Harnessing the Power of SAP Query

Part II: Local Fields

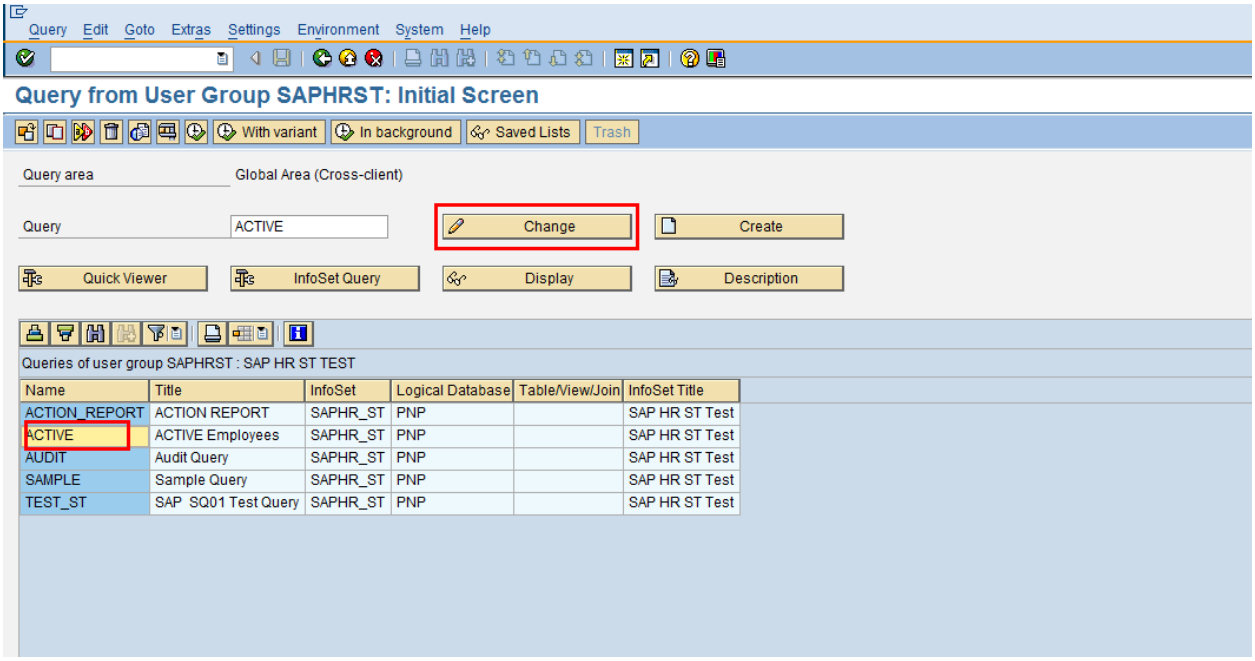
Now that you have mastered the five steps to create a query, we will explore the features of the SAP Query tool that make it so powerful.

In addition to performing calculations, the use of local fields enable you to display symbols or icon on your report, allow for dynamic calculations based on selection screen criteria, and perform conditional calculations.

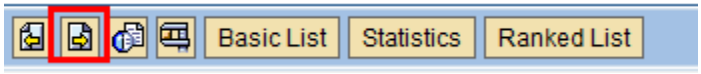
The Fun Begins!

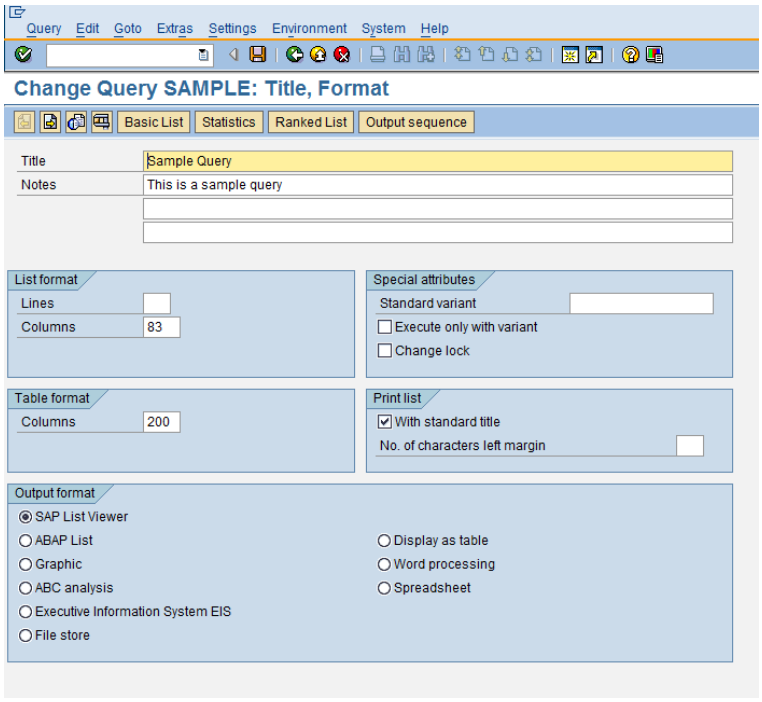
You can do some amazing things still using only the first five screens of SAP query creation. In order to unleash the power of query writing, the use of local fields is a must. These fields are considered local because you define fields that are specific to a query. They are used to create formulas and conditions. These local fields may be displayed in your report as well. They can also be used as selection fields for the report, as output or as calculation fields. Once you understand the concept of local fields, the possibilities are endless for your query writing. Local fields are created in the Select Fields screen.

Before we begin, let's quickly review the five basic screens used to build a SAP query.
To access the SAP query tool, go to SQ01. Here we will select an existing query by highlighting its name and clicking on the change icon:

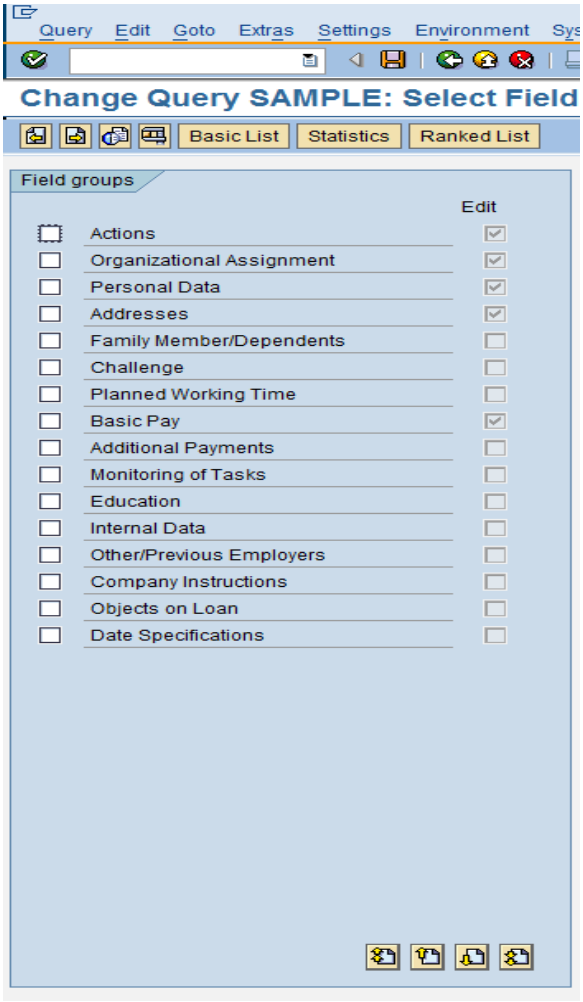


Then we will walk through the five screens that we will be using in creating local fields. To move through the screens, use the 'Next' icon:

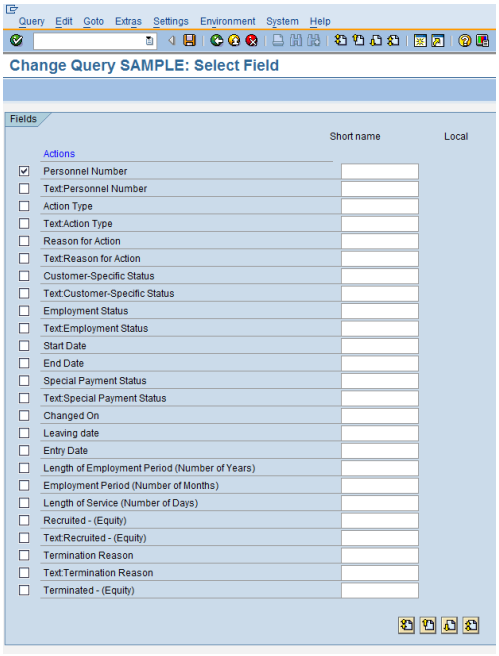




Title screen (Screen #1), you may add notes or change any of the query attributes.

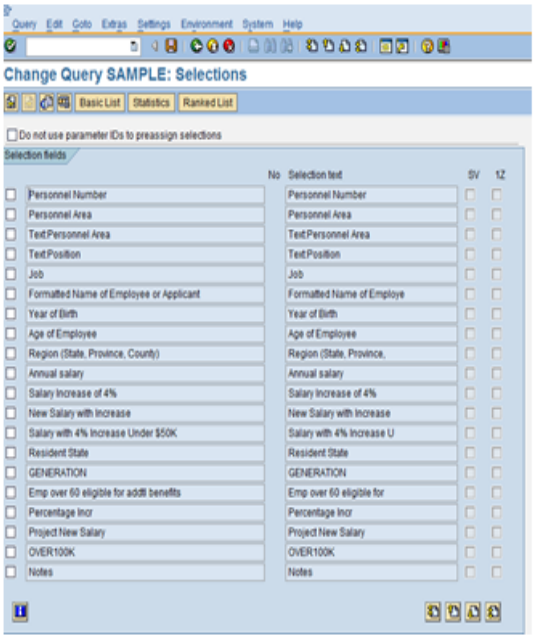


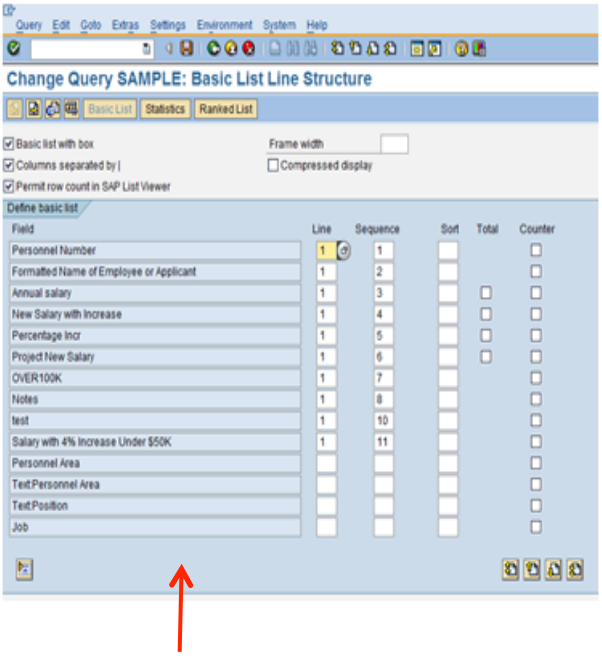
Select Fields screen (screen #2) you may add or change the field groups to use in your query



Select Fields screen (screen #3), you may add short names for existing fields and also create local fields.

Selections screen (screen #4), you choose any additional fields to appear as selection fields on the report selection screen.

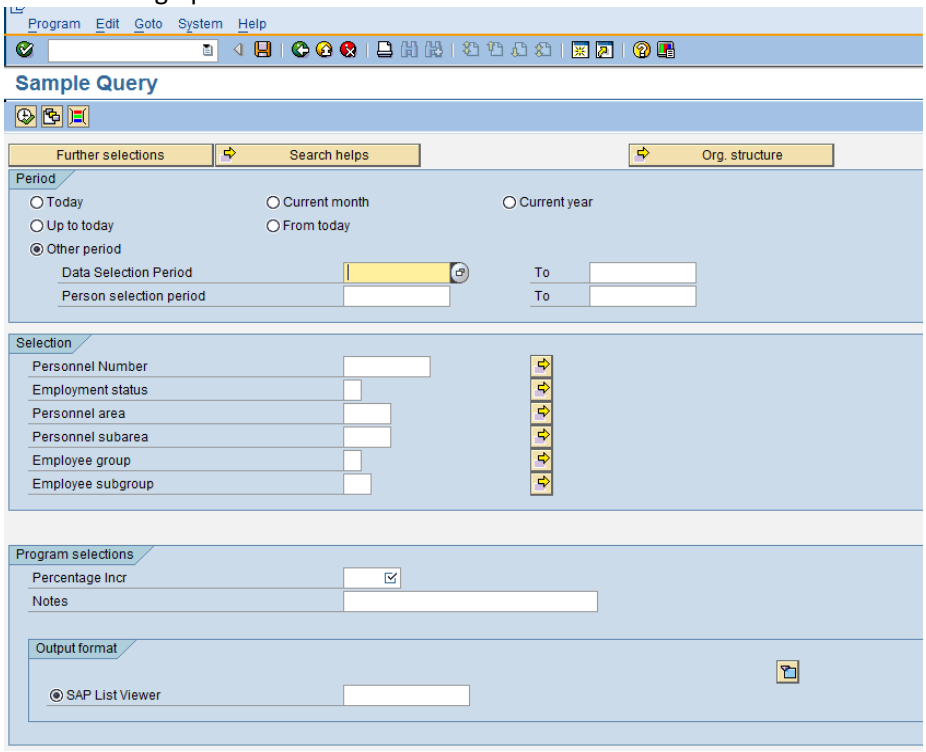




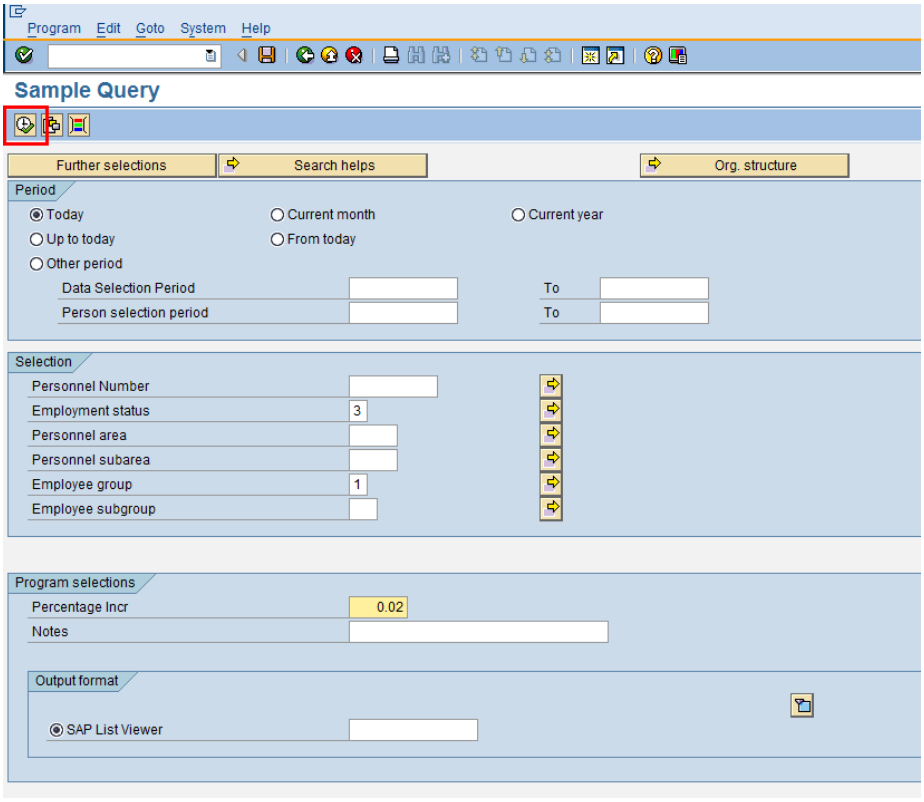
Basic List Line Structure screen (screen #5) you determine the order of your output fields, add sorts, totals and counts.

From screen #5, we can execute a query via F8.

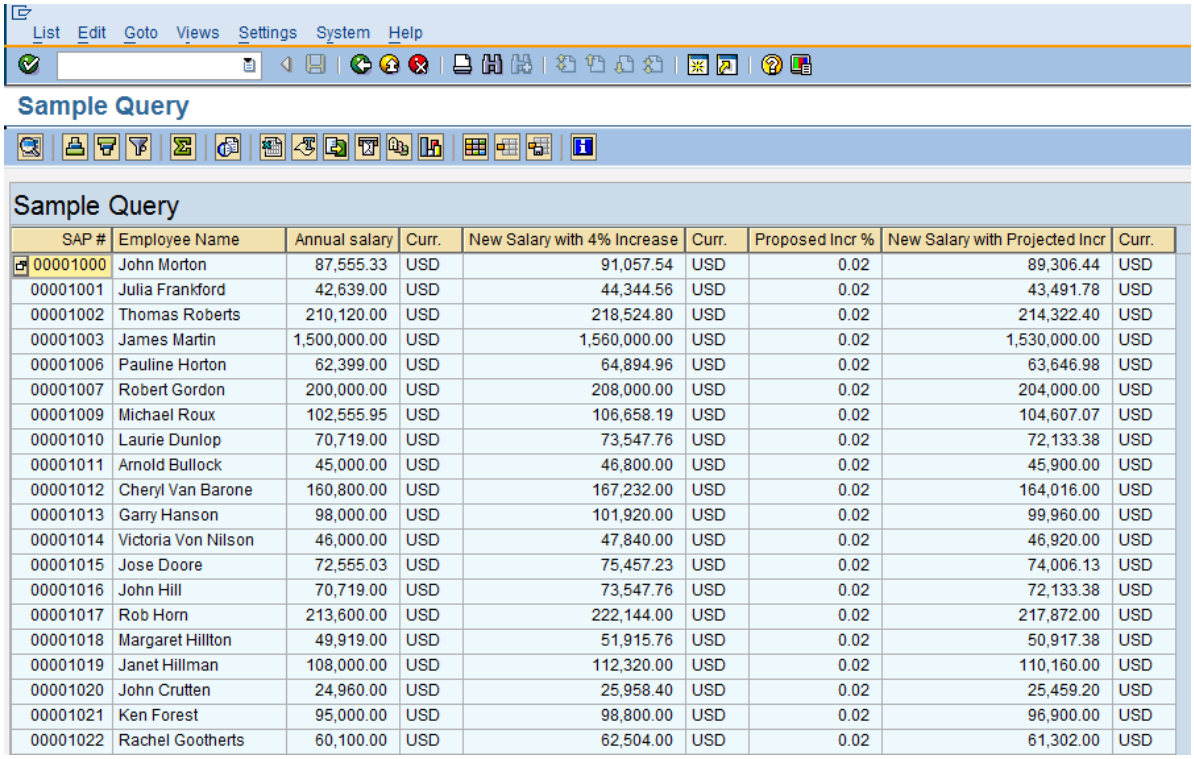
This will bring up a selection screen where we will enter the values to run the report by:



Once we make out selections, we execute the query.



The results will then be displayed:

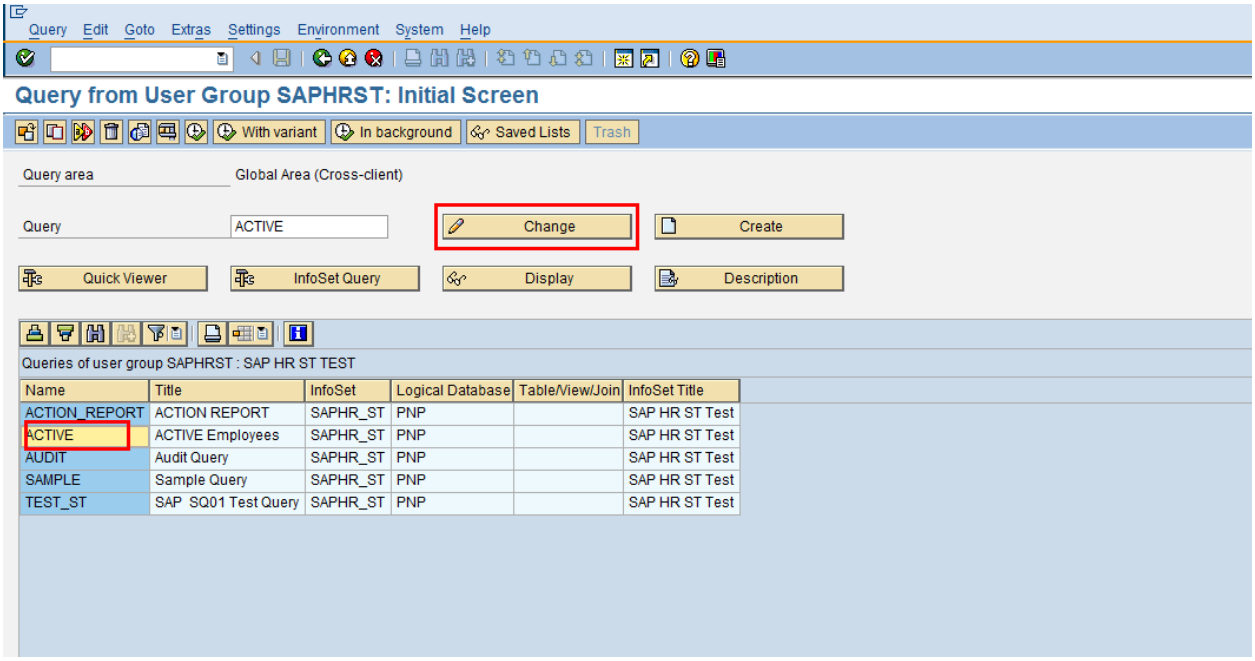


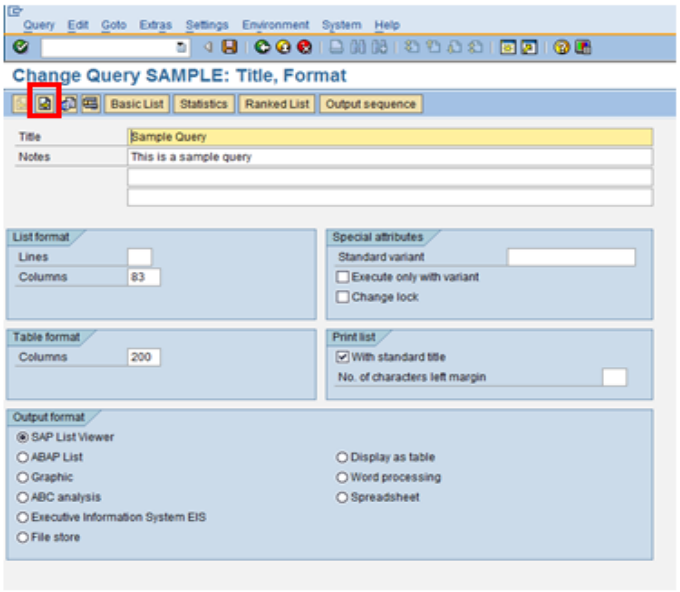
Sample Query

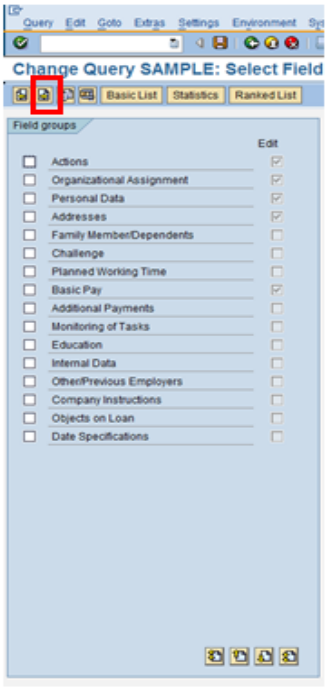
SAP #	Employee Name	Annual salary	Curr.	New Salary with 4% Increase	Curr.	Proposed Incr %	New Salary with Projected Incr	Curr.
00001000	John Morton	87,555.33	USD	91,057.54	USD	0.02	89,306.44	USD
00001001	Julia Frankford	42,639.00	USD	44,344.56	USD	0.02	43,491.78	USD
00001002	Thomas Roberts	210,120.00	USD	218,524.80	USD	0.02	214,322.40	USD
00001003	James Martin	1,500,000.00	USD	1,560,000.00	USD	0.02	1,530,000.00	USD
00001006	Pauline Horton	62,399.00	USD	64,894.96	USD	0.02	63,646.98	USD
00001007	Robert Gordon	200,000.00	USD	208,000.00	USD	0.02	204,000.00	USD
00001009	Michael Roux	102,555.95	USD	106,658.19	USD	0.02	104,607.07	USD
00001010	Laurie Dunlop	70,719.00	USD	73,547.76	USD	0.02	72,133.38	USD
00001011	Arnold Bullock	45,000.00	USD	46,800.00	USD	0.02	45,900.00	USD
00001012	Cheryl Van Barone	160,800.00	USD	167,232.00	USD	0.02	164,016.00	USD
00001013	Garry Hanson	98,000.00	USD	101,920.00	USD	0.02	99,960.00	USD
00001014	Victoria Von Nilson	46,000.00	USD	47,840.00	USD	0.02	46,920.00	USD
00001015	Jose Doore	72,555.03	USD	75,457.23	USD	0.02	74,006.13	USD
00001016	John Hill	70,719.00	USD	73,547.76	USD	0.02	72,133.38	USD
00001017	Rob Horn	213,600.00	USD	222,144.00	USD	0.02	217,872.00	USD
00001018	Margaret Hillton	49,919.00	USD	51,915.76	USD	0.02	50,917.38	USD
00001019	Janet Hillman	108,000.00	USD	112,320.00	USD	0.02	110,160.00	USD
00001020	John Crutten	24,960.00	USD	25,958.40	USD	0.02	25,459.20	USD
00001021	Ken Forest	95,000.00	USD	98,800.00	USD	0.02	96,900.00	USD
00001022	Rachel Gootherts	60,100.00	USD	62,504.00	USD	0.02	61,302.00	USD

Getting Started

In order to explain the features of local fields, we will do a series of examples. We will start by modifying an existing query. Simply highlight the query and click on **Change**:







We will not make any changes to the title screen (screen #1). Click on 'Next' to continue to the Select Fields screen (screen #2). We could add any additional field groups to our query, by selecting them on

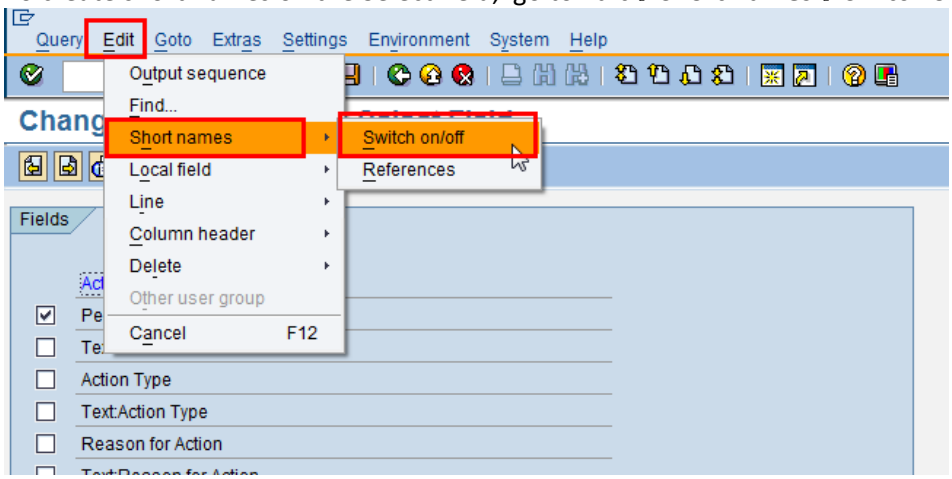
screen #2. After adding field groups, or opting not to, click on the 'Next' icon to continue to the Select Fields screen (screen #3) to create our local fields.

This is the screen that we will be focusing on. Here will we be able to give shortened names to fields and also create additional fields for output.

