

Section 7



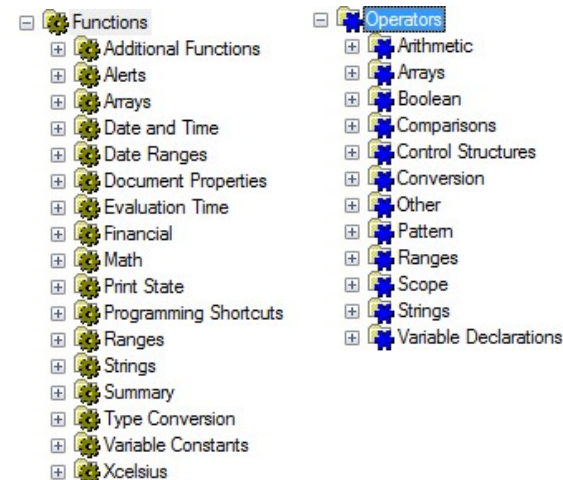
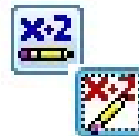
CRYSTAL REPORTS

For SAP Business One

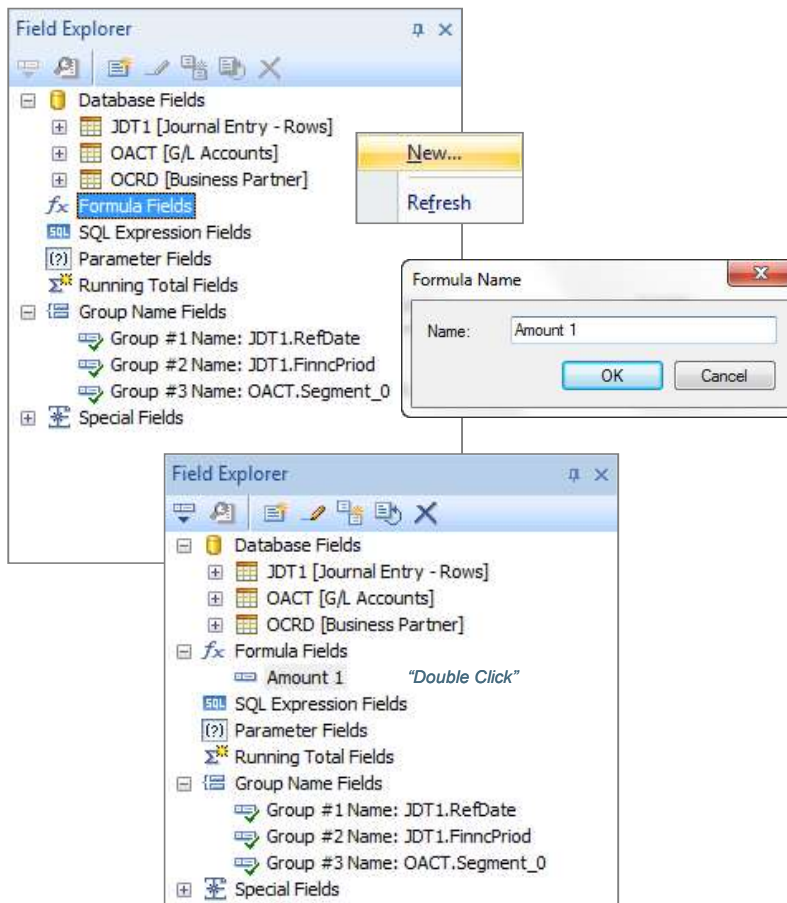
Using Formulas

Formulas Overview

- Sometimes, you need to add data on the report that does not exist in any of the data fields. In others you need to change the processing or presentation.
- In such cases, you need to create one or more formulas
- For example, to calculate the number of days it takes to process each order, you need a formula that determines the number of days between the order date and the ship date.
- **Some Typical Uses of Formulas**
 - Creating calculated fields to add to your report
 - Selecting the right data for your report
 - Formatting fields, sections or groups on a report
 - Manipulating Text strings
 - Extracting parts of a date
 - Using a custom function



