note: Disable the form while Action is in process and re-enable the form once Action is complete. This will help avoid the conflict that generates this message.

20521 Invalid Summary Field.

The summary field specified as a group sort field is invalid or non-existent.

20522 Not Enough System Resources.

There are not enough Windows system resources to process the function.

20524 Print Job Busy.

You tried to initiate printing while Crystal Reports is already printing a job.

Programmer's Note: Disable the form while Action is in process and re-enable the form once Action is complete. This will help avoid the conflict that generates this message.

20525 Unable To Load Report.

There is something wrong with the report you are trying to open.

20526 No Default Printer.

You haven't specified a default printer. Specify a default printer via the Windows Control Panel.

20527 SQL Server Error.

There is a problem connecting with the SQL server.

20529 Disk Full.

When printing to file or when sorting, the program requires more room than is available on the disk..

20530 File I/O Error.

In trying to print to file, the program is encountering another file problem besides disk full.

20531 Incorrect Password.

You have specified an incorrect password.

20532 Missing Database DLL.

The database DLL is corrupt.

20533 Unable To Open Database File.

Something is wrong with the database you have specified. You may need to verify using the Database|Verify Database command.

20534 Error Detected By Database DLL.

The database DLL is corrupt.

20535 Unable To Connect:Incorrect Session Parameters.

You have attempted to log on using incomplete or incorrect session parameters.

20536 Unable To Connect:Incorrect Log On Parameters.

You have attempted to log on using incomplete or incorrect log on parameters.

20537 Unable To Connect:Incorrect Table Location.

The table you have specified cannot be found.

20538 Parameter Has Invalid Structure Size.

Internal error.

20999 Operation Not Yet Implemented.

Internal error.