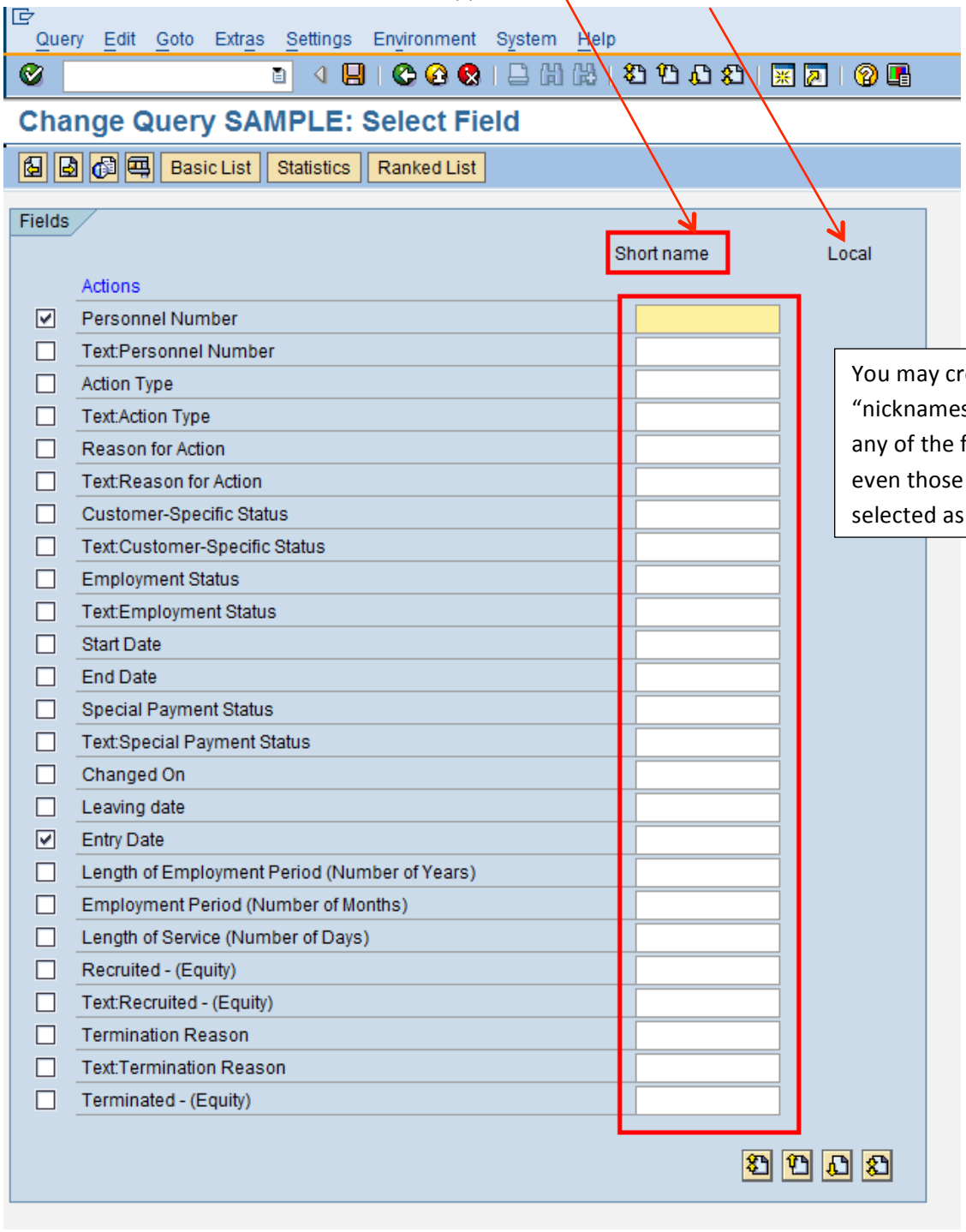
Short Names

Short names are nicknames that you can create for any of the data fields available to use in a query. Nicknames are easier to work with then the SAP field names, especially when creating calculations or conditions in local fields.

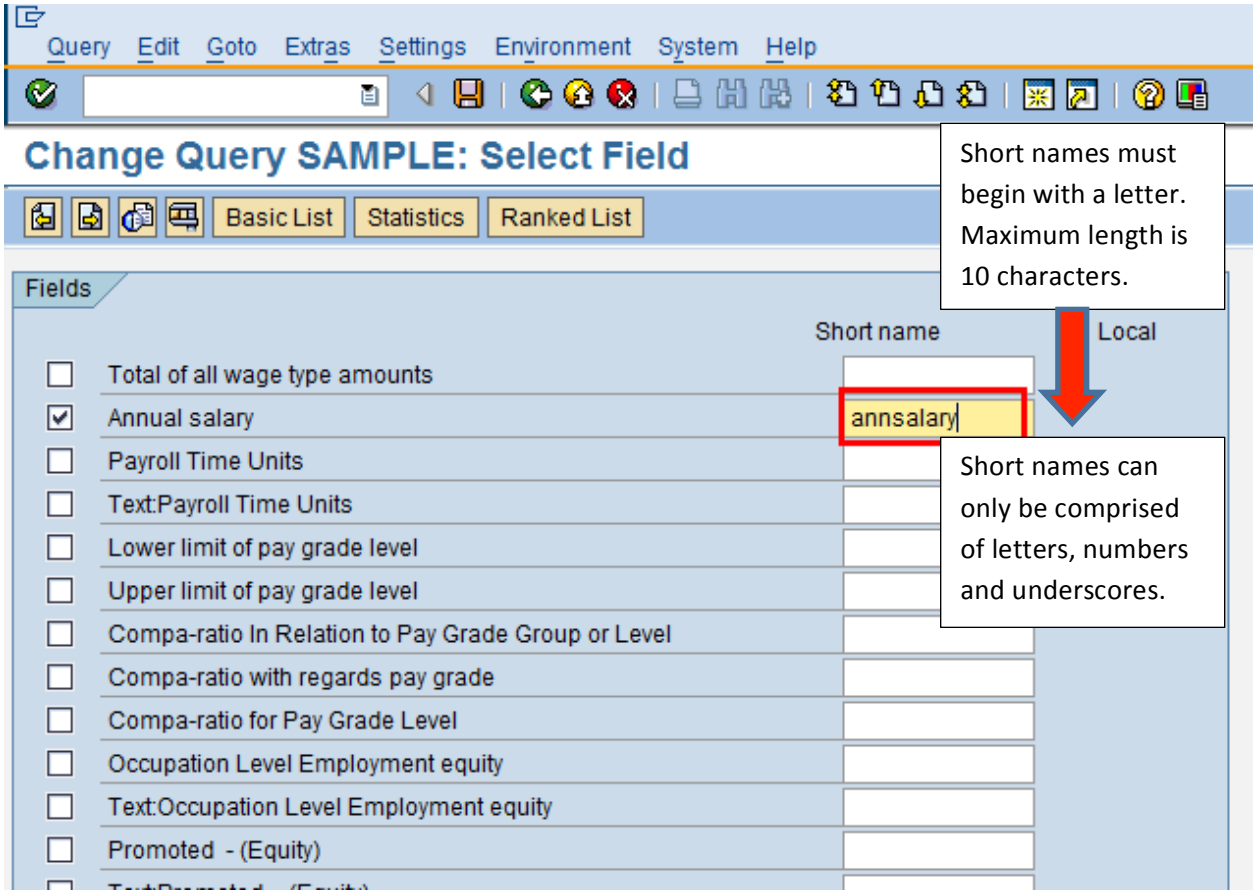
To create short names on the Select field, go to **Edit→Short names→Switch on/off**



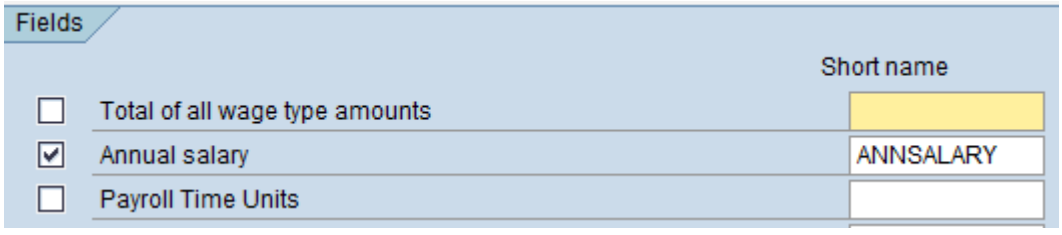
You will notice that two new columns now appear on the Select Field screen: Short name and Local



Think of short names as nicknames for fields. Short names are easier to use in calculations than SAP field names are. You may give a nickname to any field, even those that you have not selected as output (those without the checkbox clicked). This means you can reference any field in a local (calculated) field.



Even when you type the short name in lower case, when you hit the enter key, the short name will appear in upper case.



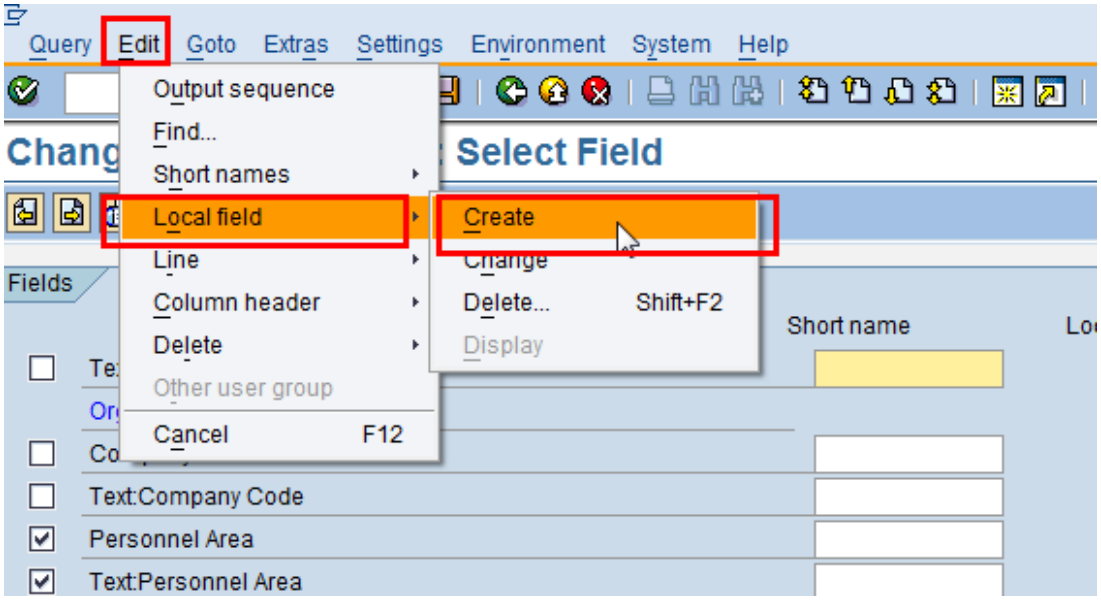
Once you have created the short names, you may utilize them in local fields for calculations, formulas and conditions.

Local Fields

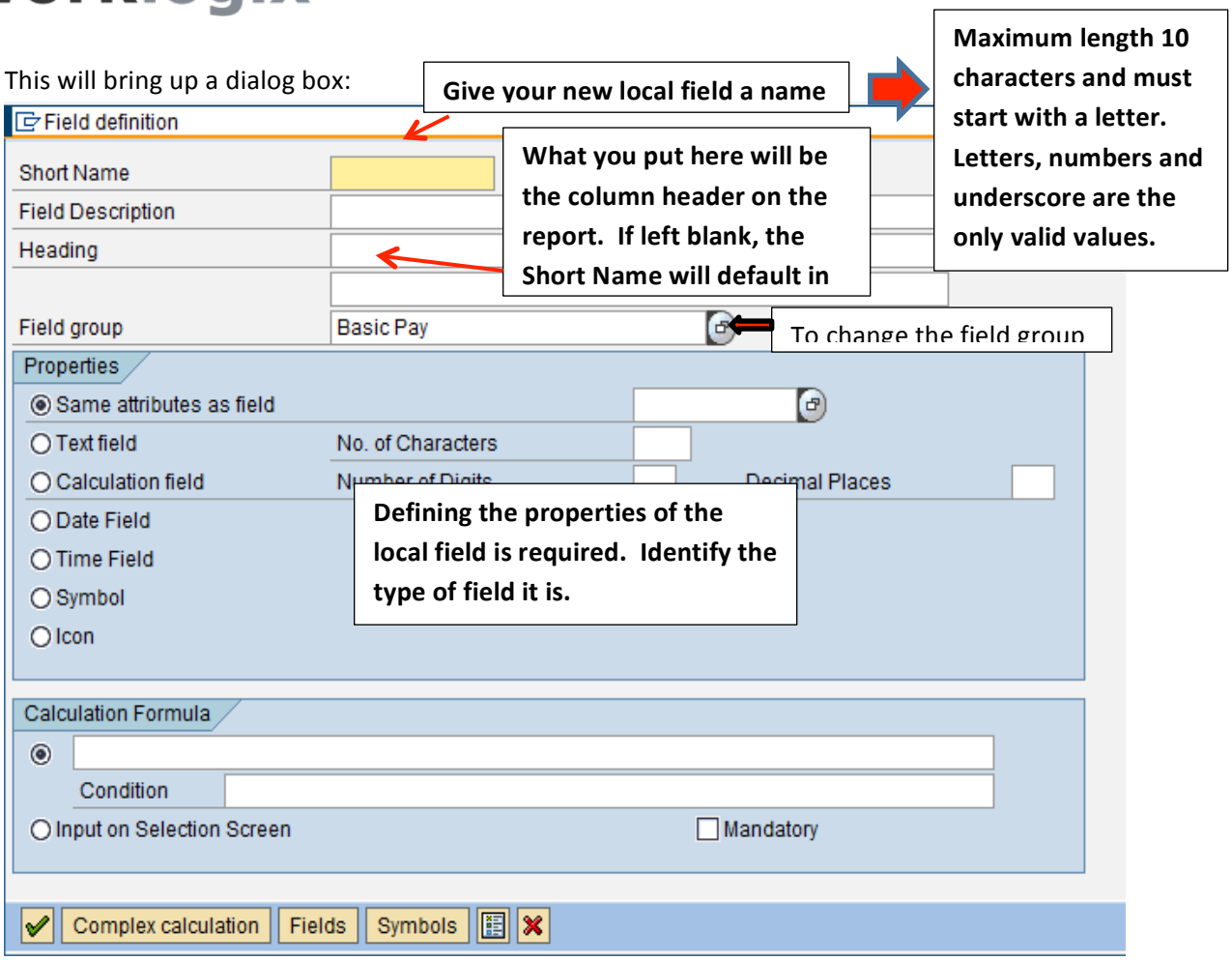
There are many great ways that local fields can enhance your reports. We will walk through examples that show how to create calculations, add icons or symbols to your report, add text to an output field and allowing for dynamic calculations based on selection screen criteria, and perform conditional calculations. In each case, we will concentrate on the Select Fields (screen #3) because they are created here.

Local fields are specific to the query, they will not be added to the InfoSet for other queries to use. Rather, it gives you a way to create new calculated field for the query. L

Scroll down through the infotypes on the Select Field screen. Once you are within the infotype where you would like to create your local field, go to **Edit→Local Fields→Create**



This will bring up a dialog box:



The screen is comprised of three sections. Each section needs has required fields. In the Heading section, a short name is required. Field Description and Heading are optional, but if left blank, upon completing the screen, the short name will default into these 2 fields.

In the short name field, enter a name for the local field. Do not use the same names that you created for the short name in the previous example. If you leave the Field Description and Heading fields empty, the system will populate them with the Short Name.

The field group: the default value is the infotype where the local field is being created under. You may change the field group by clicking on the downward arrow.

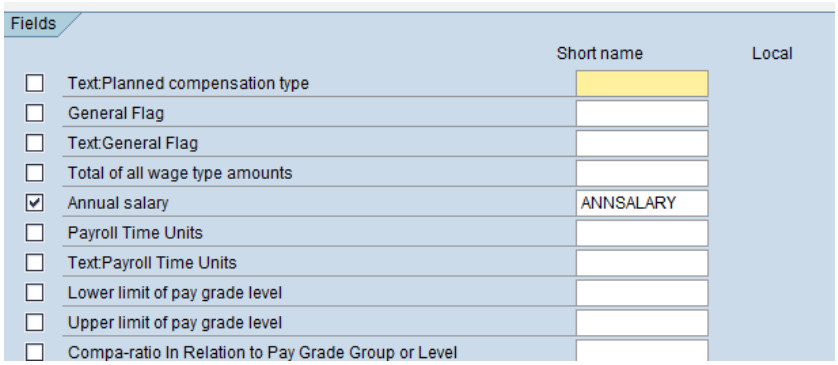
We will discuss the Properties and Calculation Formula sections when we walk through examples of

Calculations

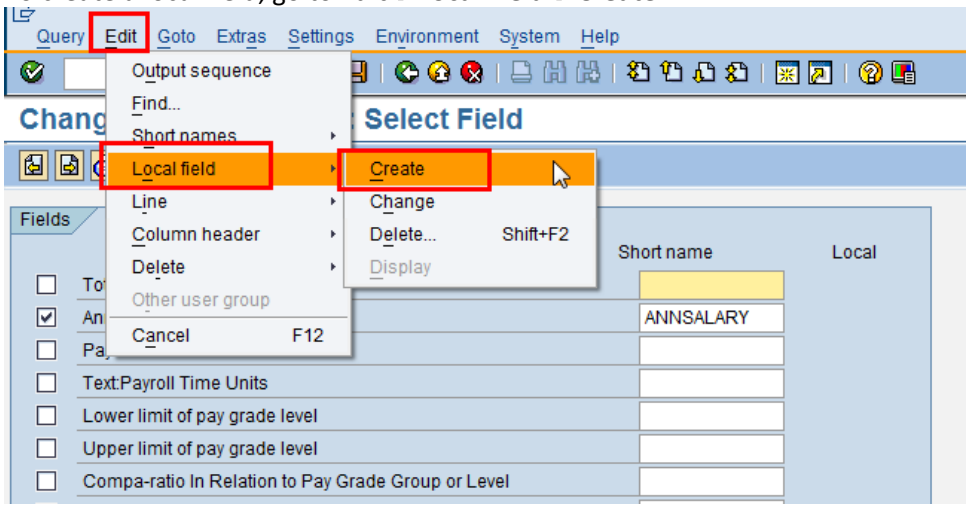
You need to use the short names of existing fields or of other local fields in your calculations. In an example, you may be asked to project the impact of a 4% salary increase for all employees. You would

like to see how much additional the salary expense would impact your budget. To do this, you would need to use the annual salary field from the basic pay infotype in this calculation.

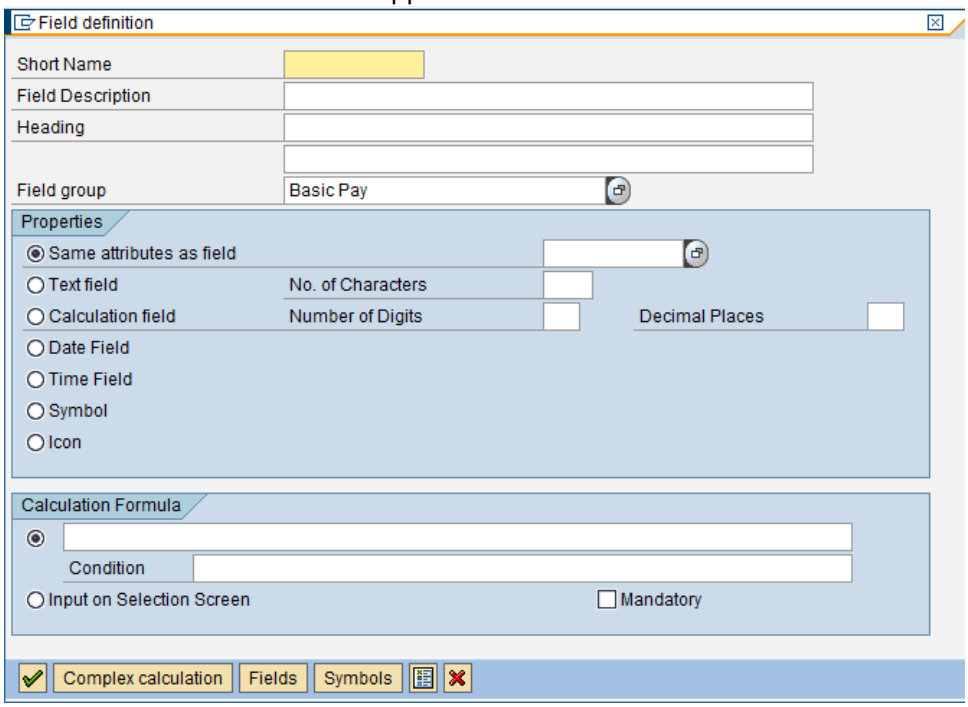
On the Select Fields screen (screen #3), the short name ANNSALARY was created:



To create a local field, go to **Edit→Local Field→Create**

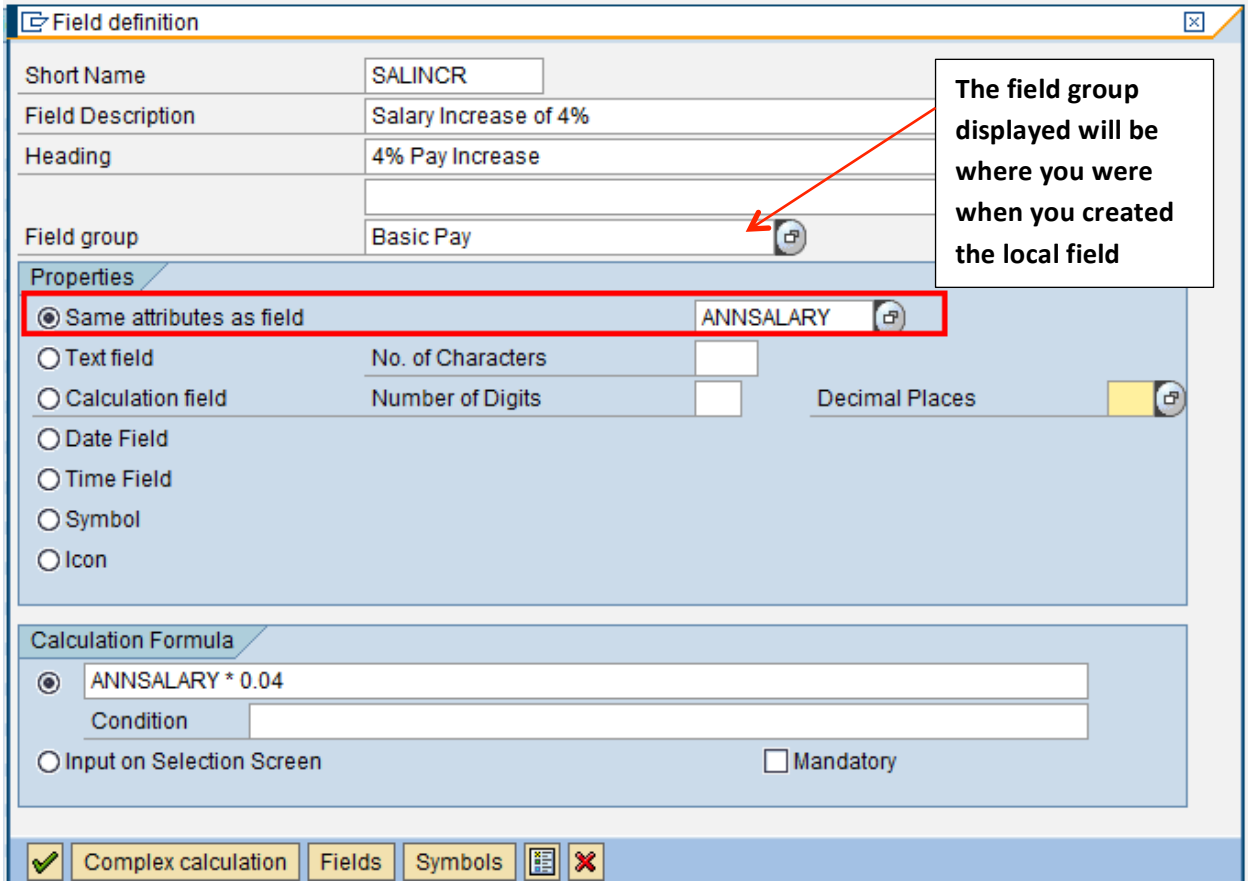


The Field Definition screen will appear:



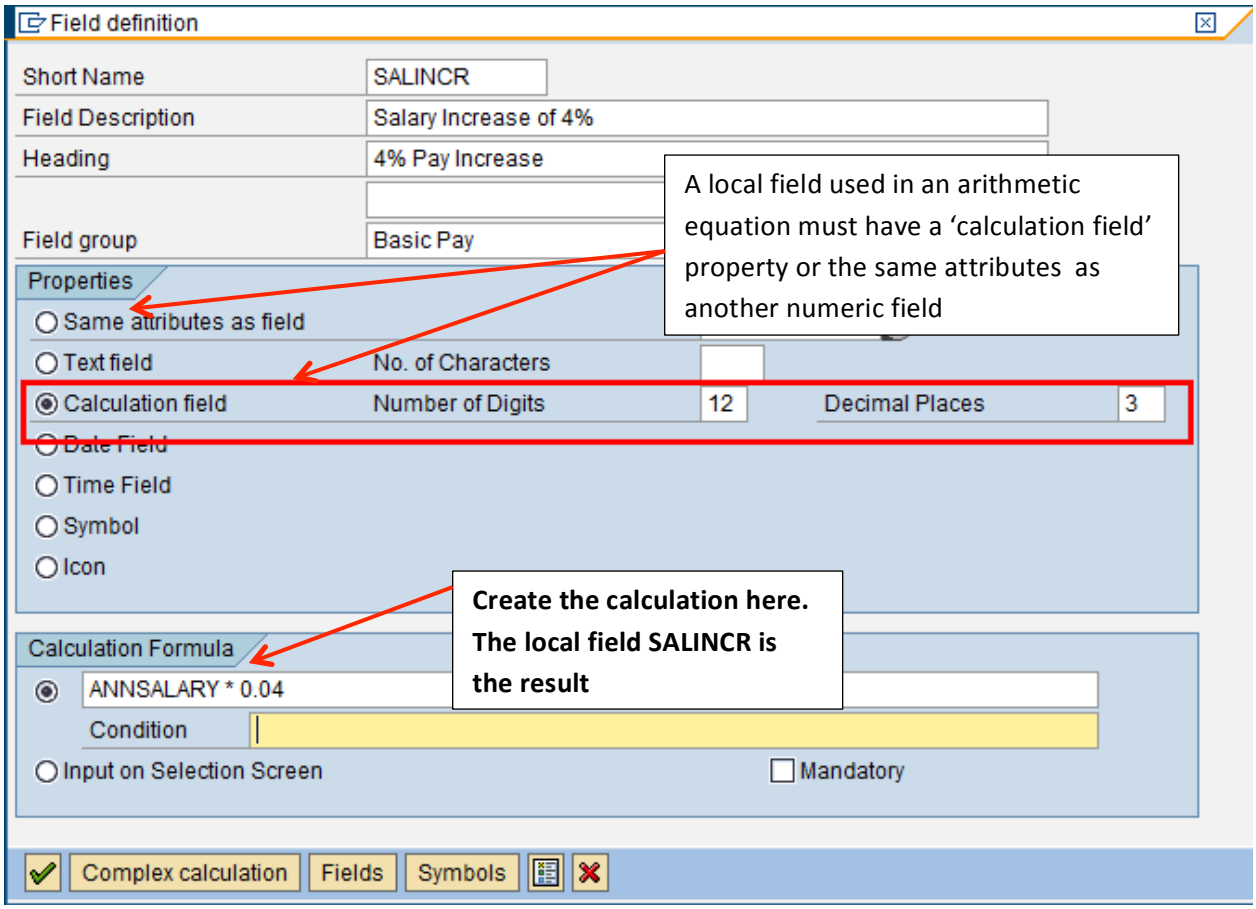
I have given the local field a name SALINCR. The heading for the result of this calculation will be named "4% Pay Increase".

The Field Group field shows Basic Pay—this means that the local field is being created within the Basic Pay Infotype:



The field group defaults in the field group depending what infotype you are in when you create the local field.

Properties: Here you must define the type of field that is being created. This is a required field. In our example, we will be using this local field to calculate a 4% salary increase, so we could identify the field as a calculation field or let it have the same attributes of annual salary. The screen above shows the local field having the same attributes as the field with the short name ANNSALARY. If we choose the radio button calculation field instead, we would identify the number of digits the field should contain and the number of digits to the right of the decimal point.