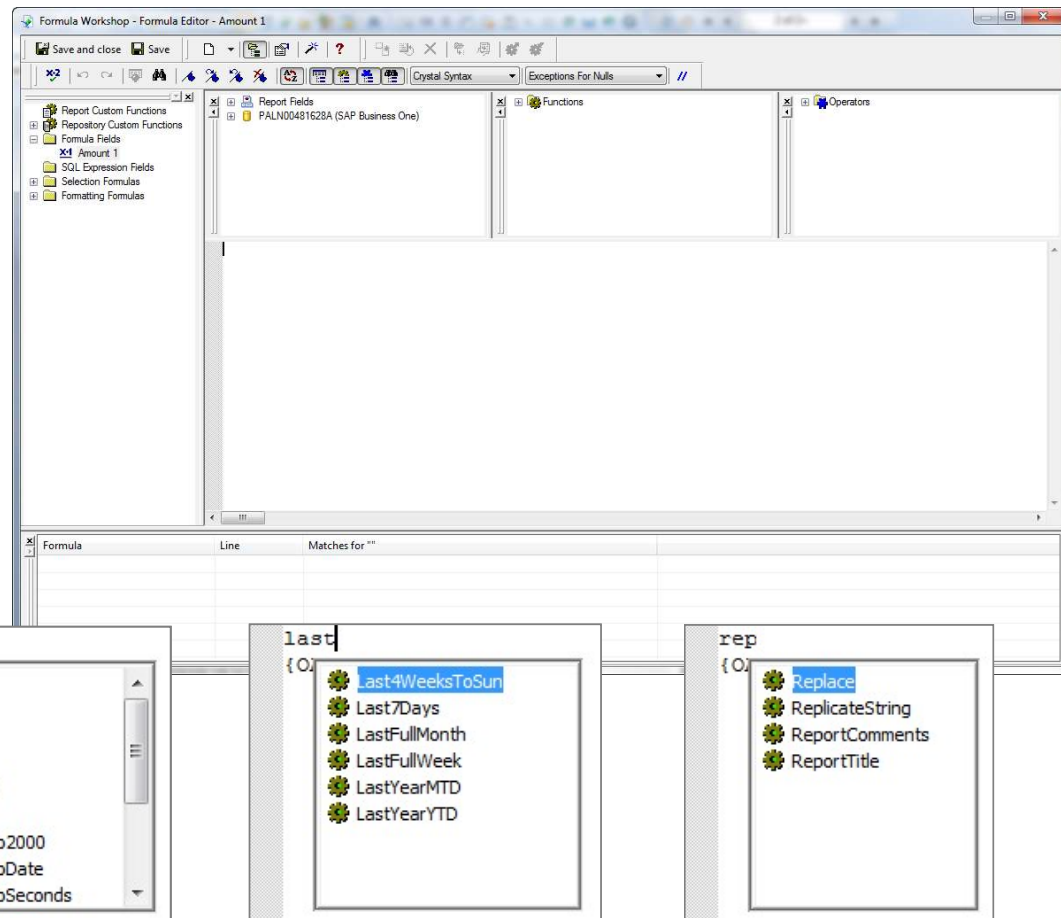
Formulas - Creating/Editing Formulas



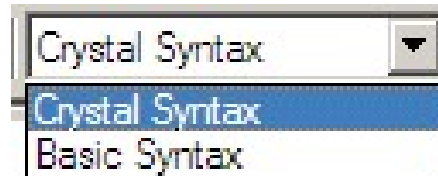
- The Formula Field tree in the Field Explorer lists all formulas defined in the report:
- Right click on Formula Fields and select "New" to create a formula
- If formula fields exists, double click on the name to start the Formula Editor
- Other toolbar Experts will also create formulas in your report
 - Using the Select Expert will add a formula on the Selection Formula tree
 - Using formula to conditionally format fields, will add a formula on the Formatting Formulas tree

The Formula Editor

- Use the formula editor to add fields, functions and operators to your formula:
- Type in the formula in the syntax area
- Select arguments from the report fields, Functions or Operator boxes above
- Hold the CTRL + Spacebar to view list of functions and operators in the formula syntax



- You can create formulas using Crystal or Visual Basic syntax:



- Most formulas can be written in both languages
- No affect on performances
- Syntax is not case sensitive
- Record selection and group selection formulas cannot be written in Basic syntax
- If your not a VB Programmer use the default Crystal Syntax