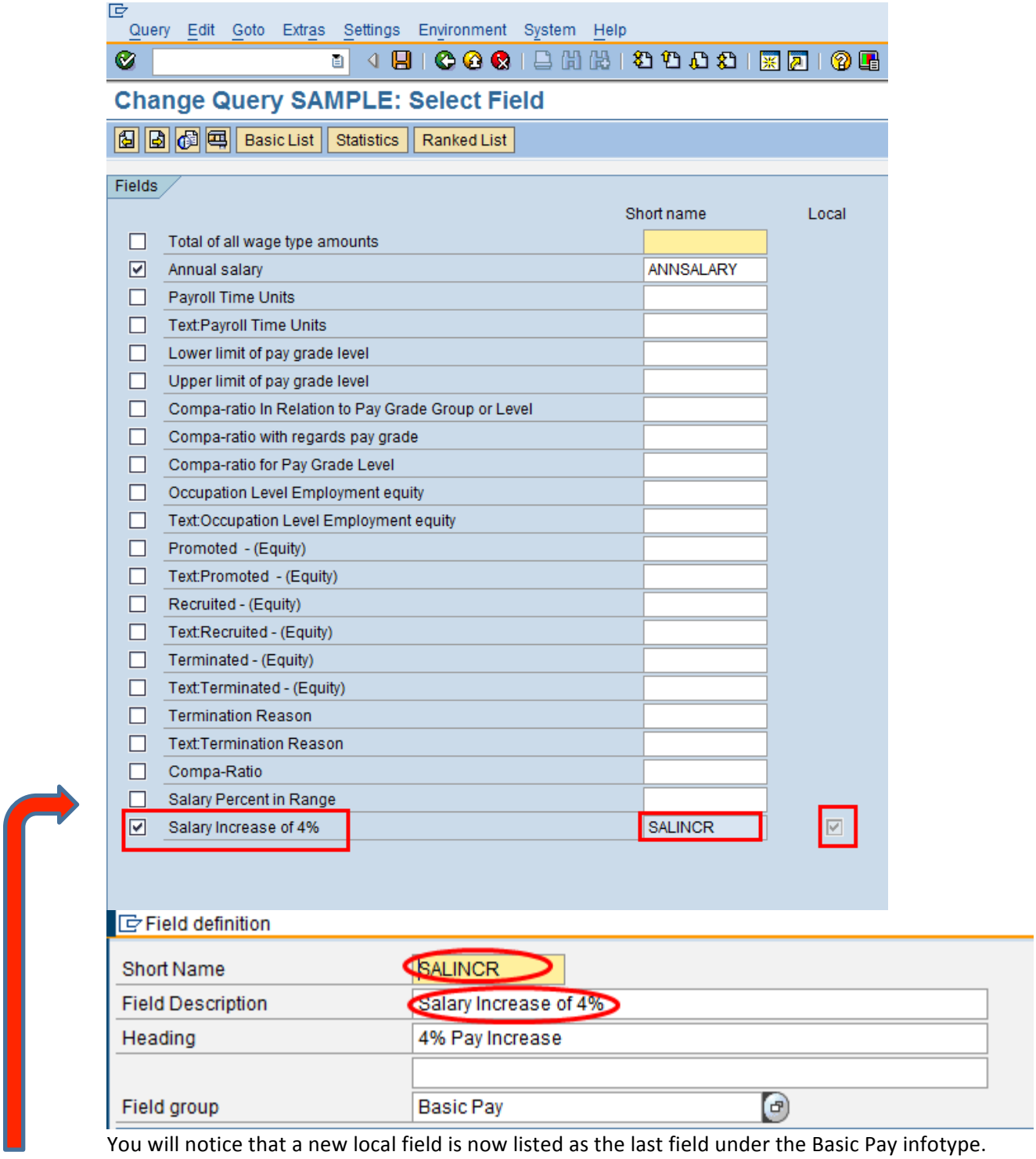


The local field is defined In the Calculation Formula section of the screen.
Below are the valid operators for use in calculations:

```
+, -, *, /, DIV, MOD, (  ), [...]
=, <, >, <>, <=, >=, AND, OR, NOT
```

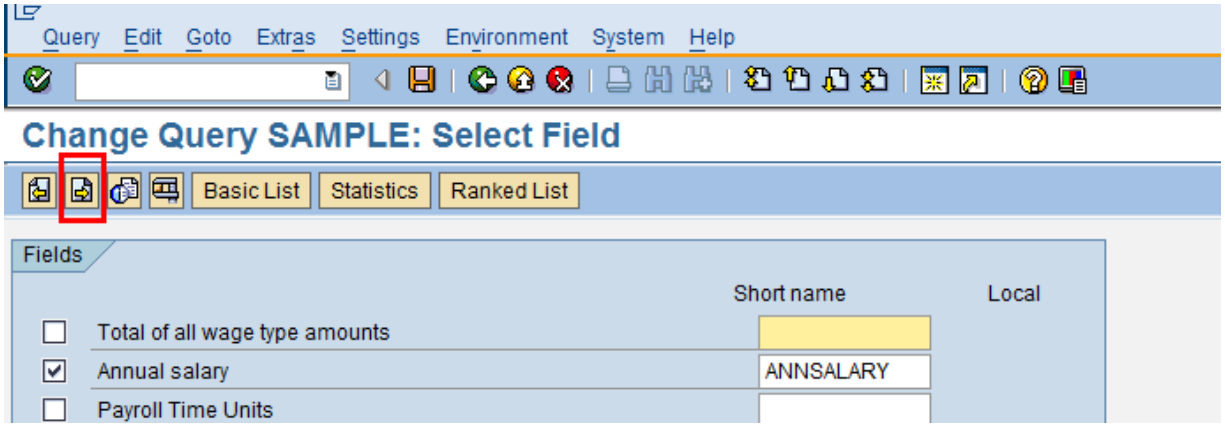
In this example, the value of SALINCR is defined as annual salary times four percent. The result will be stored in the field called SALINCR. Since the field was defined as twelve digits in length with 3 decimal places, this is how SALINCR will be stored and displayed in the report.

Once you have created the calculation, click on the green checkmark to continue. The system checks for errors in creating the local field. If there are no errors, you will be returned to the Select Fields screen.

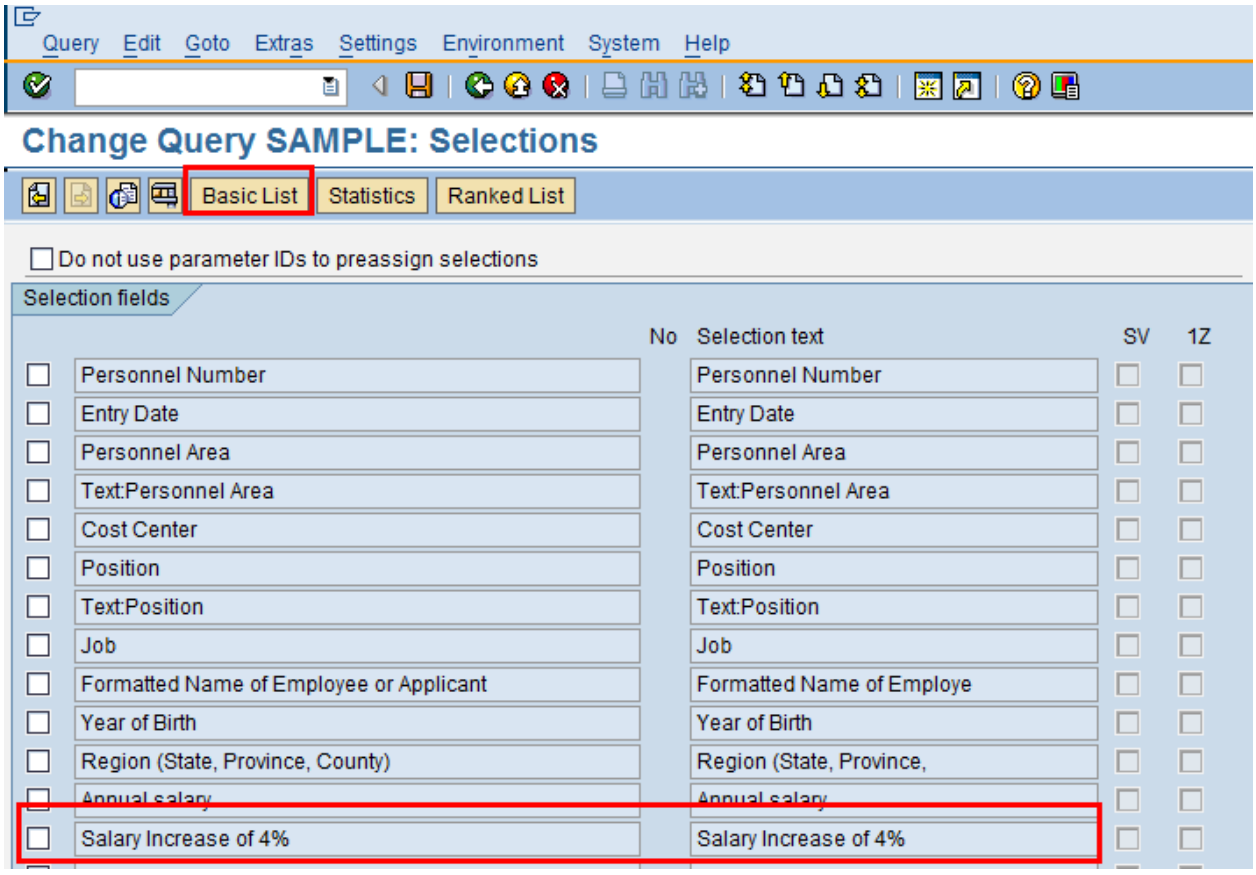


You will notice that a new local field is now listed as the last field under the Basic Pay infotype.

Click on “Next” to continue to the Select Fields screen (Screen #4).



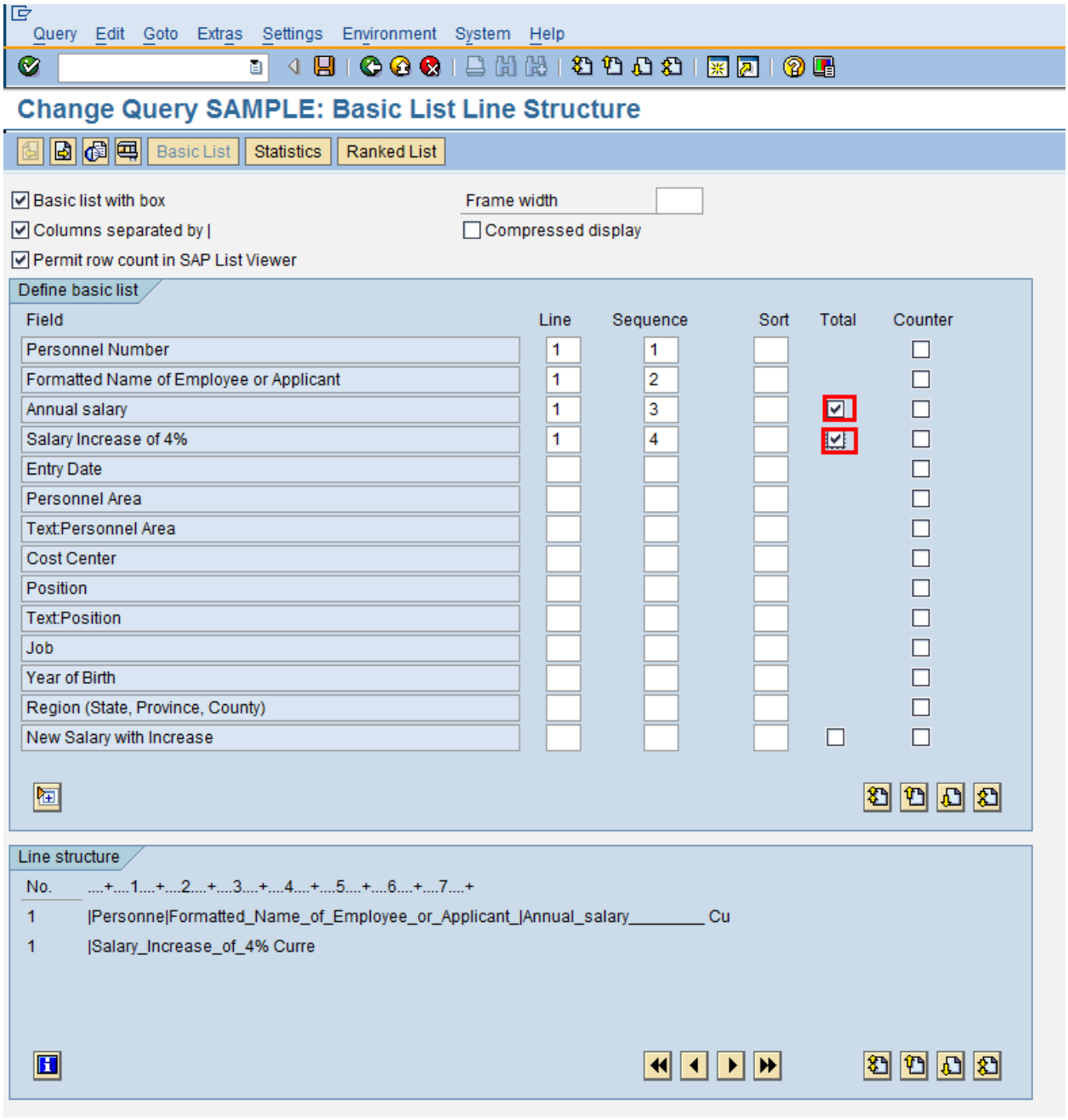
Screen #4 Selection Fields



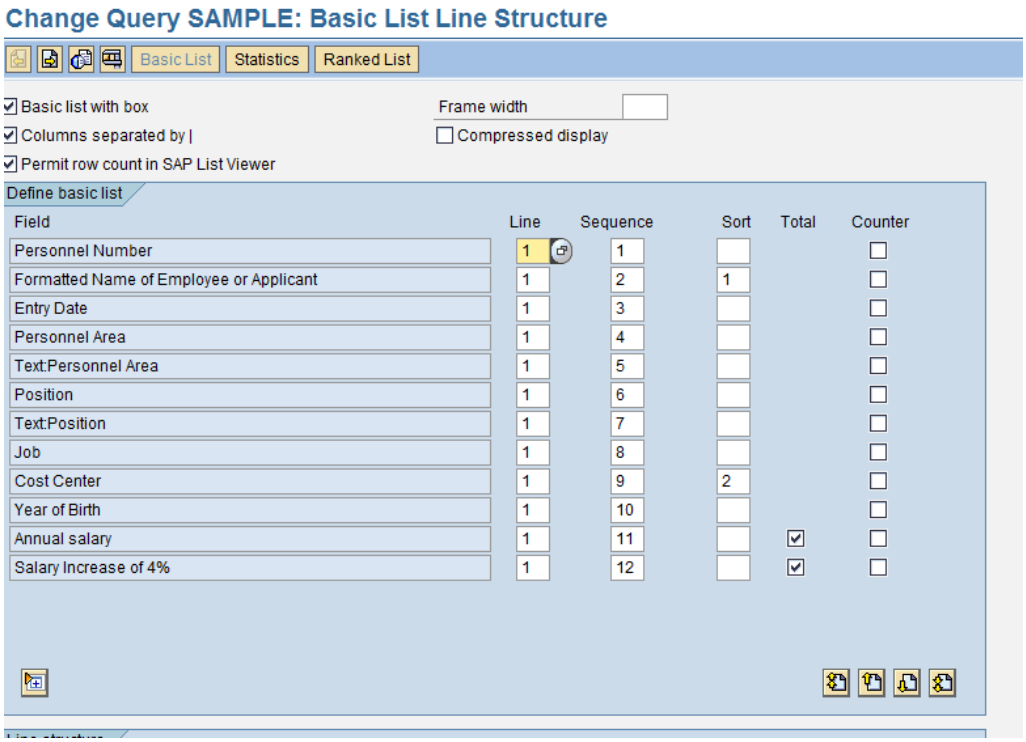
Notice that the new local field is now in the listing of fields that you can add to the selection screen. Here you may add the local field to you selection field screen. This means the new local field would appear on the screen used when executing the report.

To continue, click on the Basic List icon at the top of the screen.

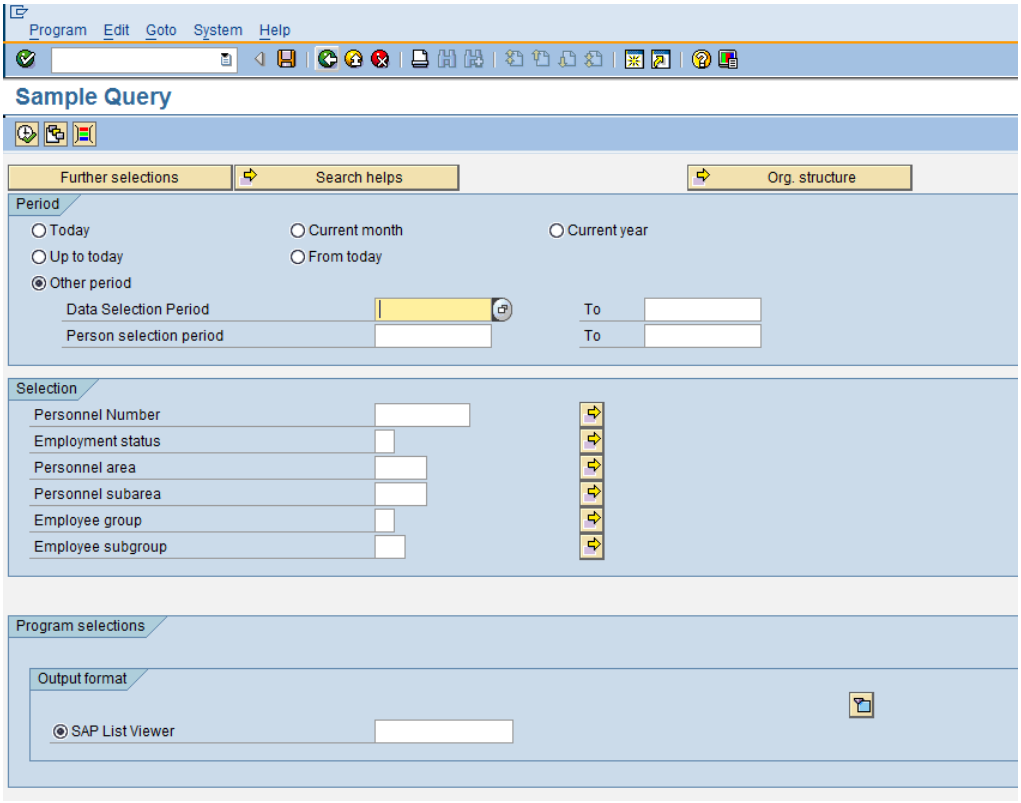
The new local field is now listed of the Basic Line Structure screen (Screen #5). This is the screen where you may add the local field as an output field on your report.



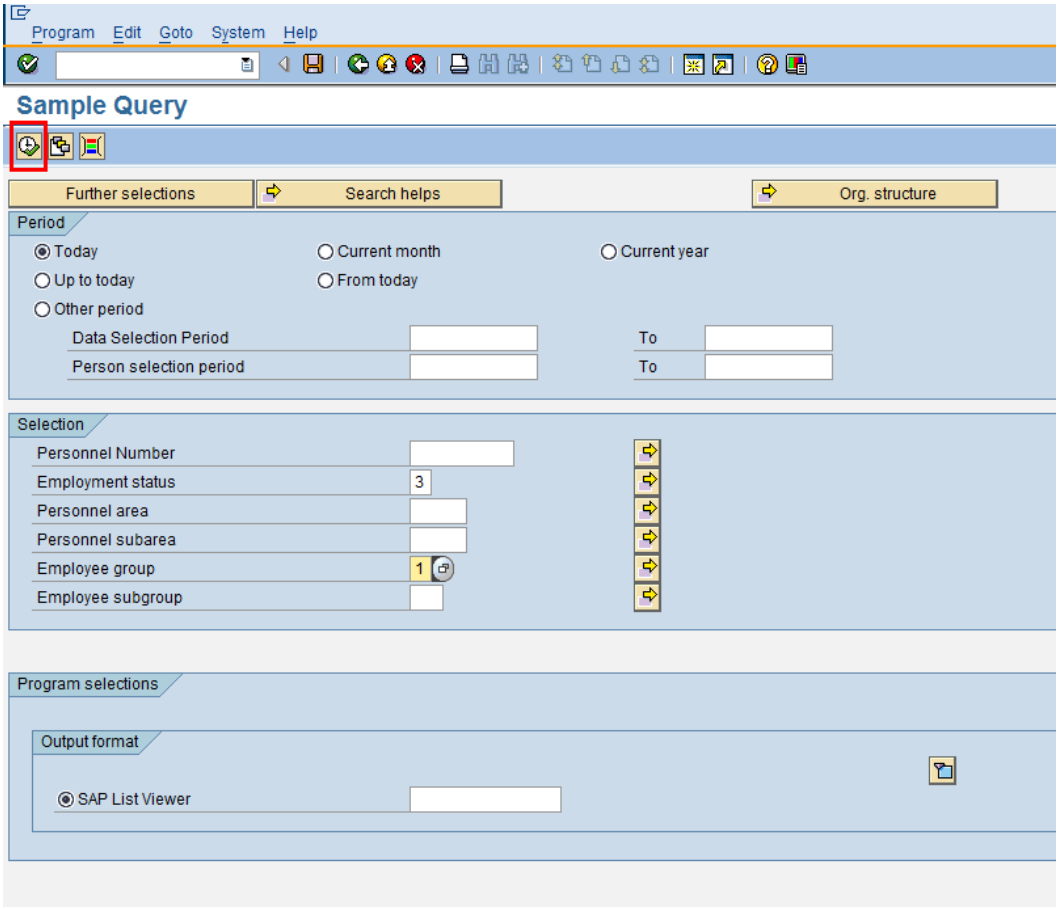
You can reorder the sequence of fields to display or simply add the line field to the end of the listing. Depending on the type of local field that you defined, you can have it total at the end of the report (numeric) or list as a count (non-numeric). Either way, the new field can be used to sort the output.


Change Query SAMPLE: Basic List Line Structure
Basic List
Statistics
Ranked List
Basic list with box
Columns separated by |
Permit row count in SAP List Viewer
Frame width
Compressed display
Define basic list
Field
Line
Sequence
Sort
Total
Counter
Personnel Number
Formatted Name of Employee or Applicant
Entry Date
Personnel Area
Text:Personnel Area
Position
Text:Position
Job
Cost Center
Year of Birth
Annual salary
Salary Increase of 4%

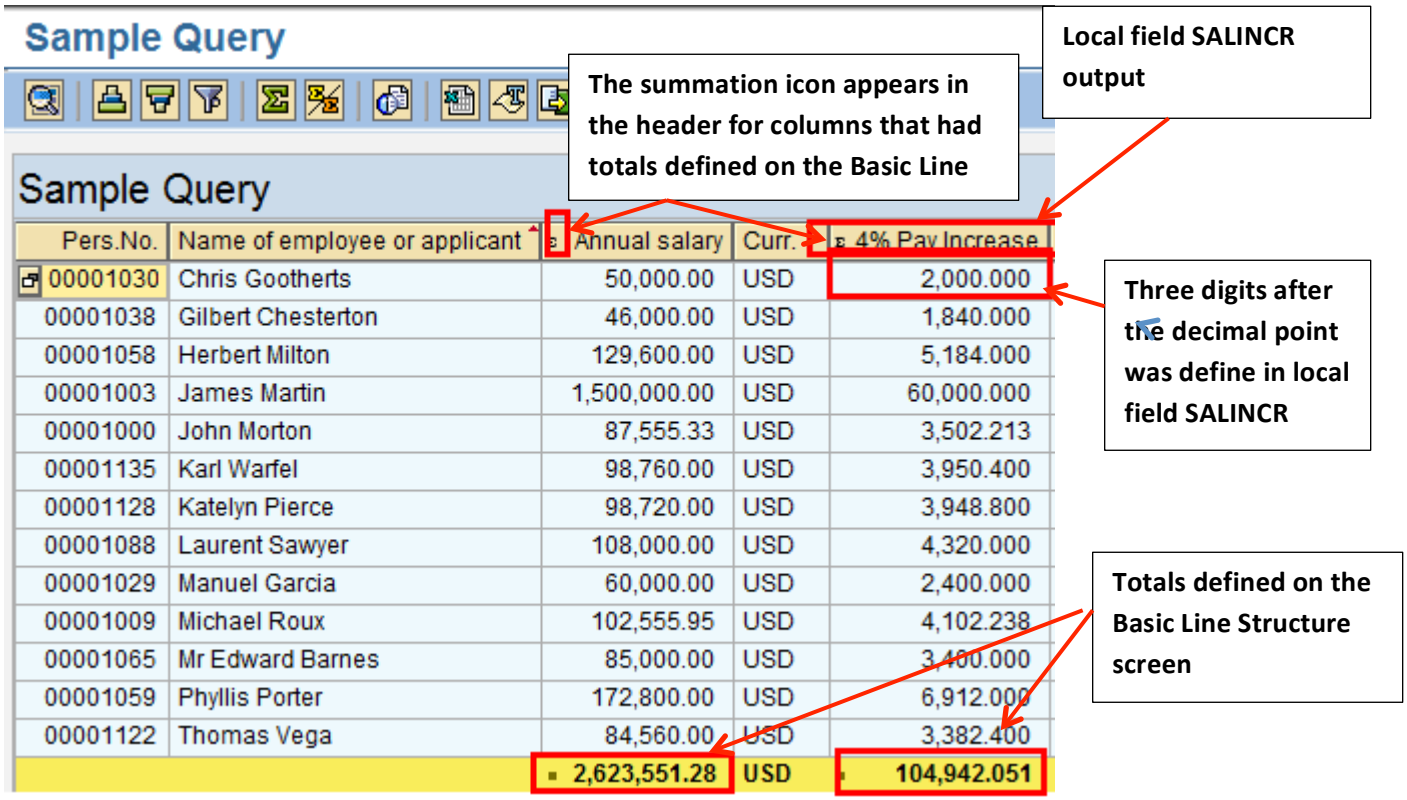
Click on F8 to execute. The selection screen will appear.



Make your selections and execute.


Program Edit Goto System Help
Sample Query
Further selections
Search helps
Org. structure
Period
Today
Current month
Current year
Up to today
From today
Other period
Data Selection Period
To
Person selection period
To
Selection
Personnel Number
Employment status
3
Personnel area
Personnel subarea
Employee group
1
Employee subgroup
Program selections
Output format
SAP List Viewer

The resulting report will display the new local field which calculated the amount of additional salary an employee would receive if a 4% increase was given:

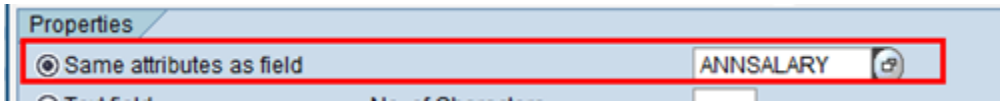


Pers.No.	Name of employee or applicant	Annual salary	Curr.	4% Pay Increase
00001030	Chris Gootherts	50,000.00	USD	2,000.000
00001038	Gilbert Chesterton	46,000.00	USD	1,840.000
00001058	Herbert Milton	129,600.00	USD	5,184.000
00001003	James Martin	1,500,000.00	USD	60,000.000
00001000	John Morton	87,555.33	USD	3,502.213
00001135	Karl Warfel	98,760.00	USD	3,950.400
00001128	Katelyn Pierce	98,720.00	USD	3,948.800
00001088	Laurent Sawyer	108,000.00	USD	4,320.000
00001029	Manuel Garcia	60,000.00	USD	2,400.000
00001009	Michael Roux	102,555.95	USD	4,102.238
00001065	Mr Edward Barnes	85,000.00	USD	3,400.000
00001059	Phyllis Porter	172,800.00	USD	6,912.000
00001122	Thomas Vega	84,560.00	USD	3,382.400
		2,623,551.28	USD	104,942.051

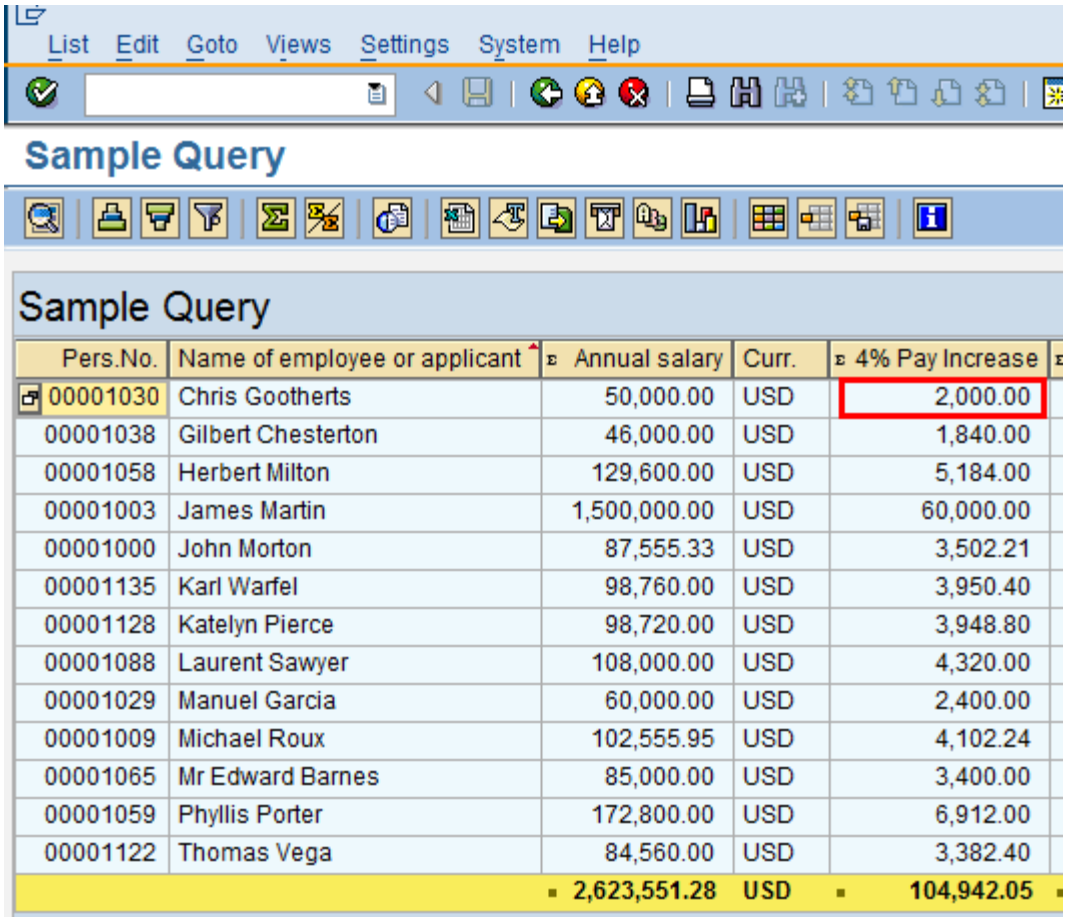
The output shows the annual salary of each employee and also the new local field that lists what a 4% annual salary increase would be. In addition, the total annual salaries and the total cost for a 4% salary for all employees is listed.

Since SALINCR was defined as a calculation field with 12 digits and 3 digits to the right of the decimal point, this is how the field displays 3 decimal places will display based on properties defined in local field:

If the property had been defined as the same attributes as field ANNSALRY,



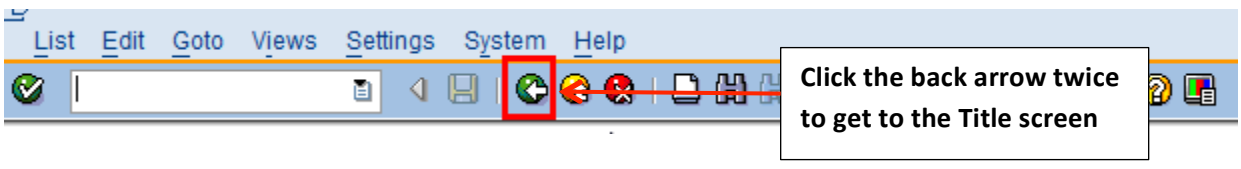
The local field “4% Pay Increase” will display with same format as Annual Salary:

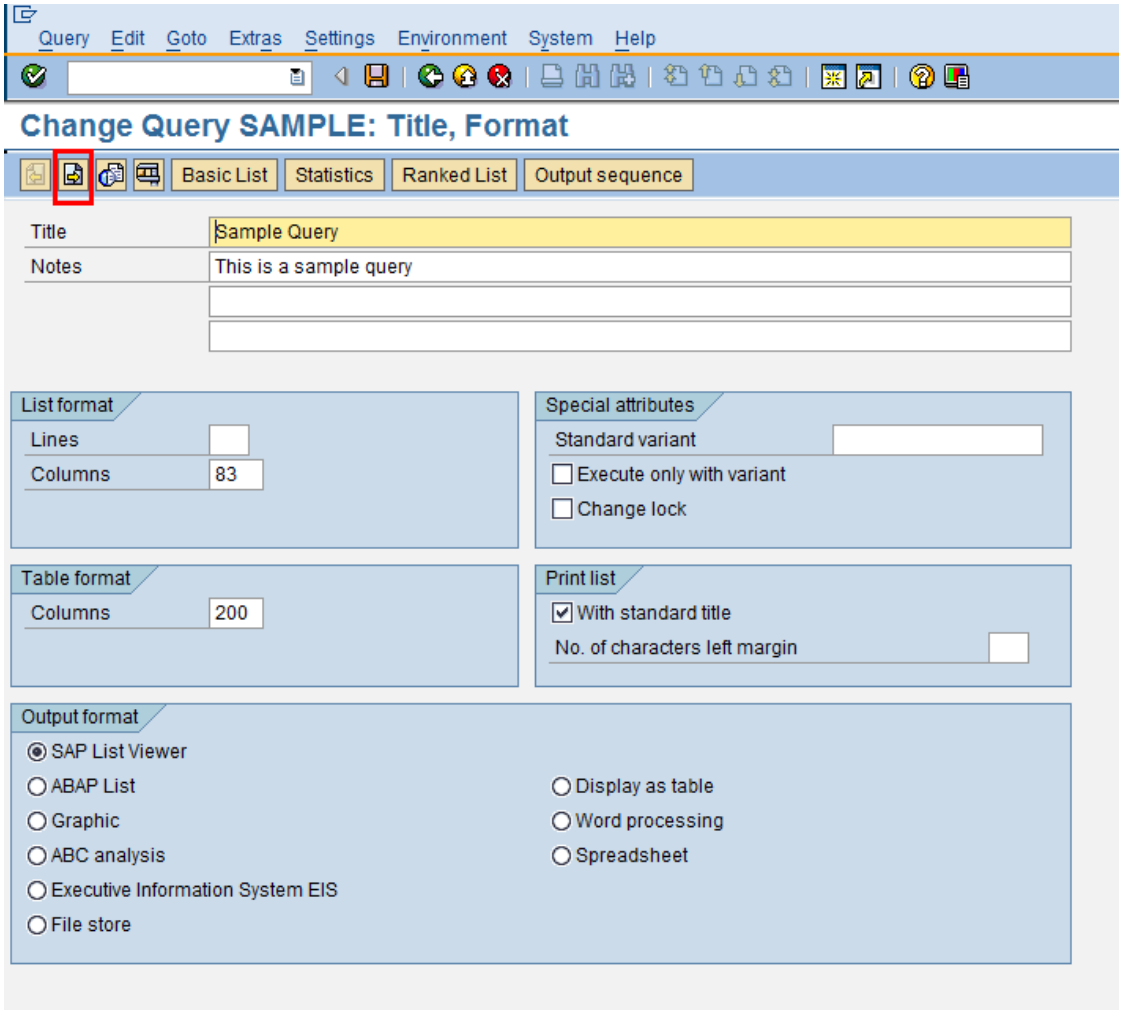


Pers.No.	Name of employee or applicant	Annual salary	Curr.	4% Pay Increase
00001030	Chris Gootherts	50,000.00	USD	2,000.00
00001038	Gilbert Chesterton	46,000.00	USD	1,840.00
00001058	Herbert Milton	129,600.00	USD	5,184.00
00001003	James Martin	1,500,000.00	USD	60,000.00
00001000	John Morton	87,555.33	USD	3,502.21
00001135	Karl Warfel	98,760.00	USD	3,950.40
00001128	Katelyn Pierce	98,720.00	USD	3,948.80
00001088	Laurent Sawyer	108,000.00	USD	4,320.00
00001029	Manuel Garcia	60,000.00	USD	2,400.00
00001009	Michael Roux	102,555.95	USD	4,102.24
00001065	Mr Edward Barnes	85,000.00	USD	3,400.00
00001059	Phyllis Porter	172,800.00	USD	6,912.00
00001122	Thomas Vega	84,560.00	USD	3,382.40
		2,623,551.28	USD	104,942.05

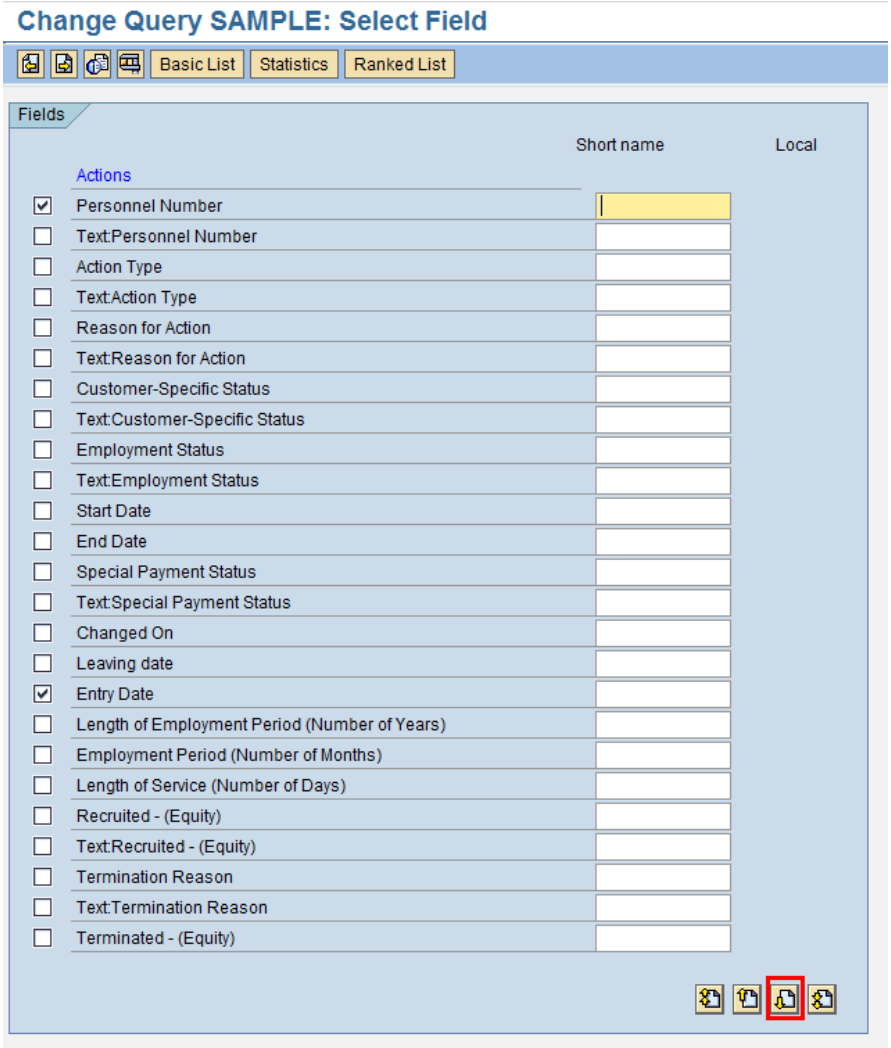
To expand on the usage of this local field, we can identify all new salaries that fall below a certain rate. The Compensation department may wish to review the wages for these employees to see if they need to receive an additional adjustment. We can flag these low earners in a new column. For this example, we will reference a previously defined local field (SALINCR) to perform a calculation. This new local field will then be used in another new local field to see if it meets the low earning condition.

Referencing previously defined local field in a new local field. We can reference the local field that we just created in a new local field. To do this, we would back out of the query results using the green back arrow twice.

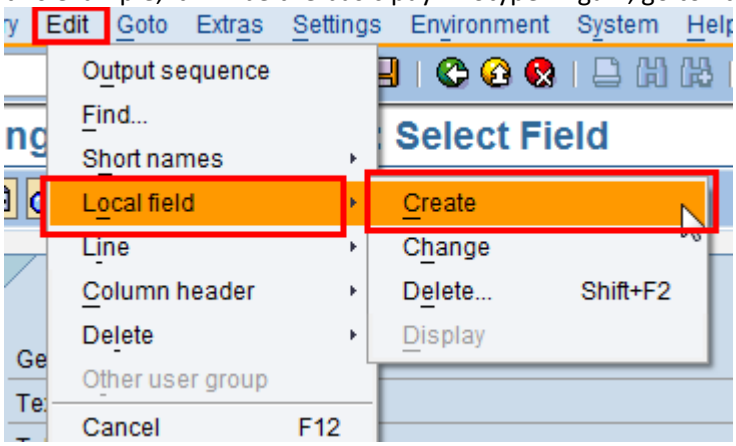




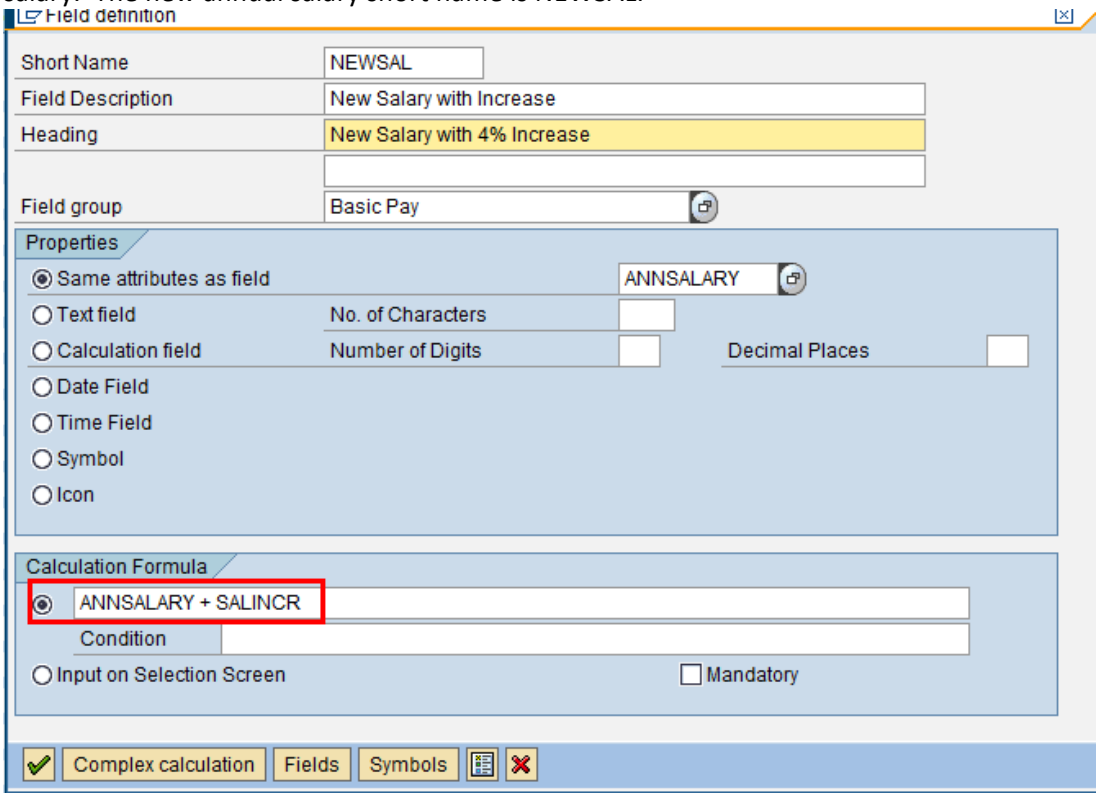
Now you can forward through the screens using  until you reach the "Field Selections" screen (Screen #3) where we will define the new local fields.



Scroll down the list of infotypes until you are at the infotype that you wish to add the local field to. In this example, it will be the basic pay infotype. Again, go to **Edit→Local Field→Create:**



When the field definition screen appears, we will create a local field with a formula. We will add the local field SALINCR (the 4% salary increase amount) to the current annual salary to arrive at the new salary. The new annual salary short name is NEWSAL.

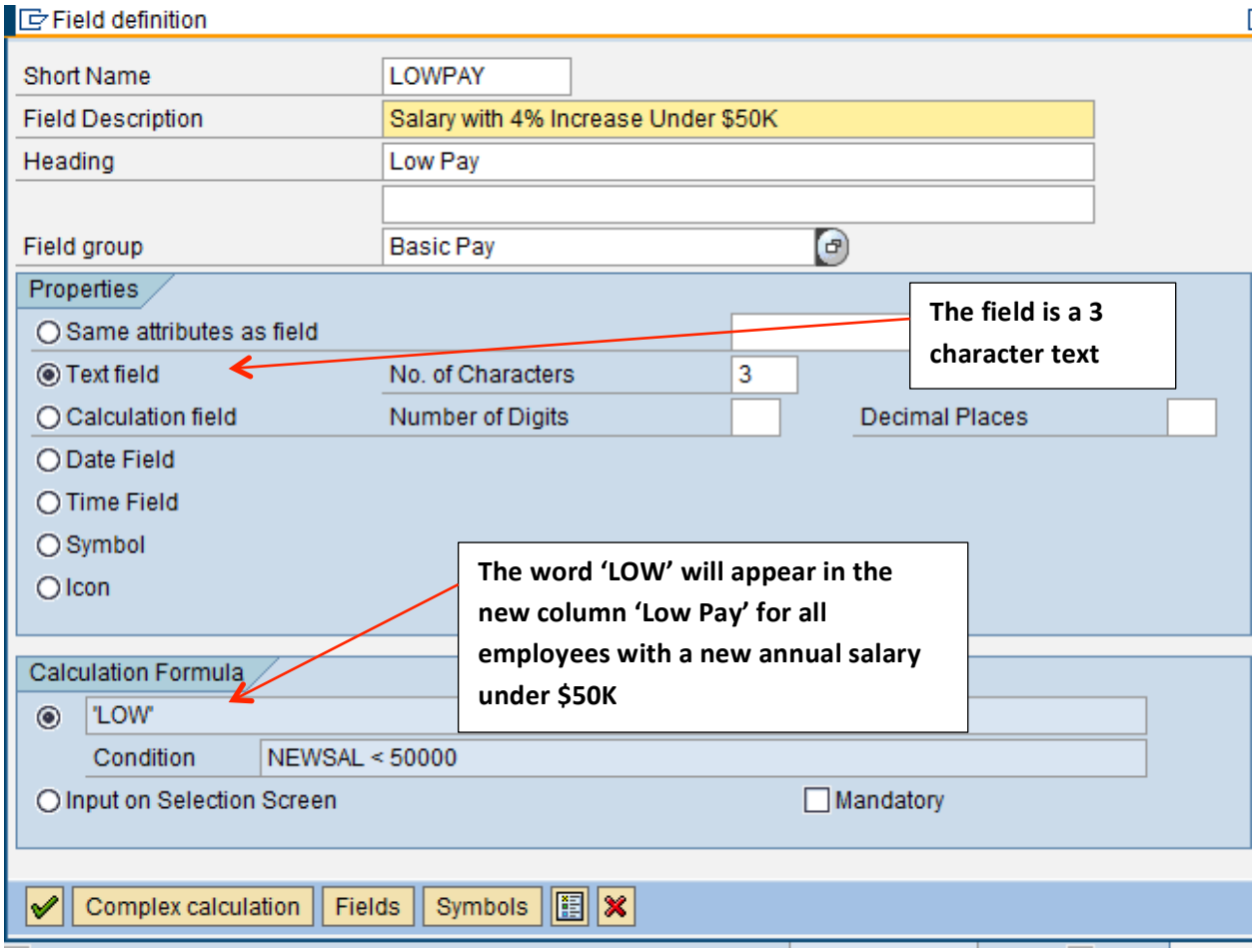


Click on the green checkmark to finish this field definition.

Use of Formulas with a Simple Condition

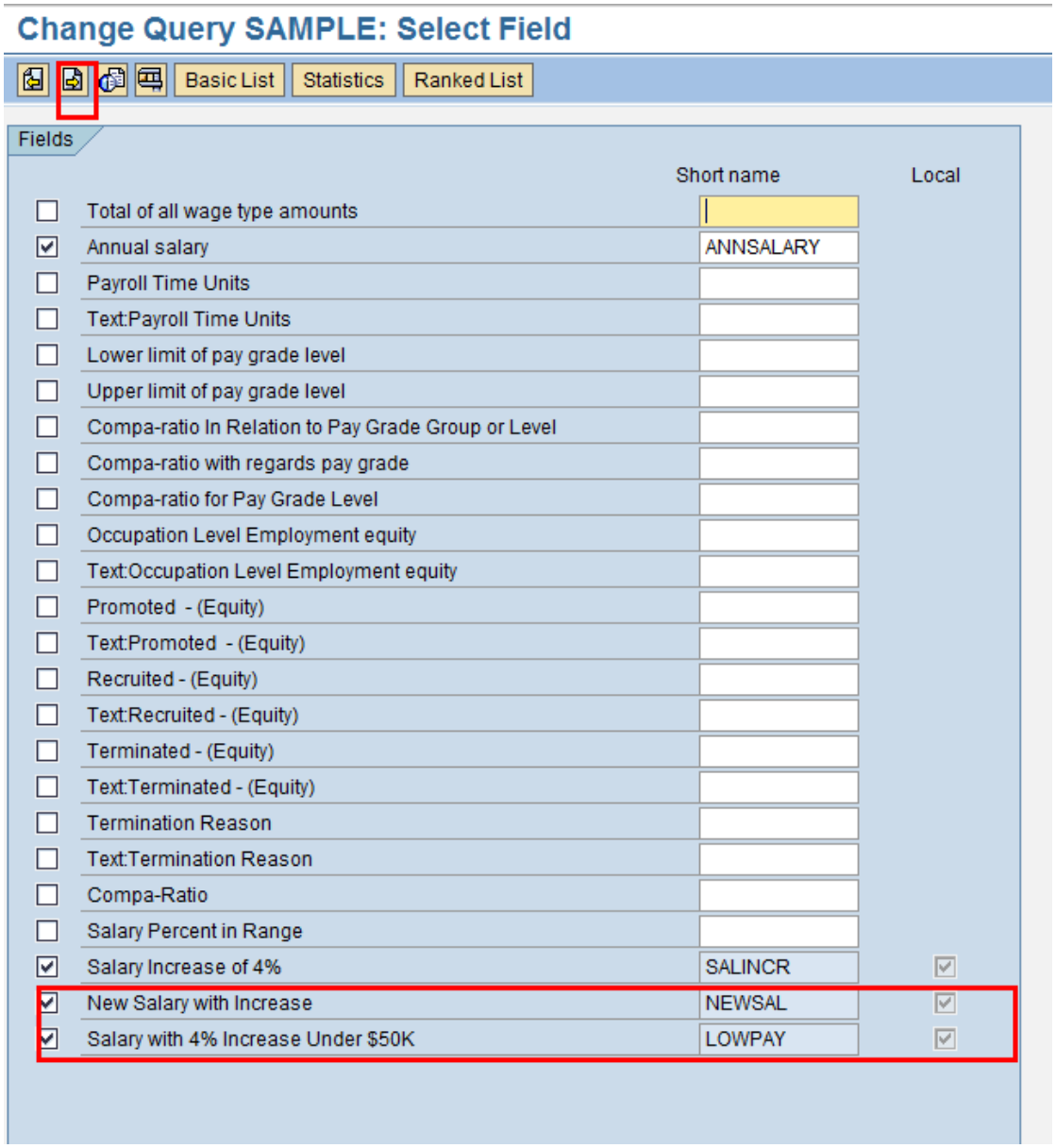
You can use local fields to identify records that meet certain conditions. Local fields can also display a value in the report if a condition is met. The local field would contain an IF-THEN statement: if a certain condition is met, then the local field would contain a specified value.

Continuing with our example, we can create another local field called LOWPAY. This field will use the result of local field NEWSAL (current salary + 4% increase) to determine the value of LOWPAY. We will create a condition to see If NEWSAL is less than $50,000. If the value of NEWSAL is less than $50,000, then the field LOWPAY will display 'LOW'. See the field definition details below:

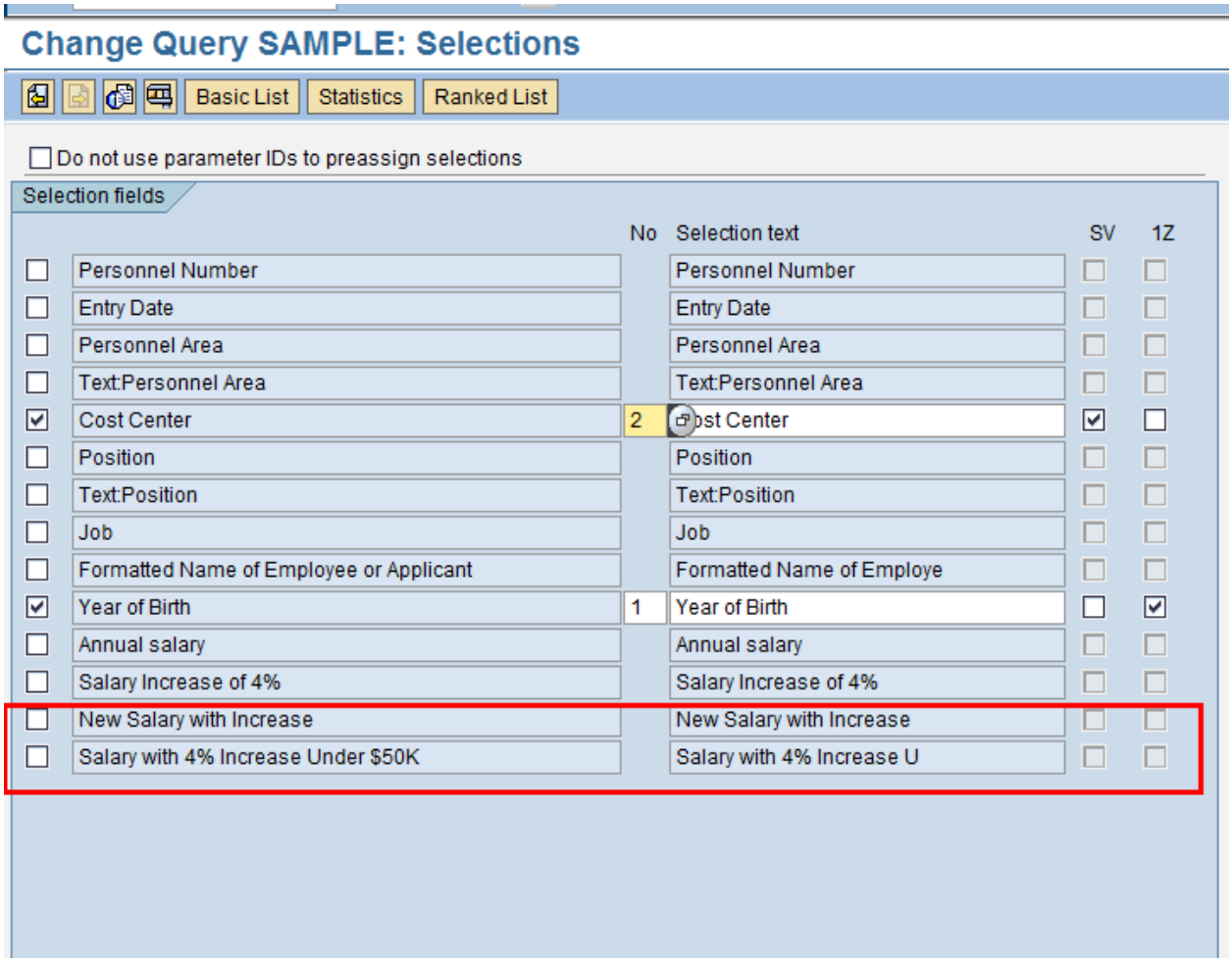


The new field LOWPAY checks a condition (the value of the new salary). If the value is less than $50,000, 'LOW' will appear on the report under the column 'Low Pay'.