Fields Syntax In Formula

■ Distinguishing Field Types in formulas

- Database - {OINV.CardCode}
- Parameters - {?Select Period Range}
- Formula - {@another formula}
- Running Totals - {#RunningTotal}
- Strings - "Hello"
- Comments - //
- Array or Subscript - []
- Function Argument - RIGHT(OINV.DocDate,4)

```
{@TotalInvoiceAmount} - {@TotalTaxAmount}  
  
{OPOR.DocEntry} = {?DocKey@}
```

```
if {OPOR.CurSource} = 'L'  
then {OPOR.DocTotal}  
else if {OPOR.CurSource} = 'S'  
then {OPOR.DocTotalSy}  
else if {OPOR.CurSource} = 'C'  
then {OPOR.DocTotalFC}
```

```
Mid ({OADM.CompnyName},1,5 )
```

```
Shared NumberVar carryTotal;  
Shared BooleanVar lastMet;  
if ({ImSp_DocLineTypeLayout;1.LineType} = 'R') Then  
    carryTotal := carryTotal + {@LineTotal};  
  
if OnLastRecord Then  
    lastMet := TRUE;
```

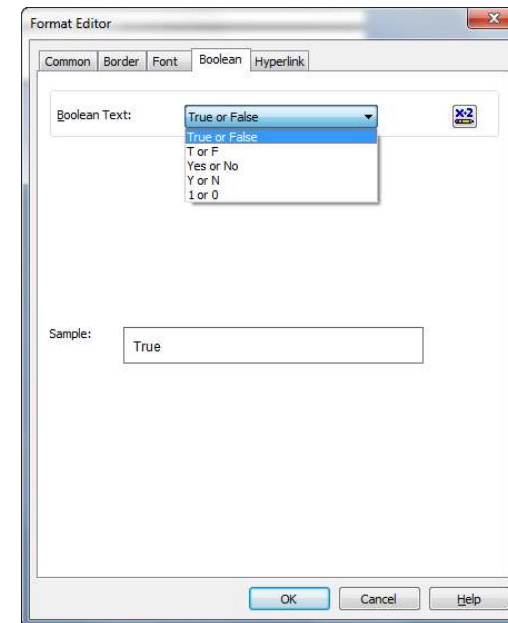
```
if {OADM.CurOnRight} = "Y" then " " + {POR1.Currency}  
else  
    {POR1.Currency} + " "
```

Boolean Formulas

- A Boolean formula returns a true or false value
- Common operators used in Boolean formula:
 - <>
 - And
 - Not
 - Or...

Example: You want to suppress all closed lines in a sales order:

- {RDR1.LineStatus} <> C
- Choose the output of the formula on the field format:



If-Then-Else Formulas

- It enables you to evaluate a sequence of statements if a condition is true and evaluate a different sequence of statements if it is not true
- Example
 - Print the customer balance on invoice form if it's greater than 0, otherwise don't print
 - IF {OCRD.Balance}> 0 then ToText ({OCRD.Balance}) else “ “
 - IF {OCRD.Balance}> 0 then {OCRD.Balance} else 0 (The data type of Then and Else must be the same)
- Other Business One Examples

```
if {ORDR.CurSource} = 'L' then  
  {ORDR.DocTotal}  
else if {ORDR.CurSource} = 'S' then  
  {ORDR.DocTotalSy}  
else if {ORDR.CurSource} = 'C' then  
  {ORDR.DocTotalFC}
```

```
If {TmSp_DocLineTypeLayout;1.LineType} = 'R' Then  
(  
  If {ADP1.VndrNum} = 'Y' Then 'Mfr No.:'  
  Else 'Item Code:'  
)
```

```
If "Month" in {@DateFormat} then crLongYear  
else if "CC" in {@DateFormat} then crLongYear  
else crShortYear
```

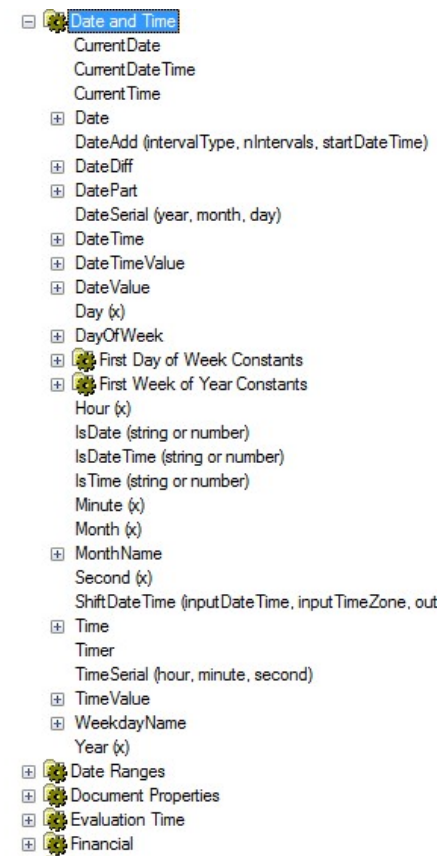
```
If {ORDR.PartSupply}='Y' Then  
  {@__AllowParital}  
Else  
  ..
```