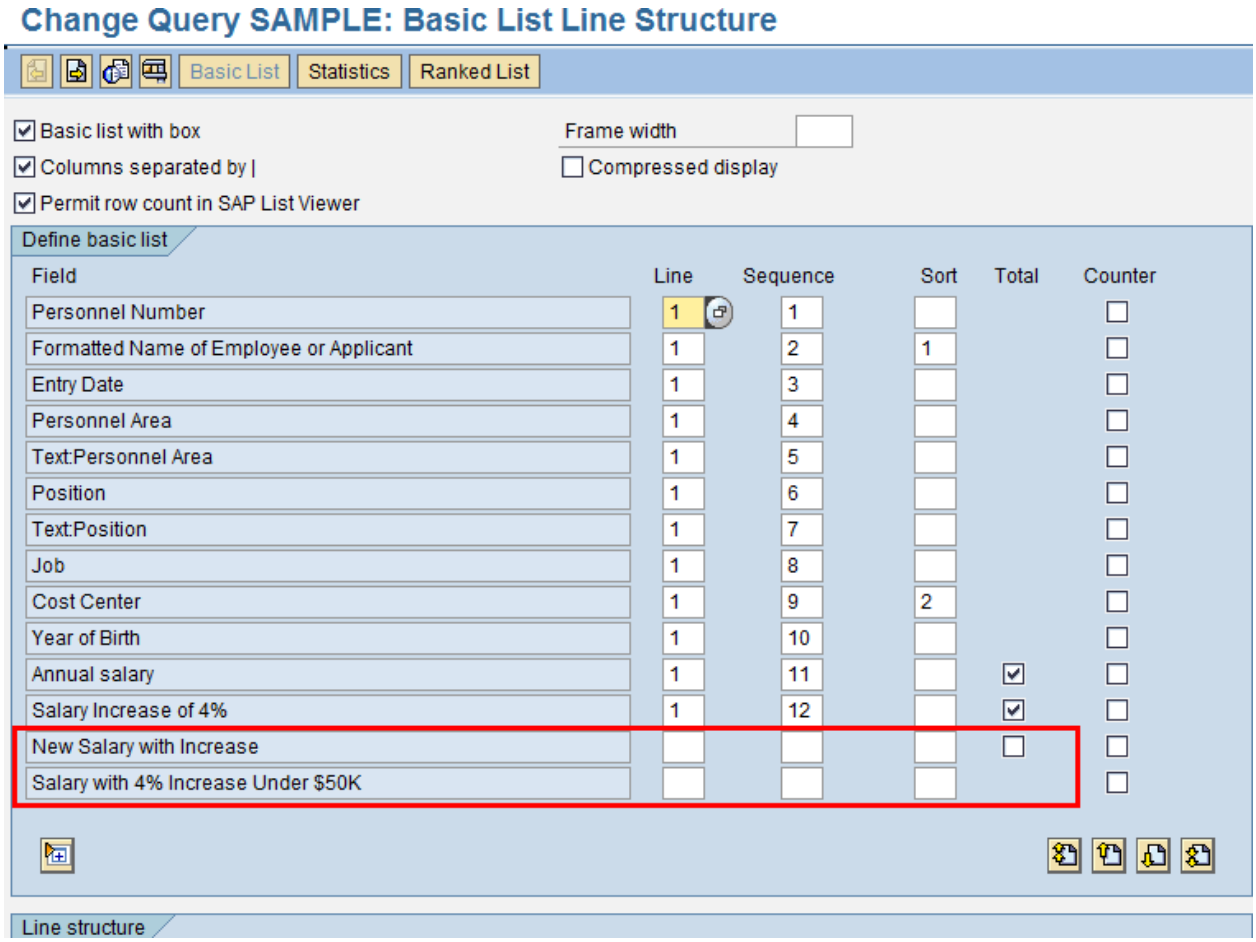
Click on the green checkmark to return to the Select Field screen. You will notice that the new local fields are now listed:



Click on “Next” to continue to the next screen:



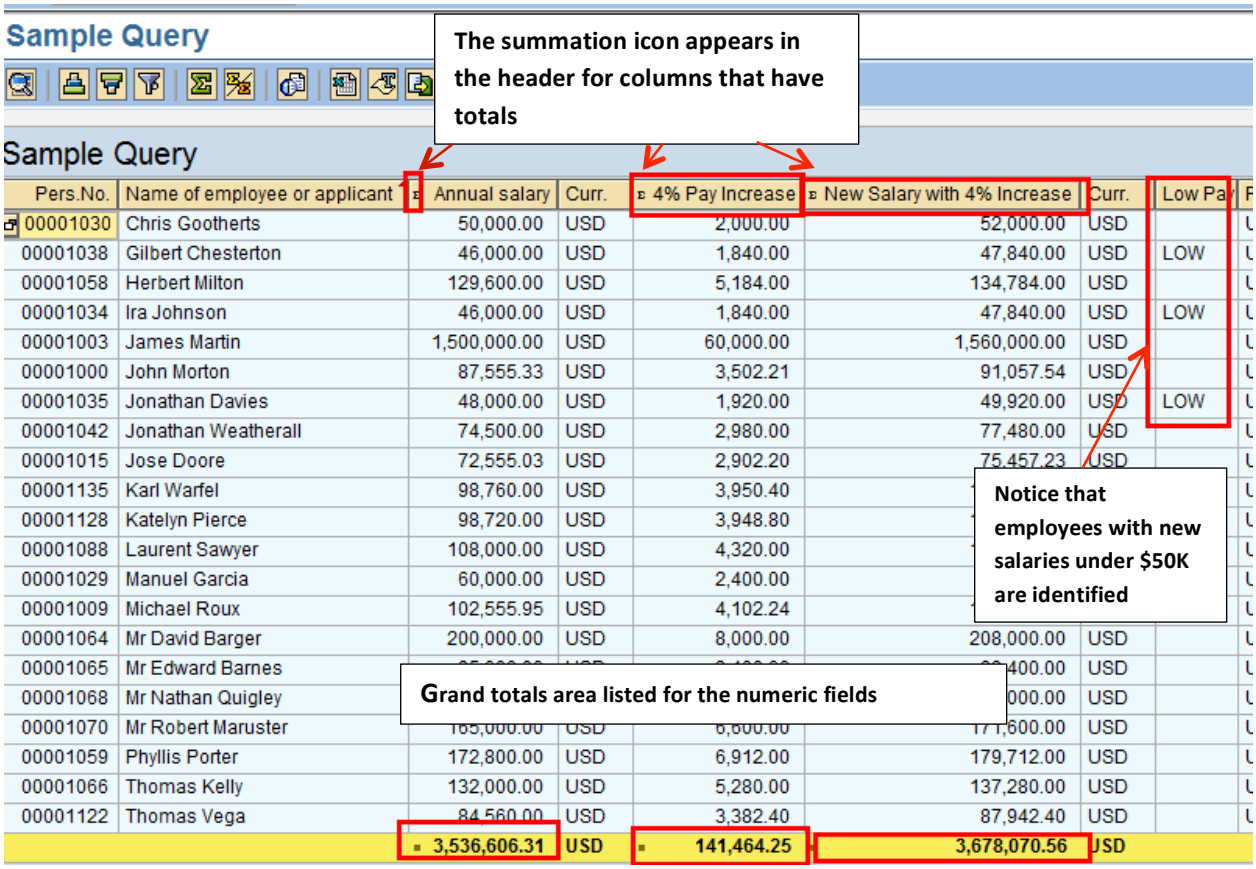
You may now add the new local fields to your selection screen if you wish. If not, click on Basic List to continue to Screen #5, Basic Line Structure. Here we can add the new local fields to the report.



The new local fields appear here as well. Add them to the output by selecting the line and sequence order. Since the new salary increase field is numeric, you may select to have total at the end of the report.

Click on F8 to execute the query. The query selection screen will appear, fill in your selection options and execute:

After executing the query, the results will display:



Pers.No.	Name of employee or applicant	Annual salary	Curr.	4% Pay Increase	New Salary with 4% Increase	Curr.	Low Pay	F
00001030	Chris Gootherts	50,000.00	USD	2,000.00	52,000.00	USD		U
00001038	Gilbert Chesterton	46,000.00	USD	1,840.00	47,840.00	USD	LOW	U
00001058	Herbert Milton	129,600.00	USD	5,184.00	134,784.00	USD		U
00001034	Ira Johnson	46,000.00	USD	1,840.00	47,840.00	USD	LOW	U
00001003	James Martin	1,500,000.00	USD	60,000.00	1,560,000.00	USD		U
00001000	John Morton	87,555.33	USD	3,502.21	91,057.54	USD		U
00001035	Jonathan Davies	48,000.00	USD	1,920.00	49,920.00	USD	LOW	U
00001042	Jonathan Weatherall	74,500.00	USD	2,980.00	77,480.00	USD		U
00001015	Jose Doore	72,555.03	USD	2,902.20	75,457.23	USD		U
00001135	Karl Warfel	98,760.00	USD	3,950.40				U
00001128	Katelyn Pierce	98,720.00	USD	3,948.80				U
00001088	Laurent Sawyer	108,000.00	USD	4,320.00				U
00001029	Manuel Garcia	60,000.00	USD	2,400.00				U
00001009	Michael Roux	102,555.95	USD	4,102.24				U
00001064	Mr David Barger	200,000.00	USD	8,000.00	208,000.00	USD		U
00001065	Mr Edward Barnes				400.00	USD		U
00001068	Mr Nathan Quigley				000.00	USD		U
00001070	Mr Robert Maruster	165,000.00	USD	6,600.00	171,600.00	USD		U
00001059	Phyllis Porter	172,800.00	USD	6,912.00	179,712.00	USD		U
00001066	Thomas Kelly	132,000.00	USD	5,280.00	137,280.00	USD		U
00001122	Thomas Vega	84,560.00	USD	3,382.40	87,942.40	USD		U
		3,536,606.31	USD	141,464.25	3,678,070.56	USD		

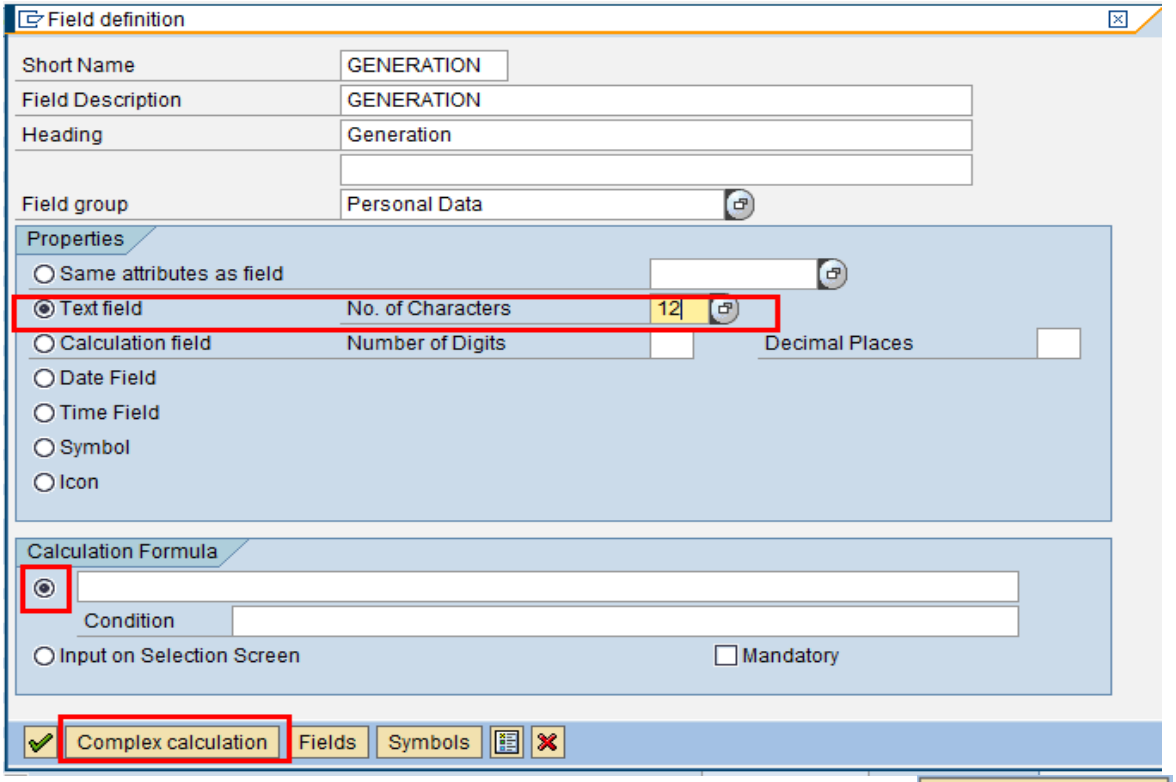
More on Conditions

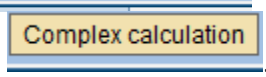
We have now seen how to give fields short names to use in local field formulas. In addition, we have created calculations that can be displayed on reports. We have also defined a local field that will display text if a single condition is met. And we have seen how a symbol or icon can be displayed on a report if certain conditions are met. We will continue with more ways to use conditions.

A local field may display different values based on meeting one of multiple conditions. As an example, the Benefits Manager comes to the HRIS department seeking a report which identifies employees based on the age range. They hope to do a mailing targeted to the certain demographics. The Baby Boomers are nearing retirement age, so they would receive brochures about financial planning for retirement. Boomers are dealing with aging parents as well, so they may be targeted to receive emails about an upcoming seminar on elder care. Similarly, Gen Xers haven't been too keen on utilizing the company 401(k) plan. The Benefits department may wish to target these employees to receive information on this plan.

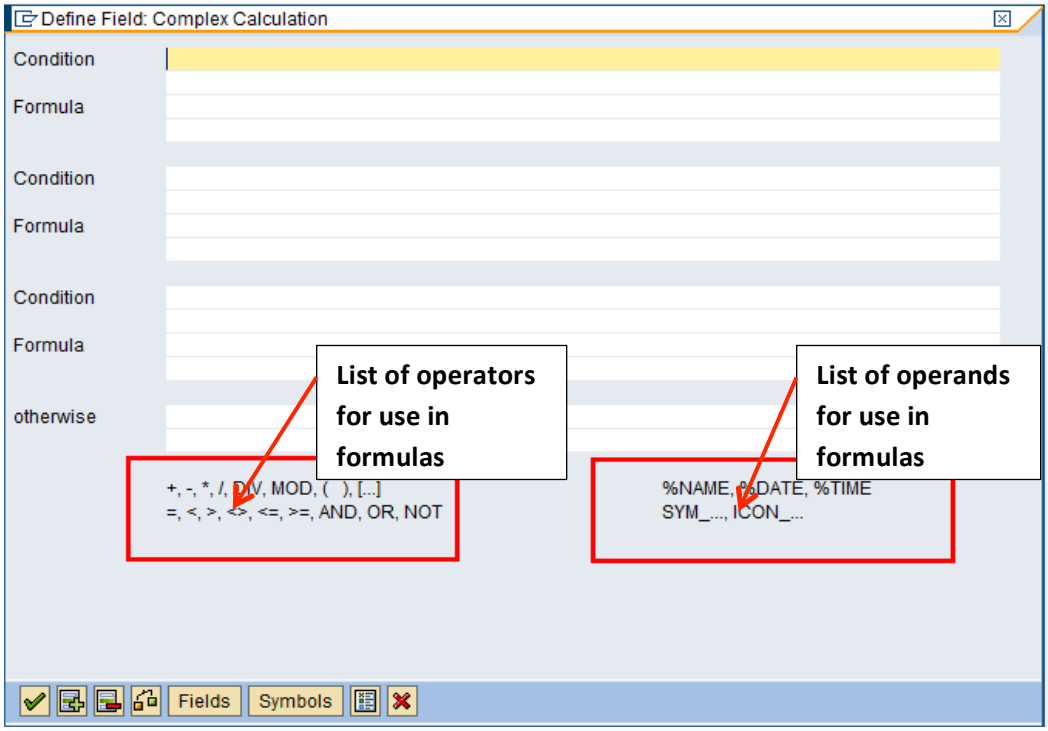
We can create a short name for Year of Birth called AGERANGE.

We will then reference this short name in a new local field called GENERATION. This will be a 12 character text field. Based on the groupings of years (a condition), we will define names for these generations.



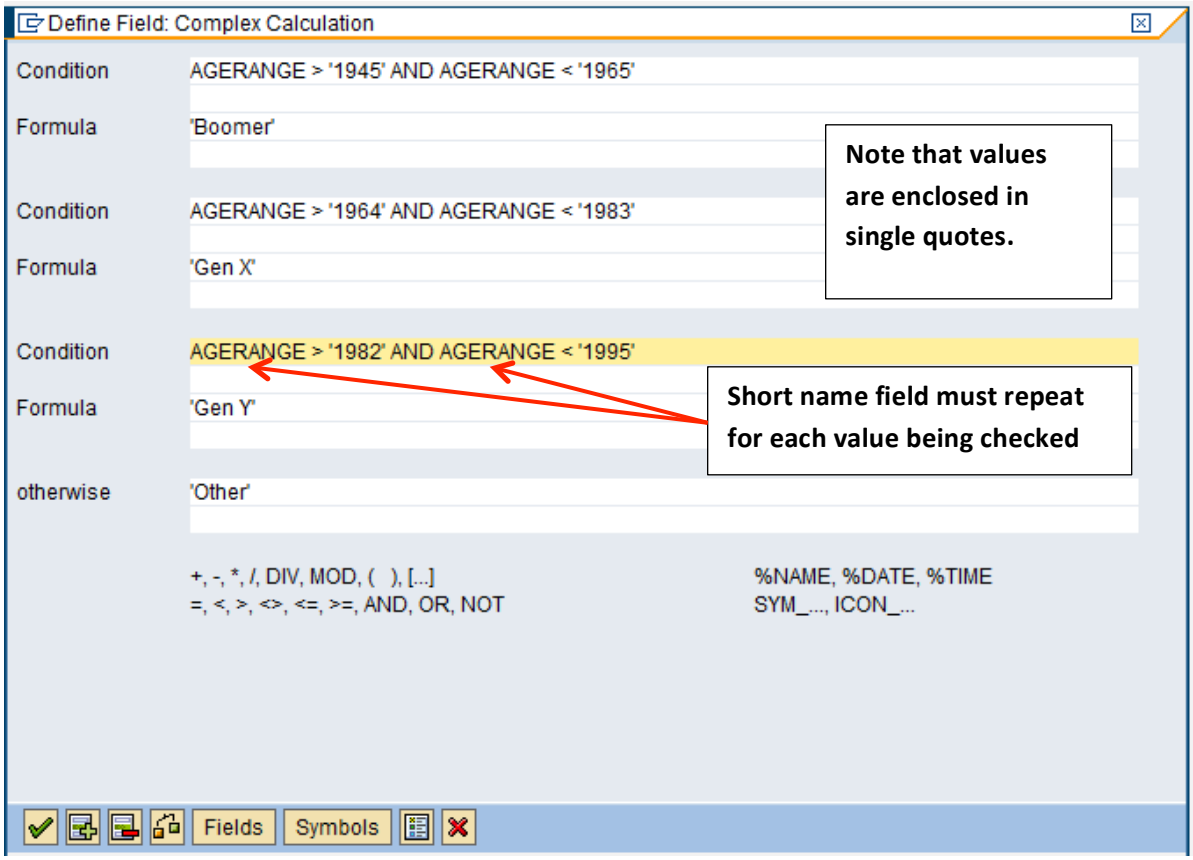
Make sure that the Calculation Formula radio button is selected and click on 

.

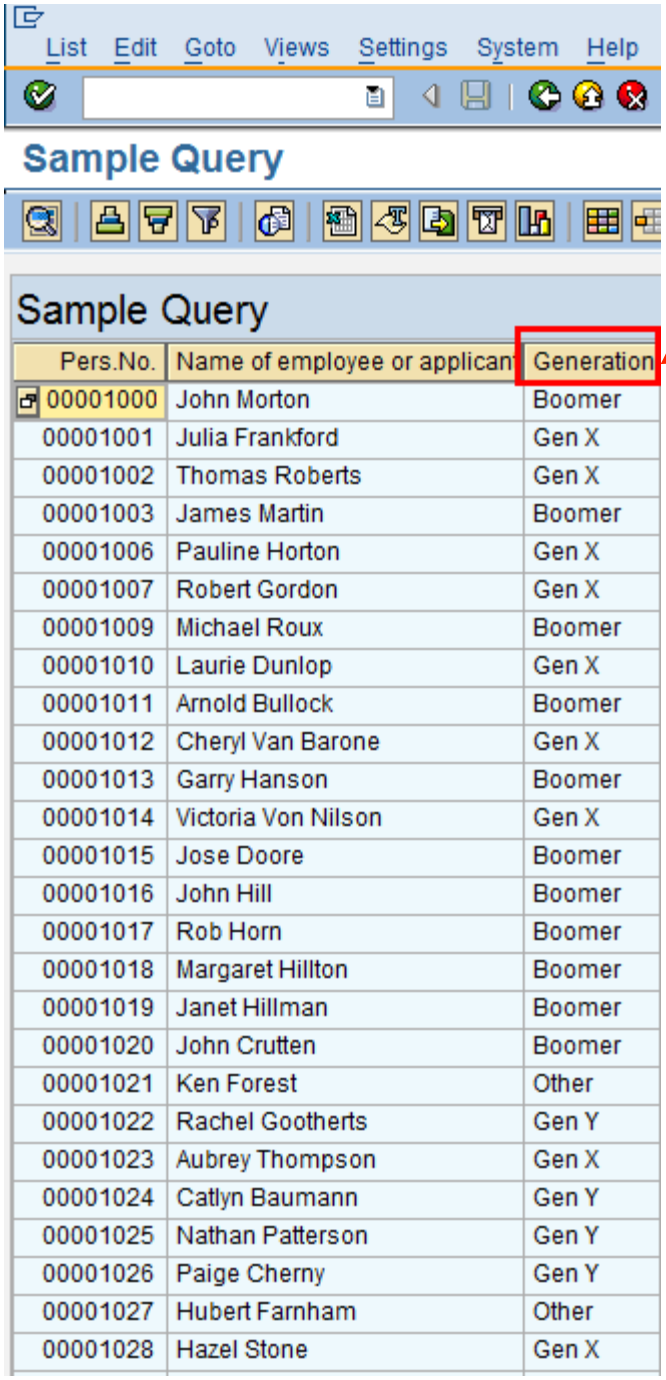


Here we are defining the conditions based on AGERANGE (year of birth). A different value will be displayed based on the condition.

In our example, AGERANGE (year of birth field) is looked at. If the year is between 1946 and 1964, then the value of AGERANGE is 'Boomer'. We use the '<' and '>' operators to check the value of AGERANGE. If AGERANGE is within this range, then the value of our new local field is 'Boomer'. Those born between 1965 and 1982 (AGERANGE > '1964' AND AGERANGE < '1983') are 'Generation X'; those born between 1983 and 1994 are part of Generation Y (AGERANGE > '1982' and AGERANGE < '1995'). For all the rest, the value of GENERATION will be 'Other'. This would include those born before 1946 and after 1995.



The results of the query:



Sample Query

Pers.No.	Name of employee or applicant	Generation
00001000	John Morton	Boomer
00001001	Julia Frankford	Gen X
00001002	Thomas Roberts	Gen X
00001003	James Martin	Boomer
00001006	Pauline Horton	Gen X
00001007	Robert Gordon	Gen X
00001009	Michael Roux	Boomer
00001010	Laurie Dunlop	Gen X
00001011	Arnold Bullock	Boomer
00001012	Cheryl Van Barone	Gen X
00001013	Garry Hanson	Boomer
00001014	Victoria Von Nilson	Gen X
00001015	Jose Doore	Boomer
00001016	John Hill	Boomer
00001017	Rob Horn	Boomer
00001018	Margaret Hillton	Boomer
00001019	Janet Hillman	Boomer
00001020	John Crutten	Boomer
00001021	Ken Forest	Other
00001022	Rachel Gootherts	Gen Y
00001023	Aubrey Thompson	Gen X
00001024	Catlyn Baumann	Gen Y
00001025	Nathan Patterson	Gen Y
00001026	Paige Cherny	Gen Y
00001027	Hubert Farnham	Other
00001028	Hazel Stone	Gen X

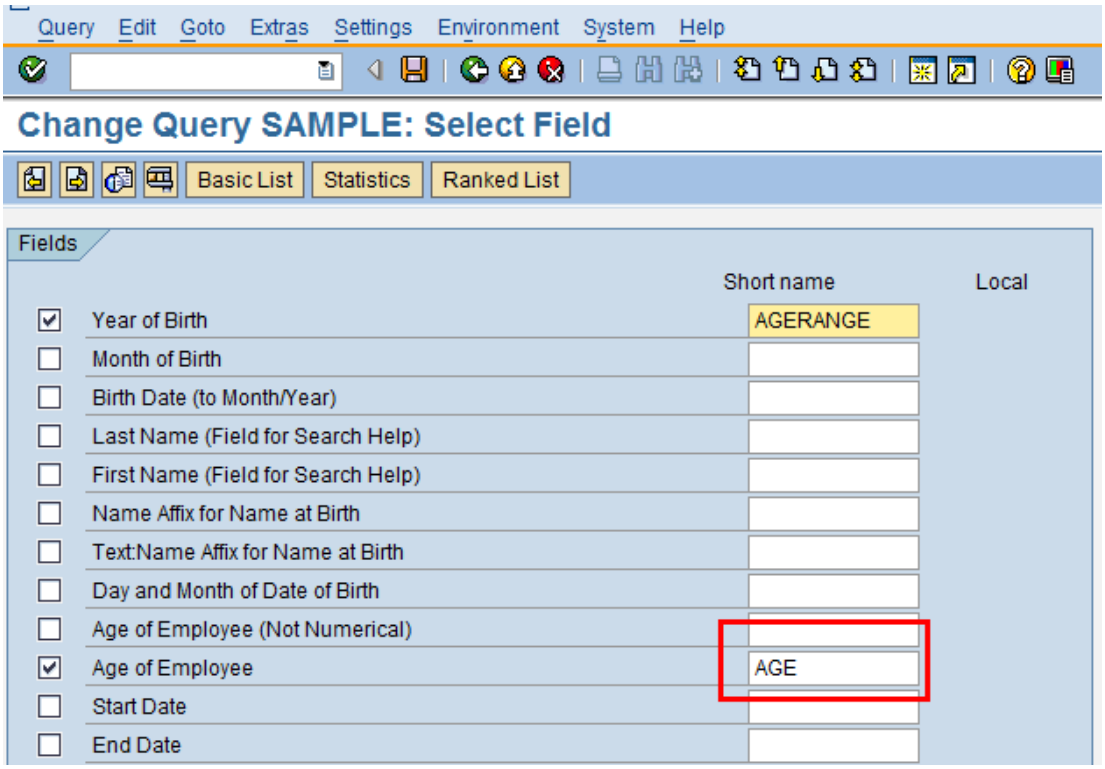
Notice the new column called 'Generation'. The output is based on a complex condition.

The value of this field is dependent on the age ranges defined in the local field called GENERATION

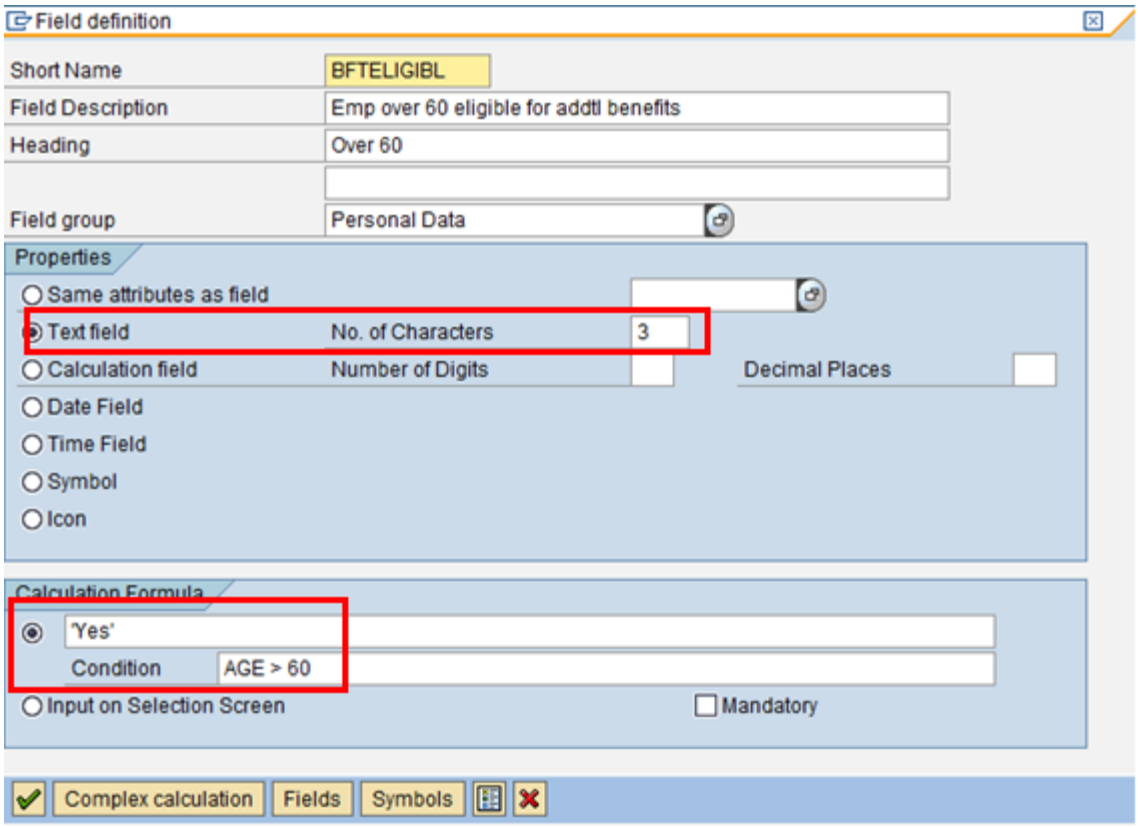
Another example of a condition.

Let's say the Benefits Manager also wants to know which employees are over 60 years of age. They may want to project potential retirements in the near future. To do this, we can reference the age field and check if it is greater than 60. If it is, 'Yes' will be displayed in a new column on the report.

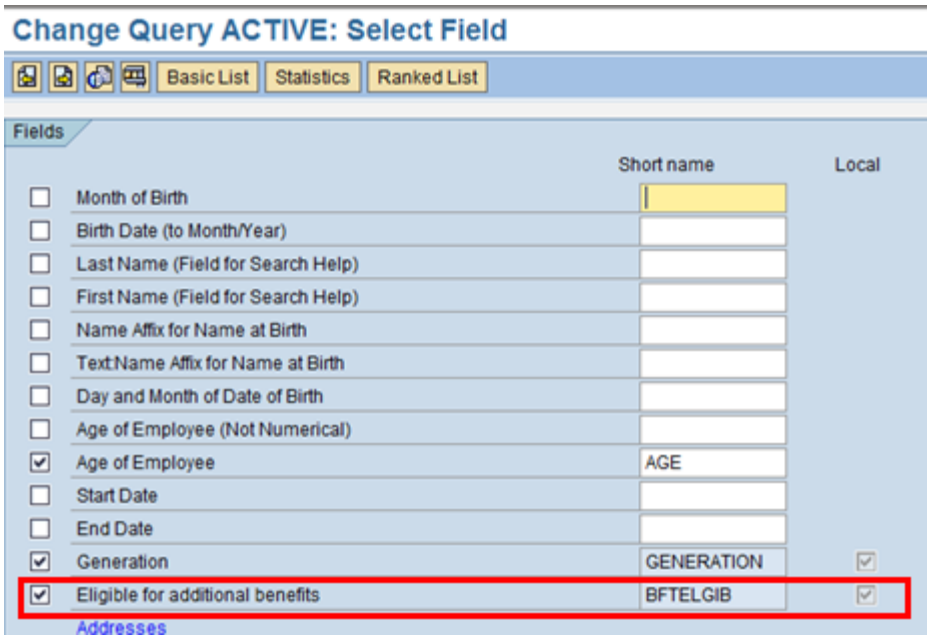
First we would give Age of Employee a short name of 'AGE':



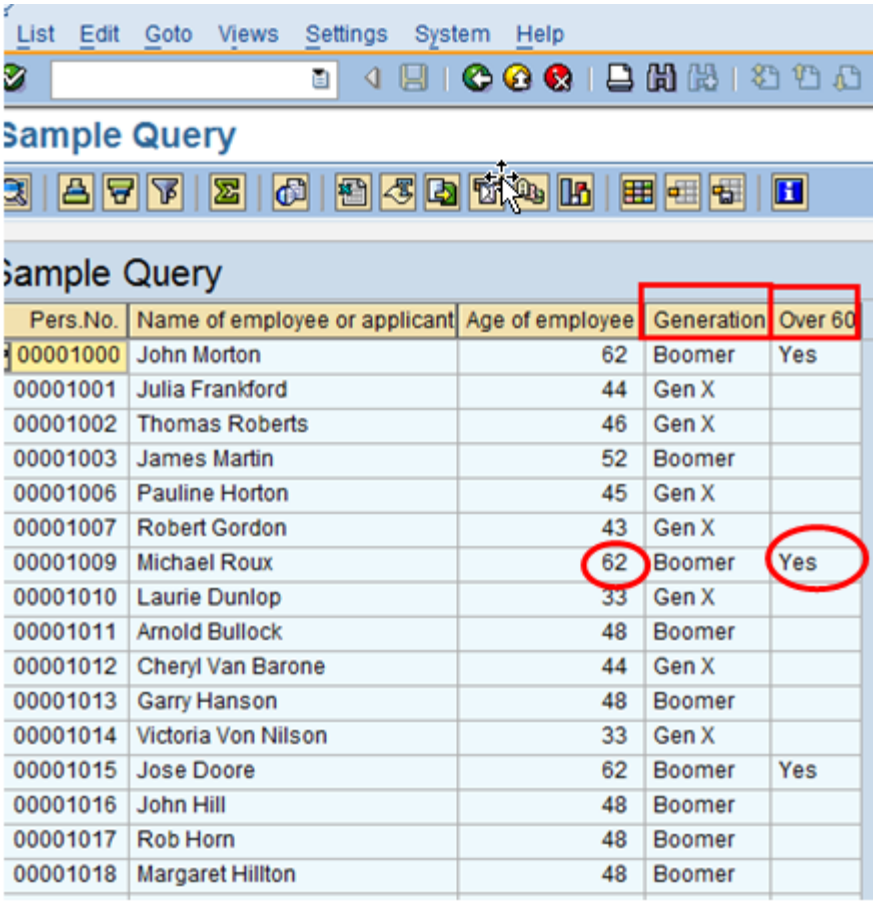
Next, we would create a new local field which would check if AGE is greater than 60:



The field is defined as a 3 character text field that would display 'Yes' if the age is greater than 60. Once the local field is created, you are returned to the Select Field screen and you see the new local field listed.


Change Query ACTIVE: Select Field
Basic List
Statistics
Ranked List
Fields
Short name
Local
Month of Birth
Birth Date (to Month/Year)
Last Name (Field for Search Help)
First Name (Field for Search Help)
Name Affix for Name at Birth
Text:Name Affix for Name at Birth
Day and Month of Date of Birth
Age of Employee (Not Numerical)
Age of Employee
AGE
Start Date
End Date
Generation
GENERATION
Eligible for additional benefits
BFTELGIB
Addresses

Results:

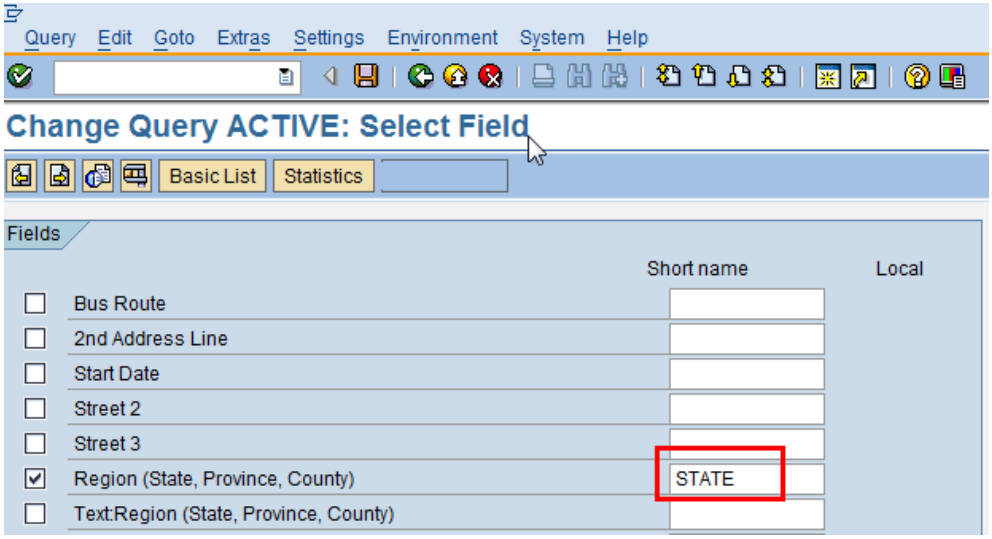


Pers.No.	Name of employee or applicant	Age of employee	Generation	Over 60
00001000	John Morton	62	Boomer	Yes
00001001	Julia Frankford	44	Gen X	
00001002	Thomas Roberts	46	Gen X	
00001003	James Martin	52	Boomer	
00001006	Pauline Horton	45	Gen X	
00001007	Robert Gordon	43	Gen X	
00001009	Michael Roux	62	Boomer	Yes
00001010	Laurie Dunlop	33	Gen X	
00001011	Arnold Bullock	48	Boomer	
00001012	Cheryl Van Barone	44	Gen X	
00001013	Garry Hanson	48	Boomer	
00001014	Victoria Von Nilson	33	Gen X	
00001015	Jose Doore	62	Boomer	Yes
00001016	John Hill	48	Boomer	
00001017	Rob Horn	48	Boomer	
00001018	Margaret Hillton	48	Boomer	

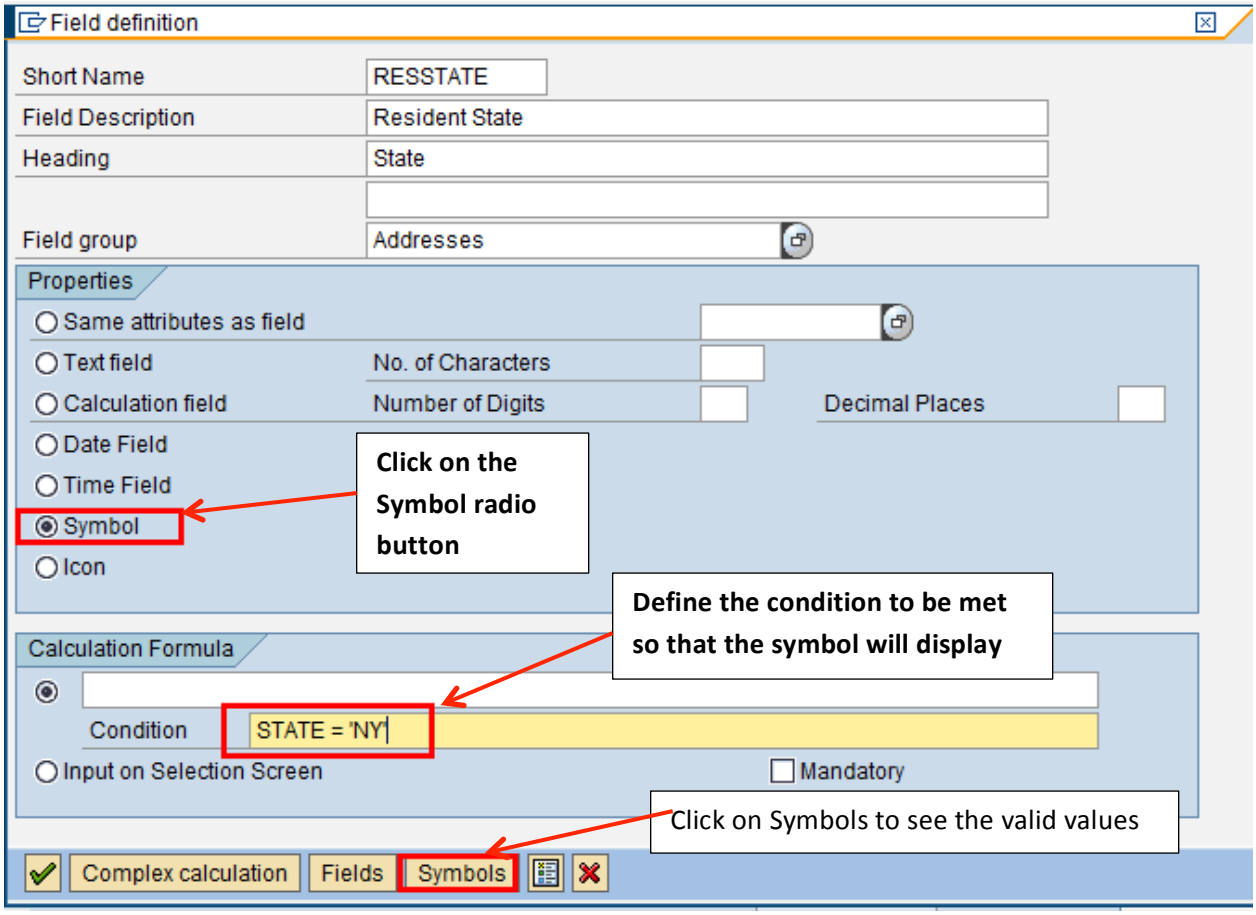
For employees older than 60, 'Yes' appears in the new column 'Over 60'

Symbols on Report

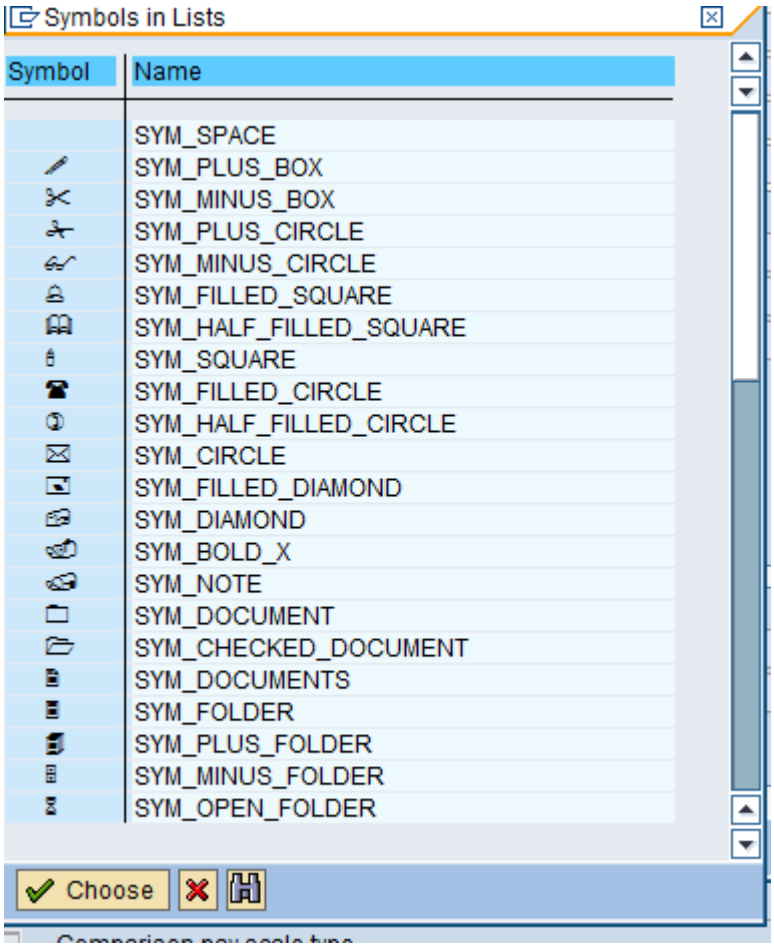
Local fields can also be used to insert symbols or icons in your report. Rather than outputting text, you may designate a symbol or icon to display. To do this, create a short name for a field to use in local field. For example, we would like to display a symbol on our report for every resident of New York. We will give the region field the short name STATE to be used in our new local field definition.



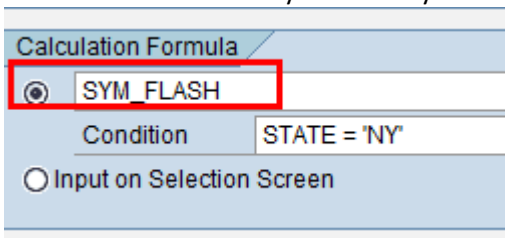
Next we will create a local field called RESSTATE.For example, if the state is New York, we want to print a symbol on the report. If the state is not New York, nothing will be displayed.

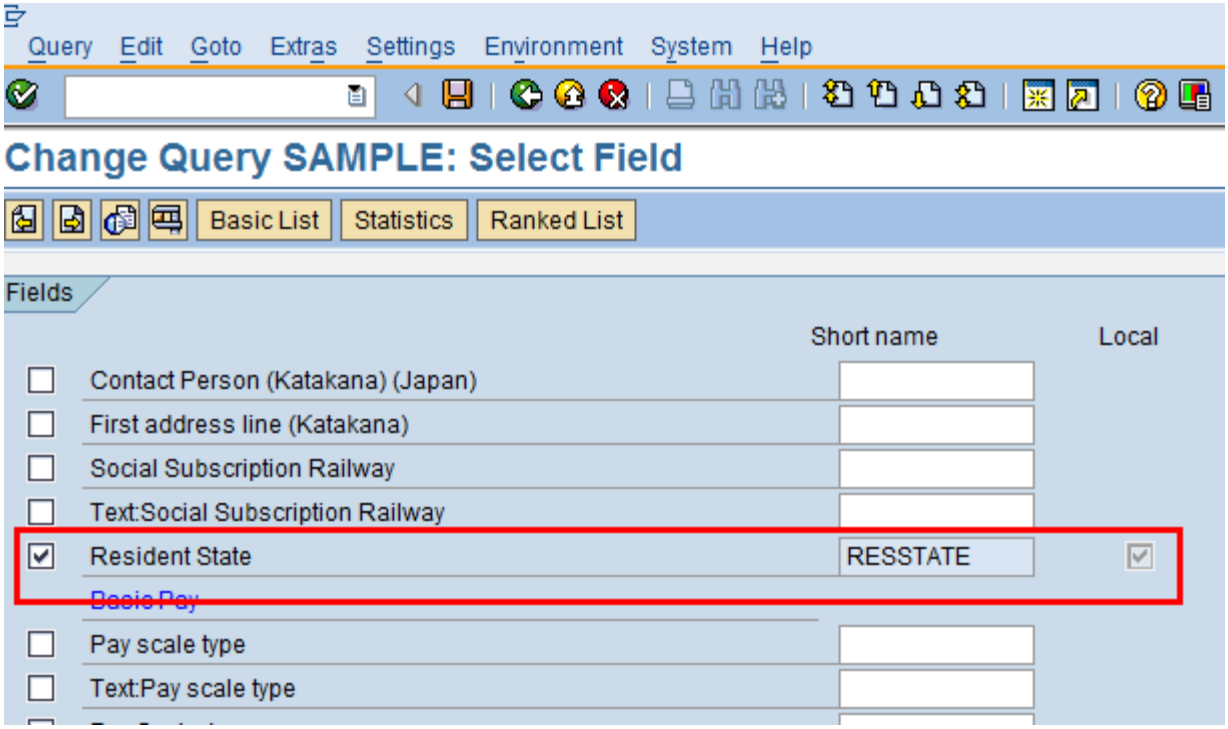


In the Properties section, choose Symbol. Then under the Calculation Formula section, identify the condition to be met. In our example, the state must equal New York in order to display a symbol. Next click on the Symbols icon to view the icons available.

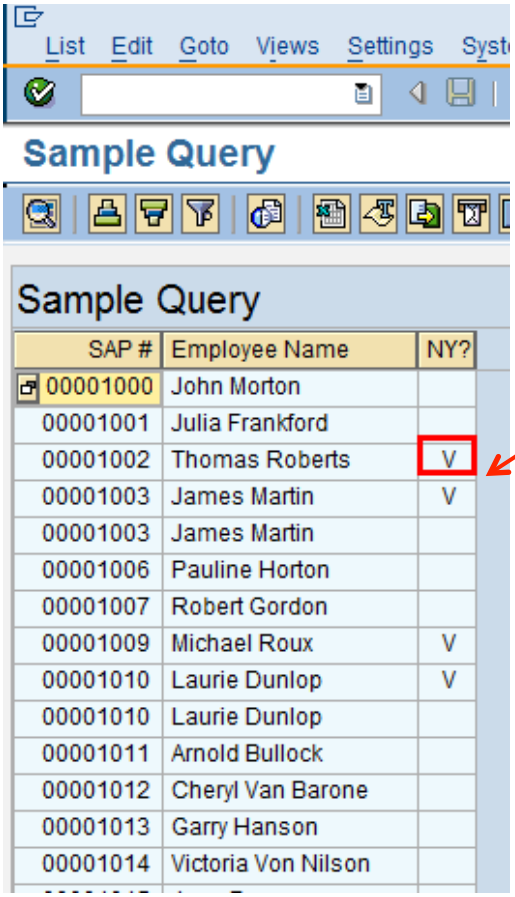


Scroll through the listing to find the symbol that you wish to display when the state equals NY. Double click on the icon to select it, and you will return to the Field Definition screen and the formula will show the field name for the symbol that you selected.



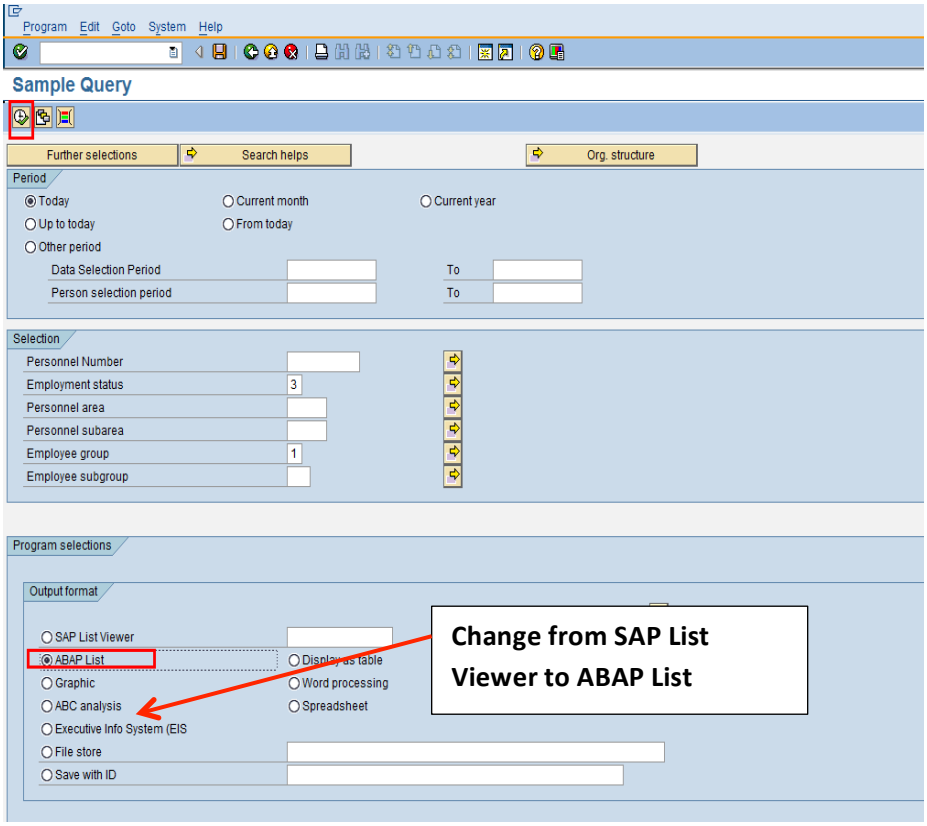

Query Edit Goto Extras Settings Environment System Help
Change Query SAMPLE: Select Field
Basic List
Statistics
Ranked List
Fields
Short name
Local
Contact Person (Katakana) (Japan)
First address line (Katakana)
Social Subscription Railway
Text:Social Subscription Railway
Resident State
RESSTATE
Basis Pay
Pay scale type
Text:Pay scale type

Results:

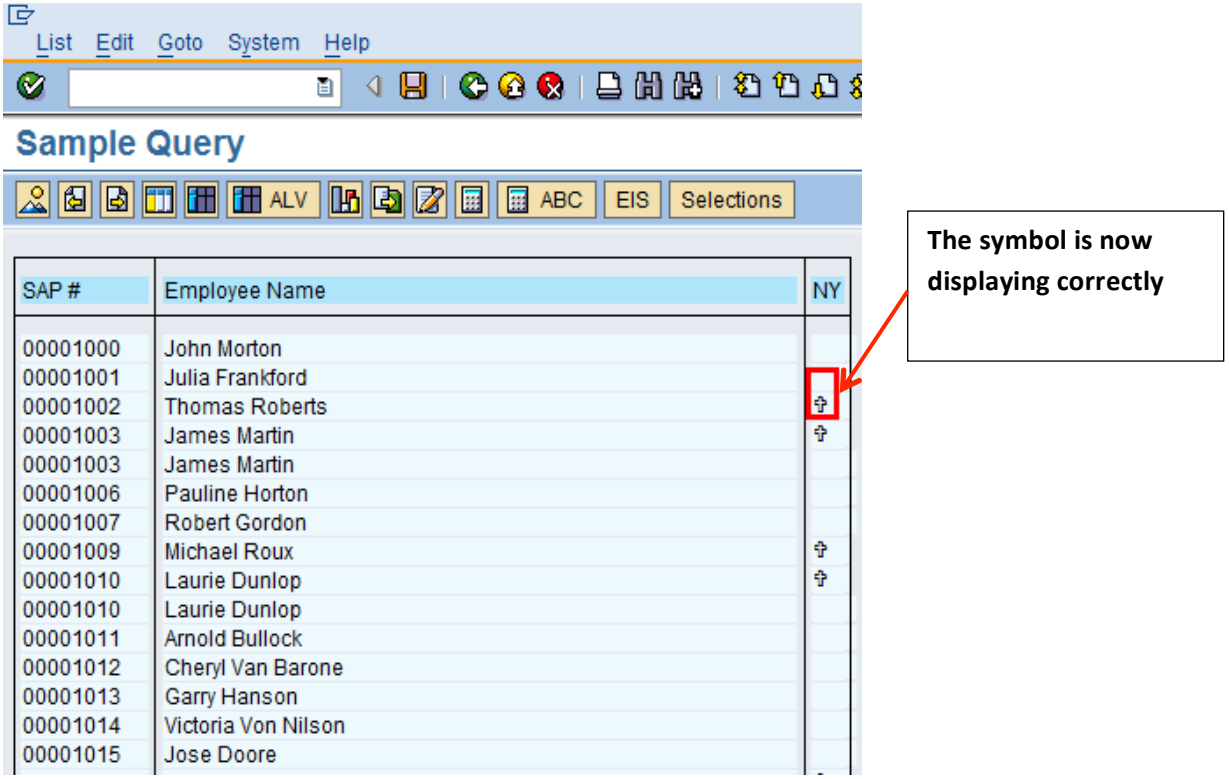


Notice that the symbol is not displaying correctly.

Symbols displaying incorrectly is a known issue. To resolve this, change the output format to ABAP List.


Program Edit Goto System Help
Sample Query
Further selections
Search helps
Org. structure
Period
Today
Current month
Current year
Up to today
From today
Other period
Data Selection Period
To
Person selection period
To
Selection
Personnel Number
Employment status
3
Personnel area
Personnel subarea
Employee group
1
Employee subgroup
Program selections
Output format
SAP List Viewer
ABAP List
Graphic
ABC analysis
Executive Info System (EIS
File store
Save with ID
Display as table
Word processing
Spreadsheet
Change from SAP List Viewer to ABAP List

Results:

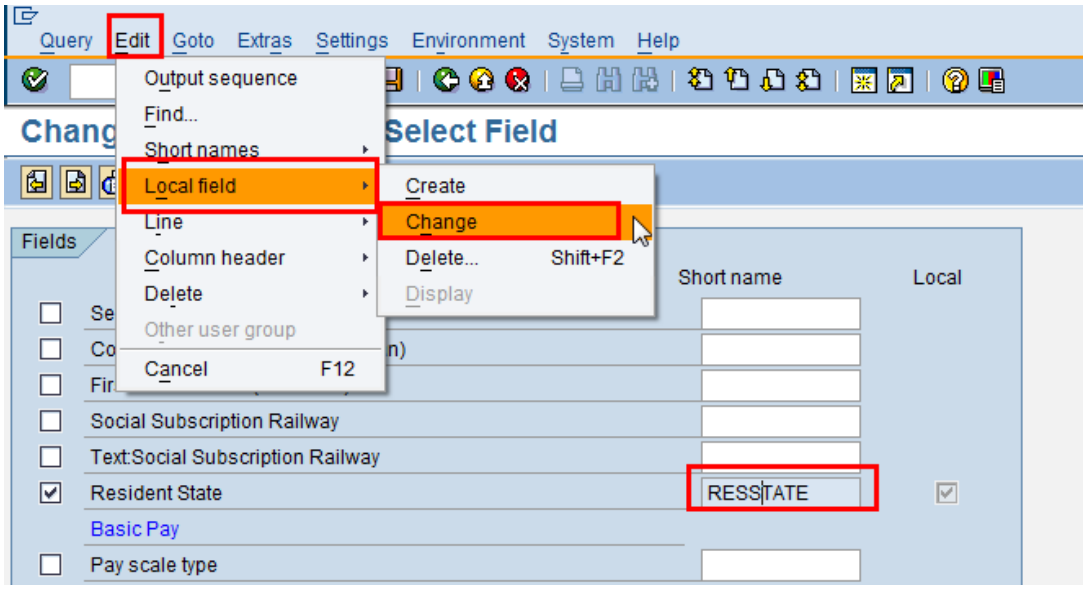


Using Local Fields to display an Icon

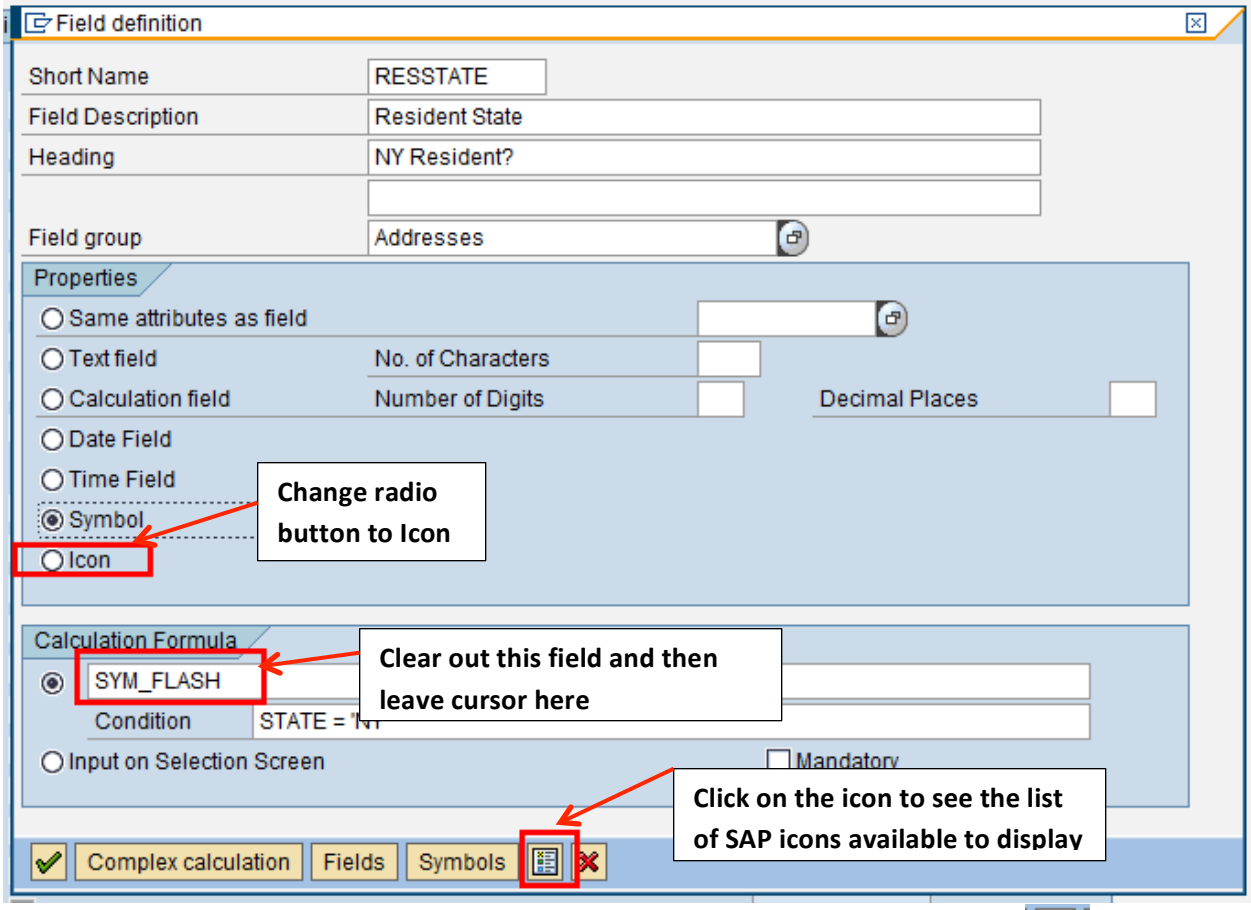
Instead of a symbol, you may choose to display an SAP icon on your report. This is also done via local fields. An icon can display for all records, or if a condition is met.