■ Over 50 Date and Time functions built-in to Crystal

- Date and Times
- Date Ranges

■ Examples

- Addition/Subtraction of dates:
 - {ORDR.DocDate} + 15
 - ORDR.DocDate} - {CurrentDate}
- Document Date math :
 - {OINV.DocDueDate} - {ORCT.DocDate}
- Extract the Year/Month/Day value from date field.
 - Year({OINV.DocDate})
 - Month({OINV.DocDate})
 - Day({OINV.DocDate})



Date Formulas

- DateDiff – to calculate the difference between 2 dates:
- DateDiff (IntervalType, StartDate, EndDate)

IntervalType Value	Description
yyyy	Year
q	Quarter (3 month period)
m	Month
y	Day of Year
d	Day
w	Weekday
ww	Week (7-day period)
h	Hour
n	Minute
s	Second

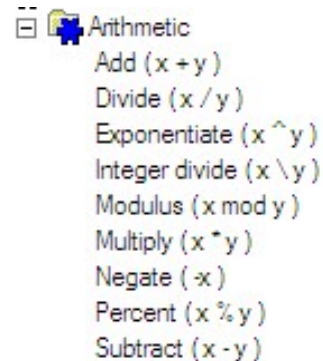
- DateDiff ('d', {OINV.DocDueDate}, {ORCT.DocDate})

```
If {@DateFormat} in ["DD/MM/YY", "DD/MM/CCYY", "DD/Month/YYYY"]  
then crDayMonthYear  
else if {@DateFormat} in ["MM/DD/YY", "MM/DD/CCYY"] then crMonthDayYear  
else if {@DateFormat} in ["CCYY/MM/DD", "YY/MM/DD"] then crYearMonthDay
```

```
select {@ADM.DateFormat}  
case "0":  
    "DD/MM/YY"  
case "1":  
    "DD/MM/CCYY"  
case "2":  
    "MM/DD/YY"  
case "3":  
    "MM/DD/CCYY"  
case "4":  
    "CCYY/MM/DD"  
case "5":  
    "DD/Month/YYYY"  
case "6":  
    "YY/MM/DD"  
default:  
    "";
```

Arithmetic Formulas

■ Arithmetic



■ Sum – Total a numeric or currency value

- Sum ({OINV,DocTotal}, or Sum ({OINV.DocTotal}, {OSLP.SlpName})

■ Count - Count the number of customers in each group:

- Count ({OCRD.CardCode}, {OCRD.GroupCode})

■ Distinct count – Count distinct records. For example number of distinct customers in a sales report :

- DistinctCount ({OINV.CardCode})

■ Concatenation:

- Use the '&' to concatenate two values of different data type
- Use '+' to concatenate 2 string values
- Examples:
 - "The products will be shipped on: " & {ORDR.DocDueDate}
 - "Customer Name " + {OCRD.CardName}

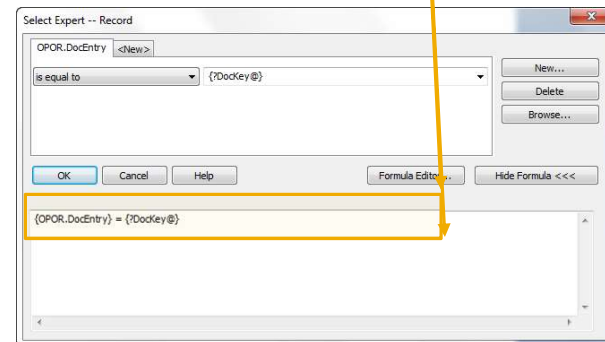
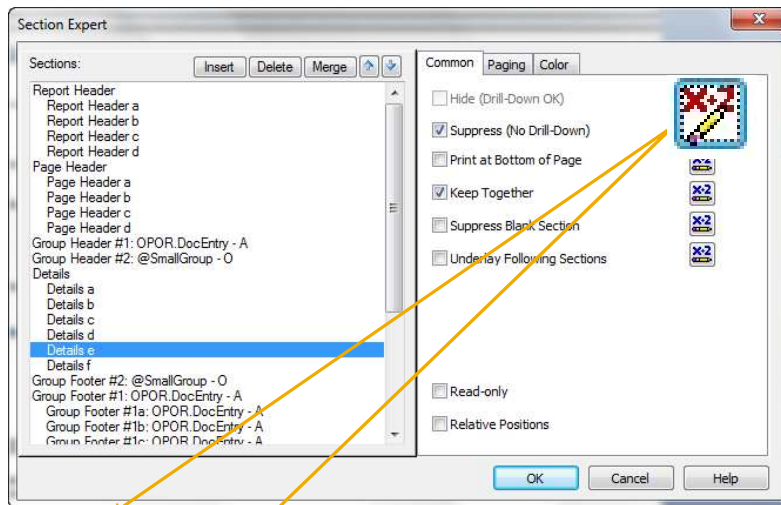
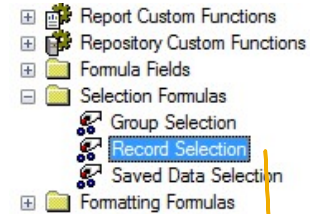
■ Text Case Functions

- UpperCase ({OCRD.CardCode})
- LowerCase ({OCRD.CardName})
- Propercase ({OCRD.CardName})

- **Right- Returns X number of characters from the right:**
 - Right ({OCRD.CRCardNum},4)
- **Left - Return X number of characters from the Left:**
 - Left ({OCRD.Phone1},3)
- **Length – returns the number of characters in the string, including spaces**
 - Length({OCRD.CardName})
- **Trim – Removing leading or trailing spaces from a string**
 - Trim ({OCRD.CardName})
- **InStr – Returns the position of the first occurrence of a string**
 - InStr ({ORDR.Address}," ",1)
- **Mid – Return X number of characters starting the position identified:**
 - Mid ({ORDR.Address},InStr ({ORDR.Address}," ",1) + 1)

Other Places Formulas Live

- Selection Criteria (Group, Record)
- Field and Section Formatting



```
{OPOR.DocType} = 'S' or {TmSp_DocLineTypeLayout;1.LineType} <> 'T'
```

Other Places Formulas Live

The image shows a screenshot of an SAP invoice form with several fields: Order Subtotal, Discount Subtotal, Down Payment, Additional Expense, Rounding, Total Before Tax, Total Tax Amount, and Total Amount. The 'Total Amount' field contains the formula `{?Pm-@Invoice Subtotal}`. Overlaid on the form are three dialog boxes: 'Format Field...', 'Format Painter', and 'Format Editor'. The 'Format Editor' dialog box is open, showing the 'Number' tab. It displays a list of system default number formats, with 'Custom Style' selected. The 'Customize...' button is highlighted. The 'Custom Style' dialog box is also open, showing the 'Currency Symbol' tab. It has options for 'Enable Currency Symbol', 'Fixed' or 'Floating' (selected), 'One Symbol Per Page', 'Position' (set to '\$-123'), and 'Currency Symbol' (set to '\$'). The 'Sample' field shows '\$-55,555.5555555556'. Arrows indicate the flow of information: from the 'Total Amount' field to the 'Format Editor' dialog, from the 'Customize...' button to the 'Custom Style' dialog, and from the 'Custom Style' dialog to the 'Format Field...' dialog.

Format Field...

Format Painter

Order Subtotal: `{?Pm-@Invoice Subtotal}`

Discount Subtotal: `{?Pm-@DiscountTotal}`

Down Payment: `{?Pm-@DownPayment}`

Additional Expense:

Rounding:

Total Before Tax:

Total Tax Amount:

Total Amount: `{?Pm-@Invoice Subtotal}`

Format Editor

Common Border Font Number Hyperlink

Style

System Default Number Format

- 1,123.00
- 1123
- 1,123
- 1123.00
- 1123.0000
- 1,123.0000
- (1123)
- (1,123)
- (1123.00)
- (1,123.00)
- (1123.0000)
- (1,123.0000)
- Custom Style

Customize...

Currency symbol (system default):

- ☒ Display Currency Symbol
- ☐ Fixed
- ☒ Floating

Sample:

\$-55,555.5555555556

Custom Style

Currency Symbol Number

☒ Enable Currency Symbol

☐ Fixed ☒ Floating

☐ One Symbol Per Page

Position: \$-123

Currency Symbol: \$

Sample: \$-55,555.5555555556

OK Cancel Help

`{?Pm-@Doc. Currency Code}`

Exercise 4

Basic Formulas