You can create a new local field or change an existing one. In this example, we will change the local field RESSTATE from a symbol to an icon.

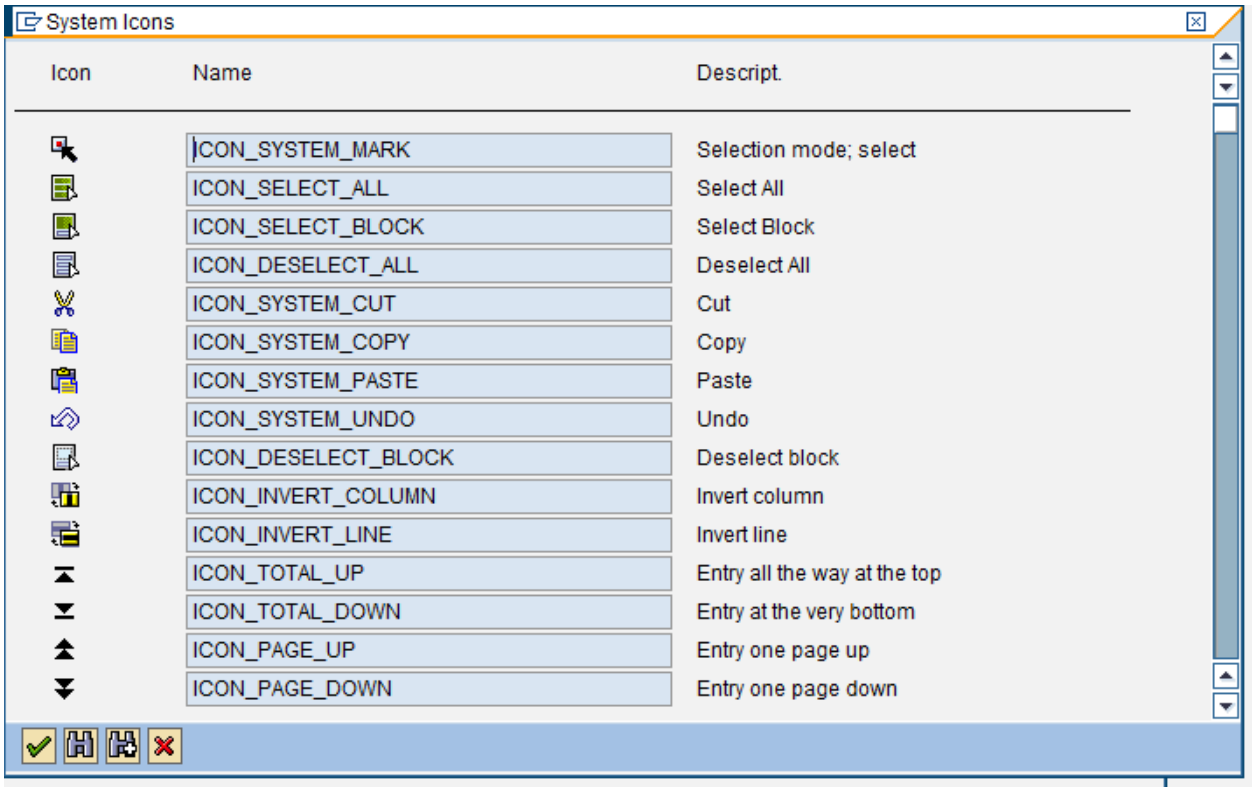
To change a local field, have your cursor on the short name of the local field and go to Edit→Local Field→Change.



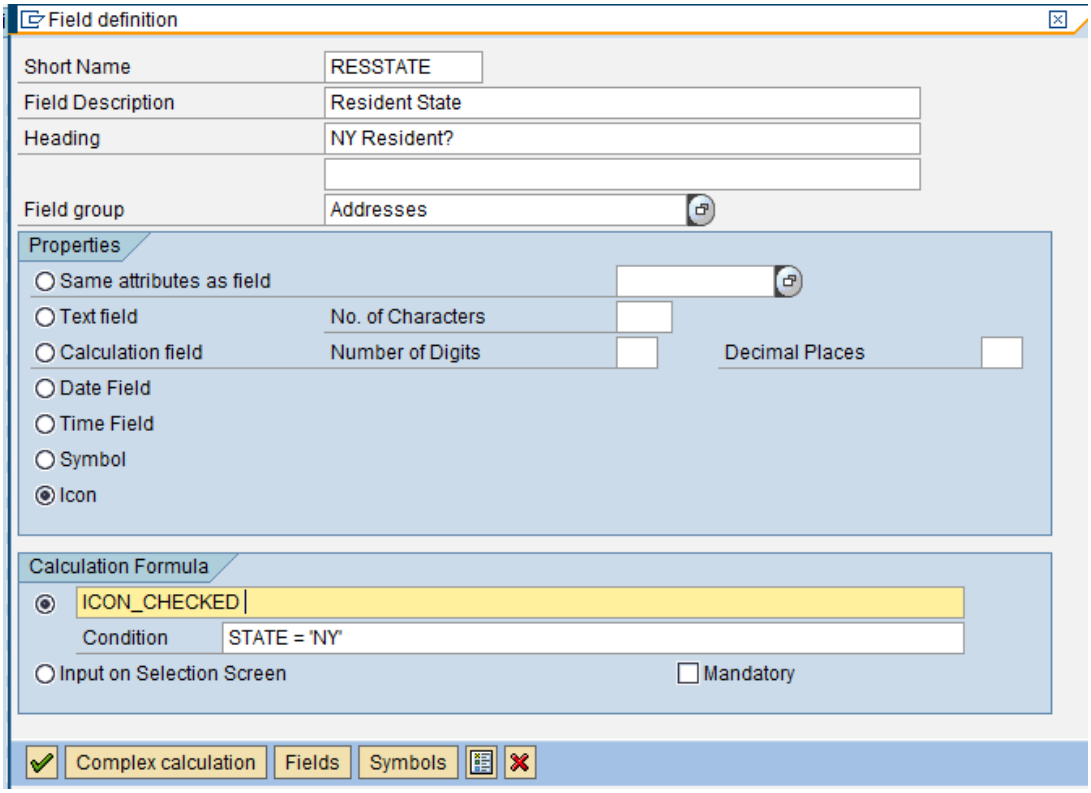
When the Field Definition screen appears, click on the Icon radio button, clear out the value in the Calculation Formula, place cursor in the now empty field and click on the "Icon" icon:



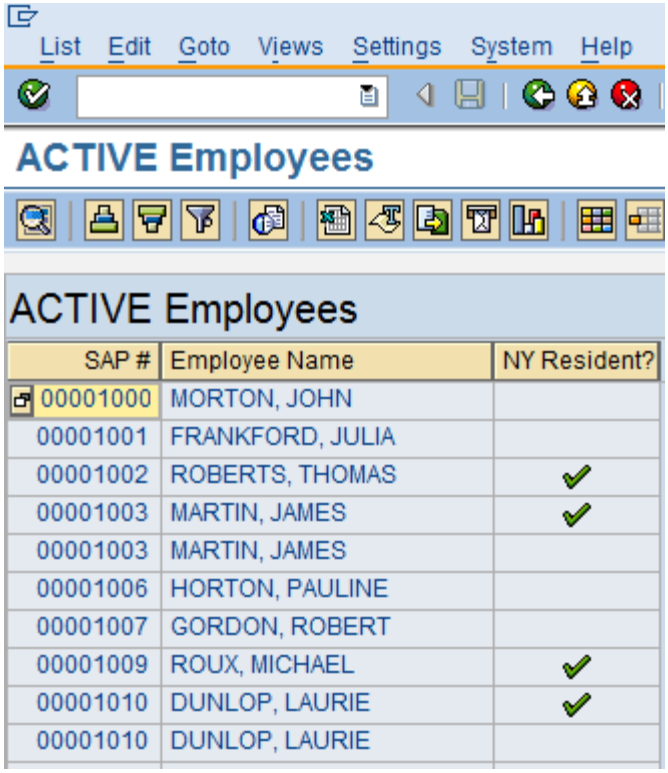
Put cursor in the Calculation Formula box and make sure the radio button is on. Click  to see listing of icons:



These are SAP icons, but you may find that some of these icons may be good for display purposes on a report. Icons such as a checkmark or a stop sign may be useful to highlight certain records on a report. Scroll through the listing to find the icon that you would like to display if the condition is met (Resident state = New York). Doubleclick on the icon and you will be returned to the Field Definition screen:


Field definition
Short Name
RESSTATE
Field Description
Resident State
Heading
NY Resident?
Field group
Addresses
Properties
Same attributes as field
Text field
No. of Characters
Calculation field
Number of Digits
Decimal Places
Date Field
Time Field
Symbol
Icon
Calculation Formula
ICON_CHECKED
Condition
STATE = 'NY'
Input on Selection Screen
Mandatory
Complex calculation
Fields
Symbols

Results:

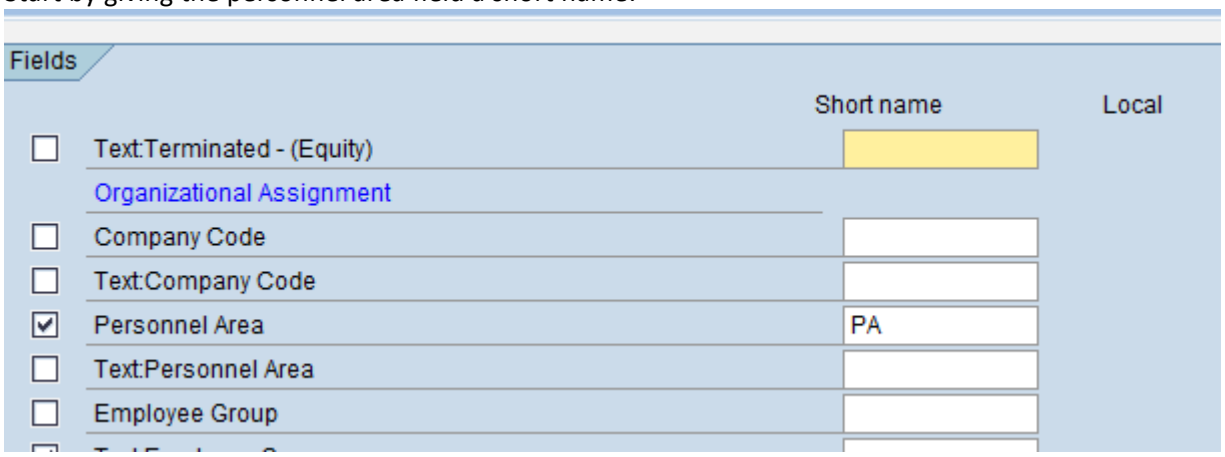


The report displays a checkmark for all employees that are residents of NY.

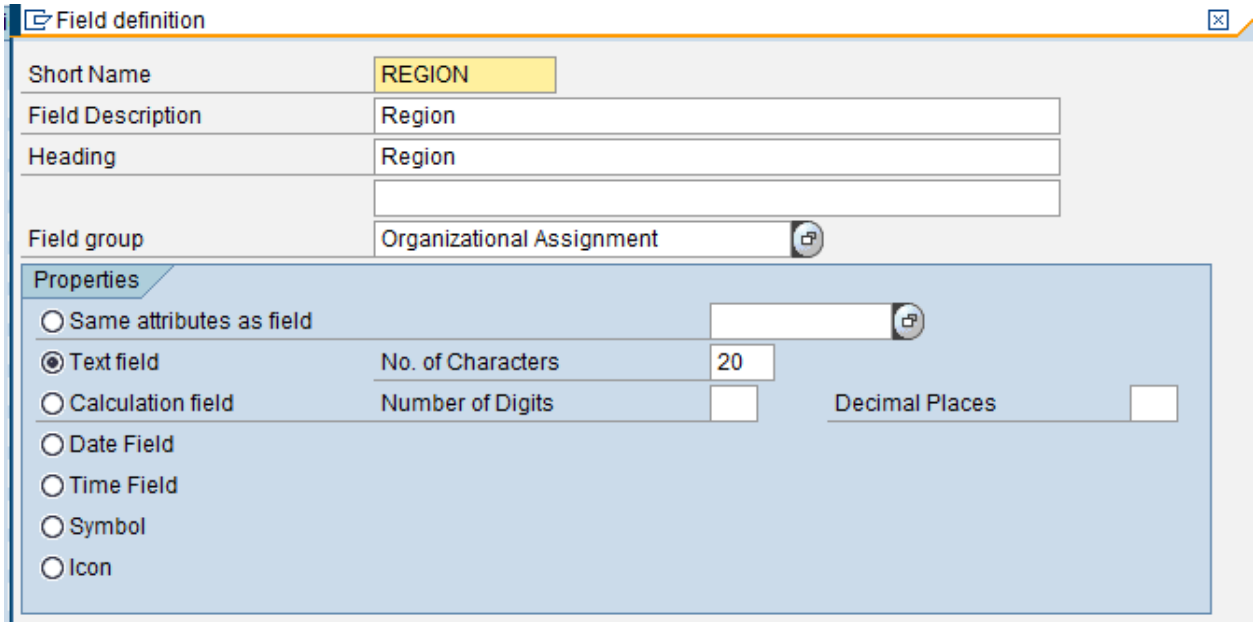
Defining Multiple Conditions in a Complex Calculation

This actually sounds scarier than it is. Simply put, you may display different values for a local field based on different conditions. It will make more sense with an example. Looking at personnel areas, you may wish to determine the region that the employee works in.

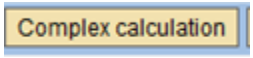
Start by giving the personnel area field a short name:



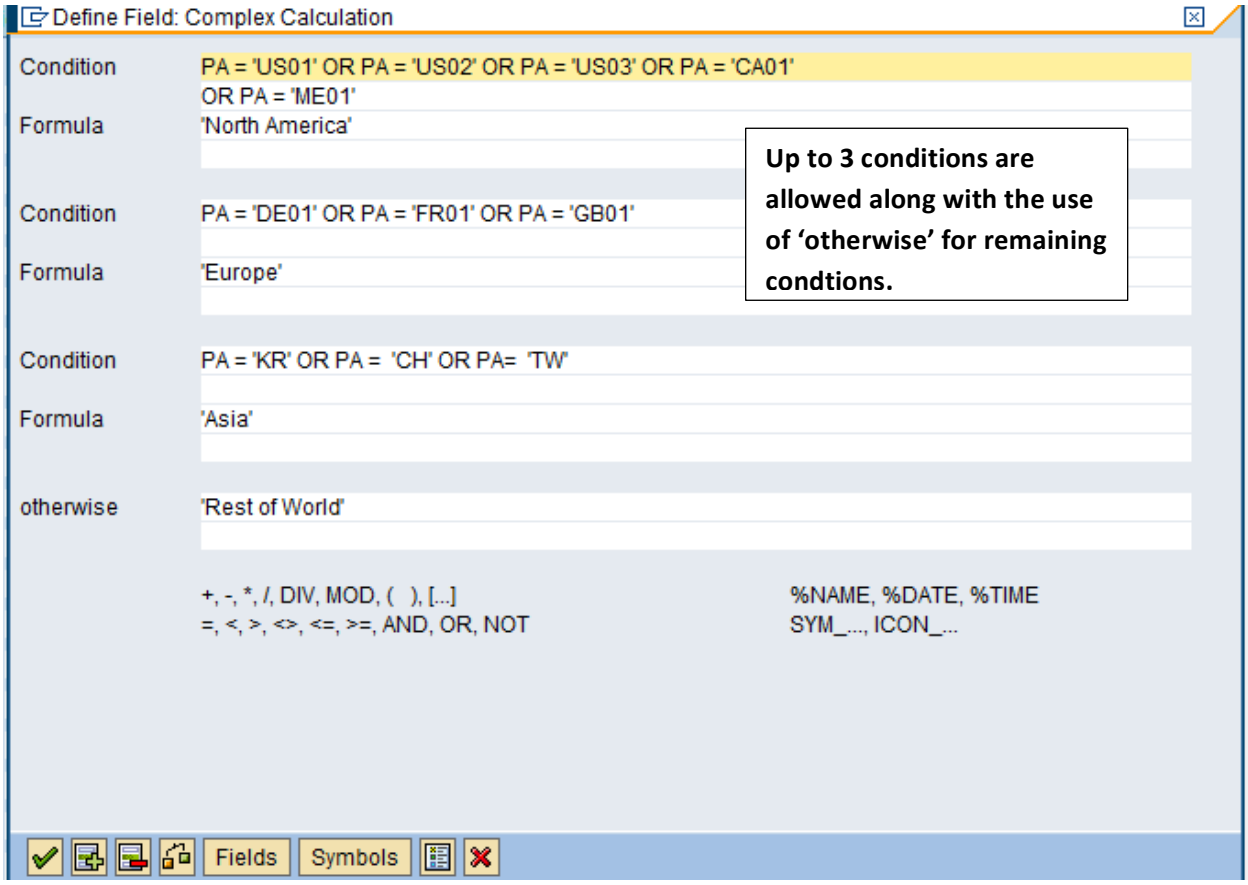
Then create a new local field called Region. It will be defined as a 20 character text field.



In our previous example, we checked the value of a field. If it met a certain condition, a specific value would be displayed in the report. Here we will be doing a complex calculation. Based on the value of the field we are using (personnel area), we will determine the value that the local field Region should display. We can test up to 3 conditions using an IF-THEN-ELSE formula. The fourth condition would capture the remaining of "Otherwise" conditions.

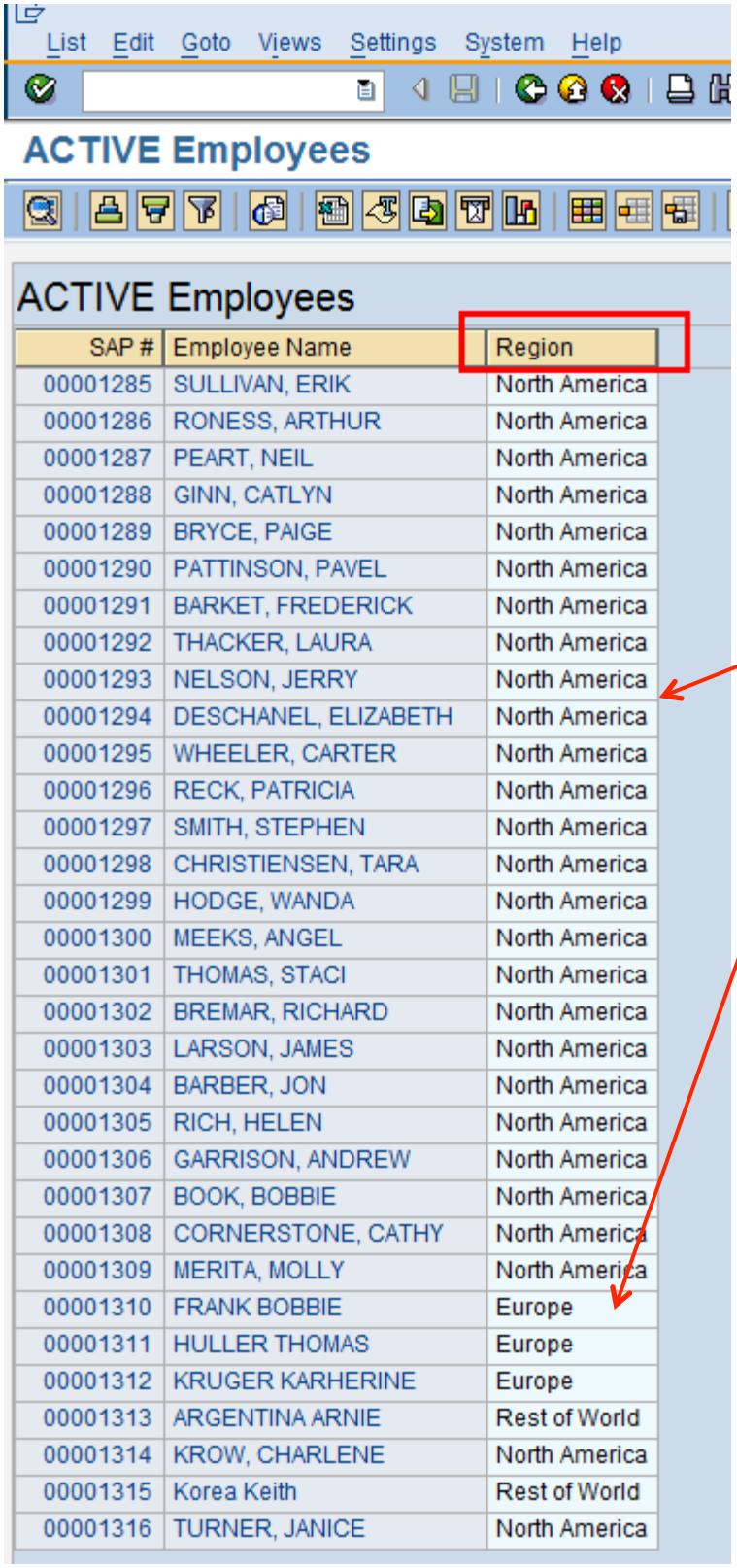
For an "If then Else" formula, click on the 

In our example, if the personnel area equals any of the US, Mexico and Canada personnel areas, the local field REGION will be assigned the value of 'North America'. If the personnel area (PA) is Germany, France or Great Britain, REGION would be 'Europe' , if the personnel area is Korea, China, or Taiwan, REGION would be 'Asia' All other personnel areas would fall into the OTHERWISE condition and would be 'Rest of World'.



Results of new local field on report:

Output:



ACTIVE Employees

SAP #	Employee Name	Region
00001285	SULLIVAN, ERIK	North America
00001286	RONESS, ARTHUR	North America
00001287	PEART, NEIL	North America
00001288	GINN, CATLYN	North America
00001289	BRYCE, PAIGE	North America
00001290	PATTINSON, PAVEL	North America
00001291	BARKET, FREDERICK	North America
00001292	THACKER, LAURA	North America
00001293	NELSON, JERRY	North America
00001294	DESCHANEL, ELIZABETH	North America
00001295	WHEELER, CARTER	North America
00001296	RECK, PATRICIA	North America
00001297	SMITH, STEPHEN	North America
00001298	CHRISTIENSEN, TARA	North America
00001299	HODGE, WANDA	North America
00001300	MEEKS, ANGEL	North America
00001301	THOMAS, STACI	North America
00001302	BREMAR, RICHARD	North America
00001303	LARSON, JAMES	North America
00001304	BARBER, JON	North America
00001305	RICH, HELEN	North America
00001306	GARRISON, ANDREW	North America
00001307	BOOK, BOBBIE	North America
00001308	CORNERSTONE, CATHY	North America
00001309	MERITA, MOLLY	North America
00001310	FRANK BOBBIE	Europe
00001311	HULLER THOMAS	Europe
00001312	KRUGER KARHERINE	Europe
00001313	ARGENTINA ARNIE	Rest of World
00001314	KROW, CHARLENE	North America
00001315	Korea Keith	Rest of World
00001316	TURNER, JANICE	North America

The value is based on the result of the condition defined in the local field REGION

Local Field to be Mandatory Input on Selection Screen: Dynamic Selection

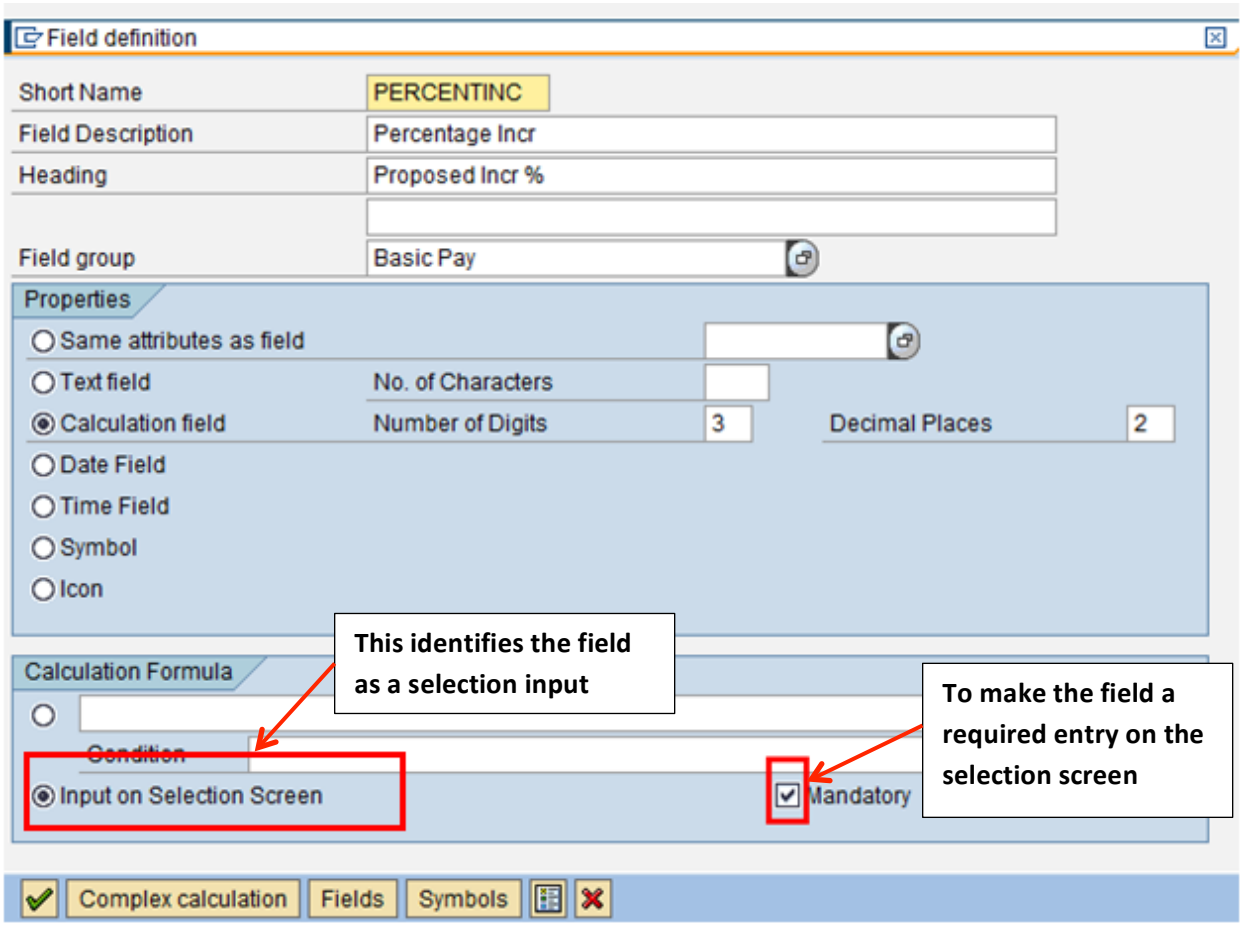
Dynamic Calculations

To really boost the power of our query, additional fields can be added to the report selection screens to be used in calculations when the report is executed. This allows the results of the query to vary based the value entered in these fields. These fields can be an optional entry program selection fields or required.

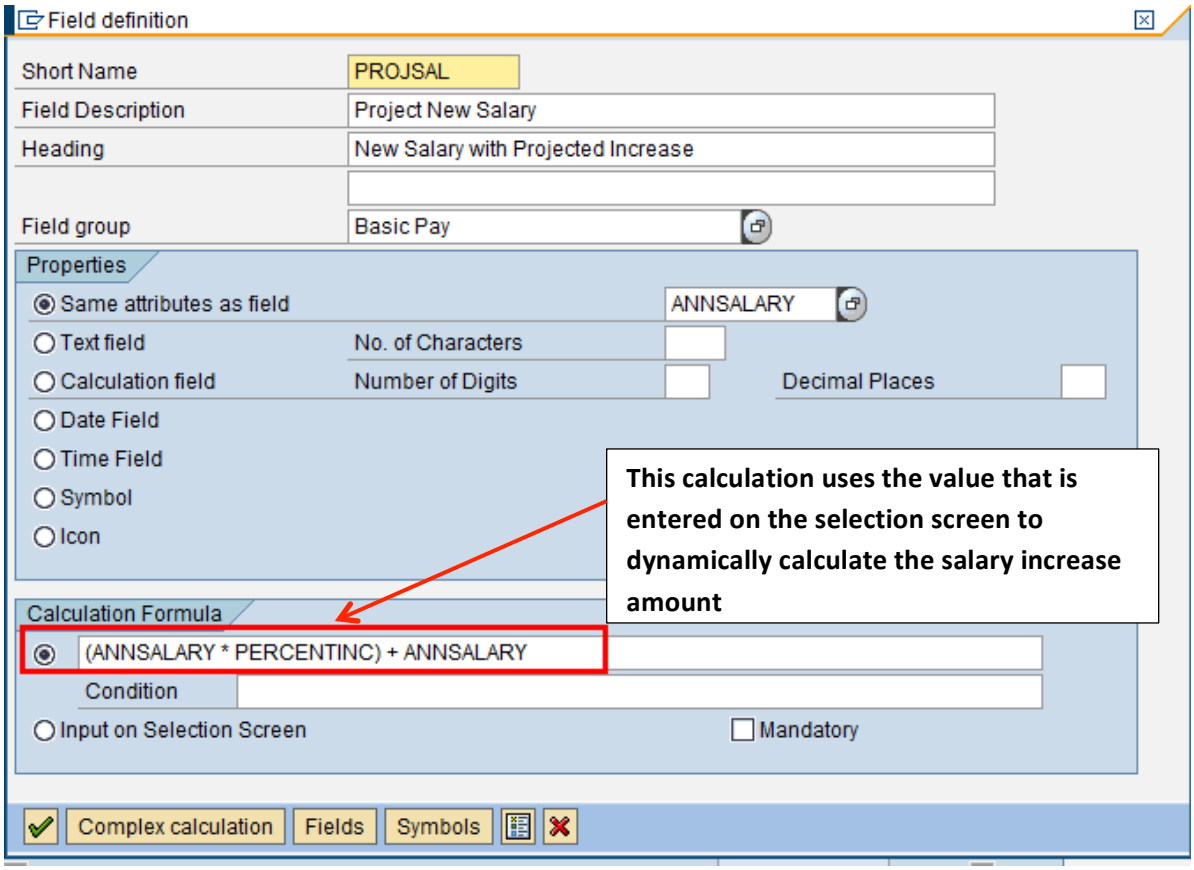
To do this, we will need to define a local field to be used on the selection screen. We will be creating a field for the selection screen that prompts a user to enter a percentage increase amount for salaries. The output is dependent on the value entered in this field, so this is a dynamic calculation.

In the 'Calculation Formula' section, select the 'Input on Selection Screen' radio button. This will ensure that the local field will appear on your selection screen. In order to make this a required input entry on the selection screen click on the 'Mandatory' checkbox:

This example also shows the effects of dynamic entry. Based on what the user enters on the selection screen, this value will be used in the calculation that will create next.



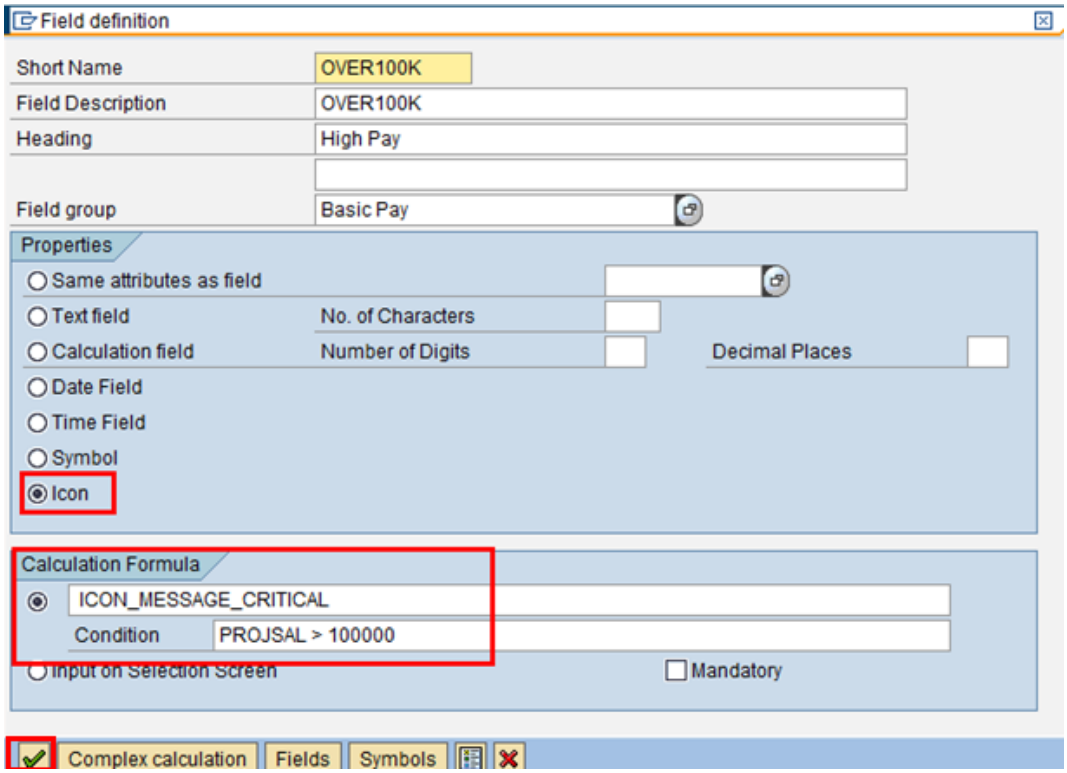
Next we will need to create another local field which uses the value entered on the selection screen (PERCENTINC) to determine the projected salary:



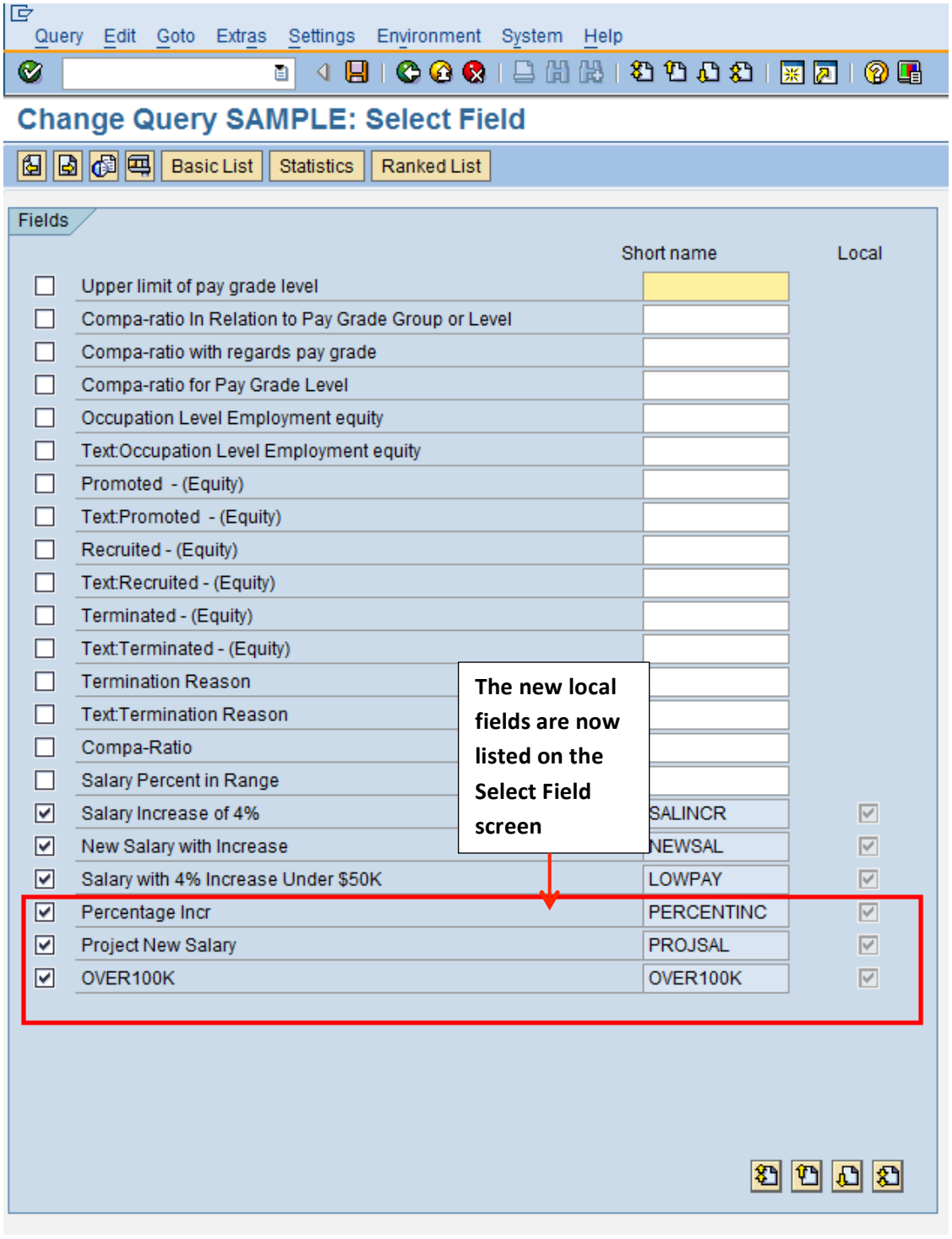
This is a calculated field called PROJSAL. The increase percentage (PERCENTINC) from the selection screen will be multiplied by the annual salary. This amount will then be added to the annual salary to arrive at the new projected salary (PROJSAL).

Next, we will create another local field which outputs an icon based on its value. In this example, we are creating a local field called OVER100K. The calculation formula will use the local field PROJSAL. If the

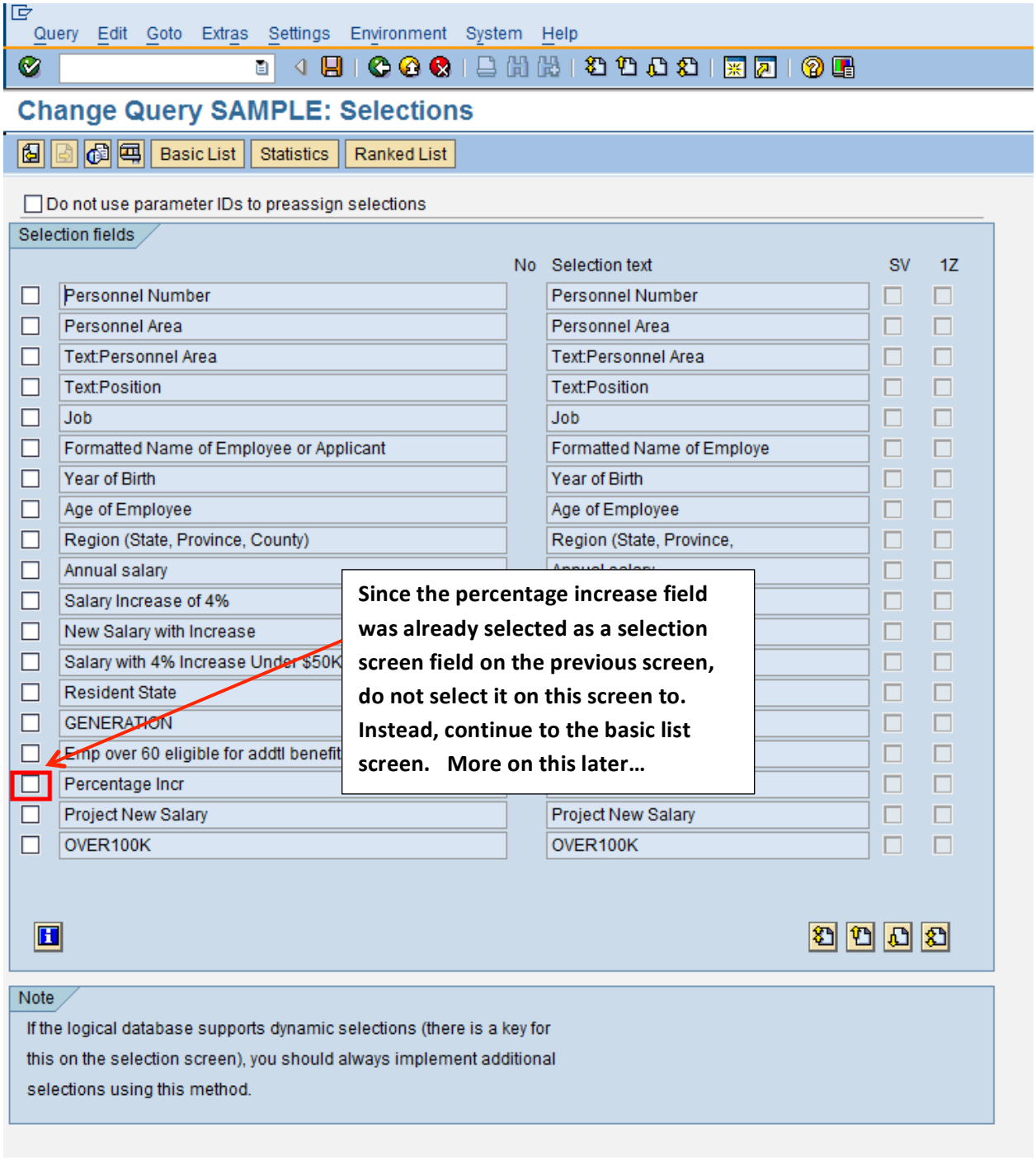
new salary is greater than $100K, a symbol will be displayed in local field OVER100K.

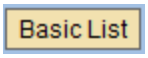


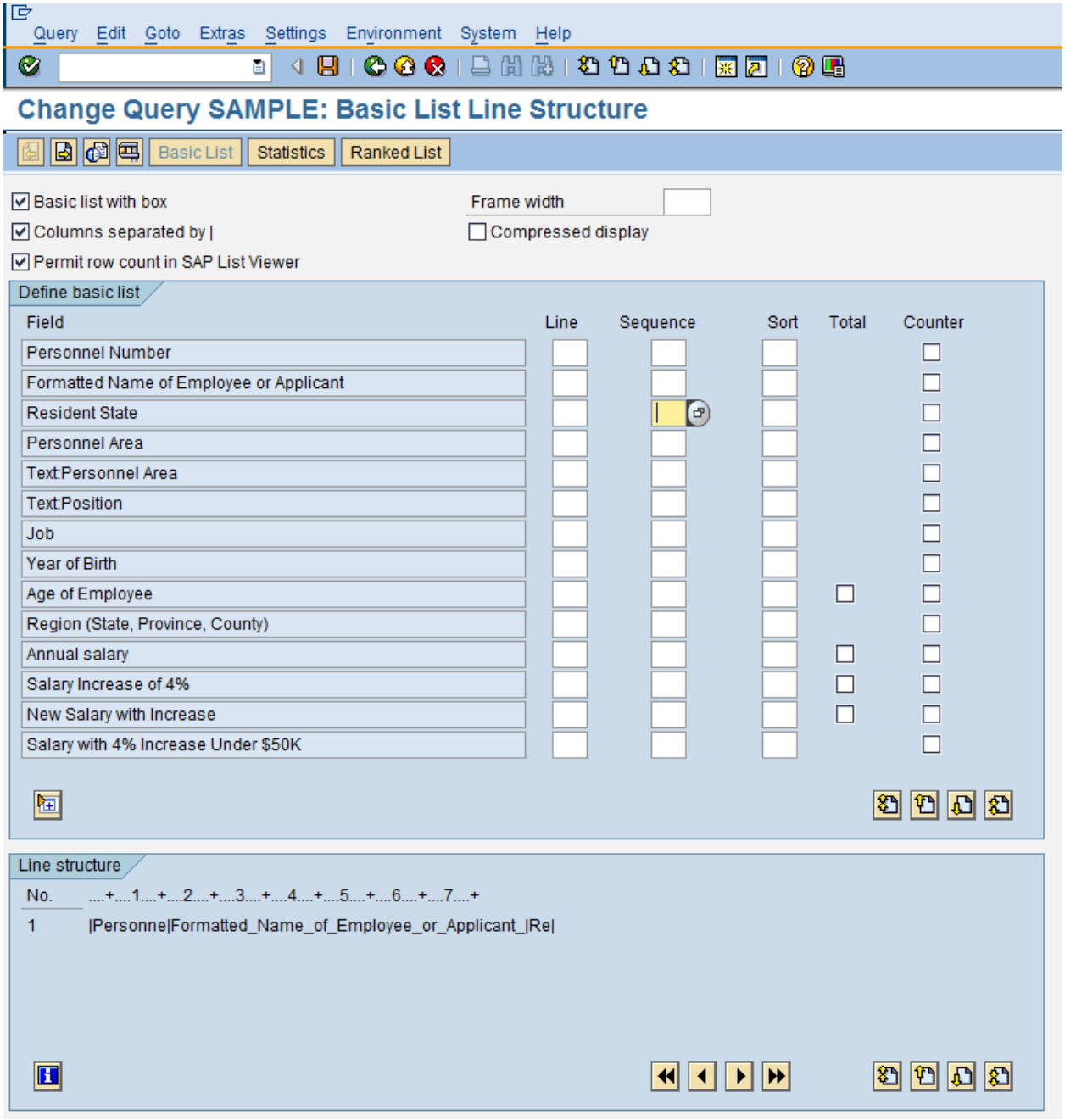
Click on the green checkmark to continue to return to the Select Fields screen:



You must go to screen #4 to ensure that the entry field is selected to appear on the selection screen.

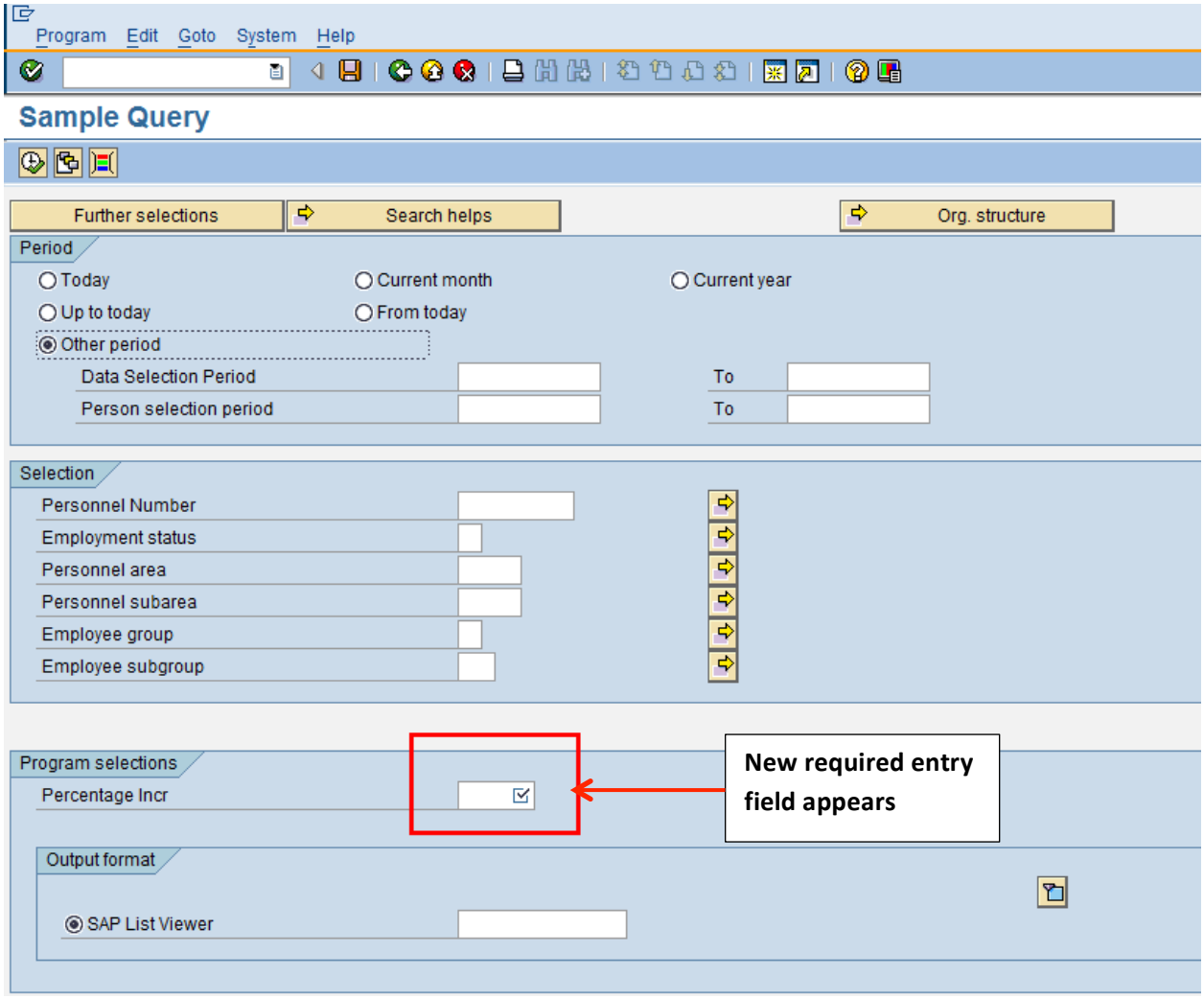


Next click on  to add the new local fields to the output display.



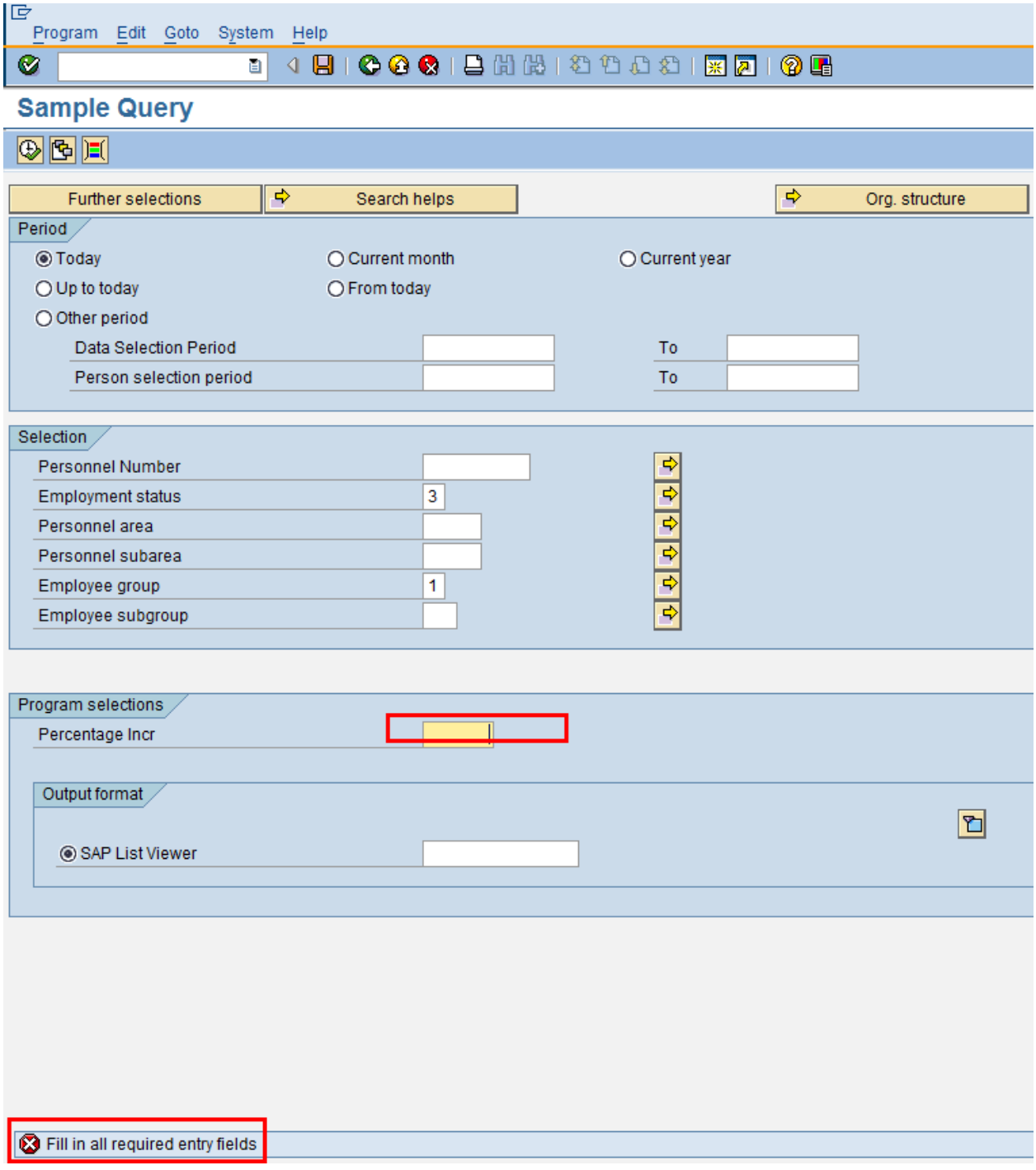
Determine the order that you would like the fields to display in. Also determine if you wish to have sort, counters and totals on your report. Once you have made these selections, save your query.

Click on F8 to bring up the report selection screen:

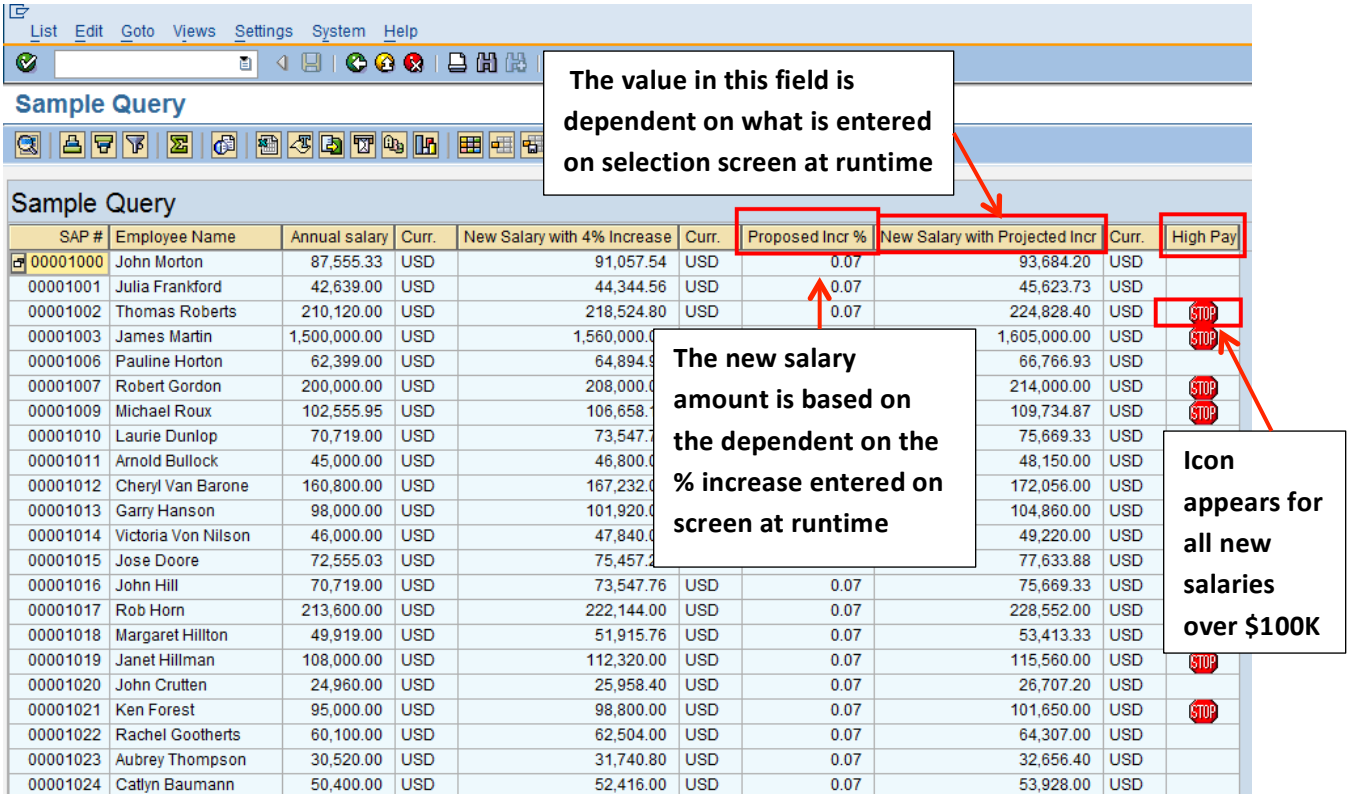


Here you will see the required input field on your selection screen.

If you try to execute the report without filling in this field, the field will be highlighted and an error message will appear at the bottom of the screen:


Program Edit Goto System Help
Sample Query
Further selections
Search helps
Org. structure
Period
Today
Current month
Current year
Up to today
From today
Other period
Data Selection Period
To
Person selection period
To
Selection
Personnel Number
Employment status
3
Personnel area
Personnel subarea
Employee group
1
Employee subgroup
Program selections
Percentage Incr
Output format
SAP List Viewer
Fill in all required entry fields

Results:



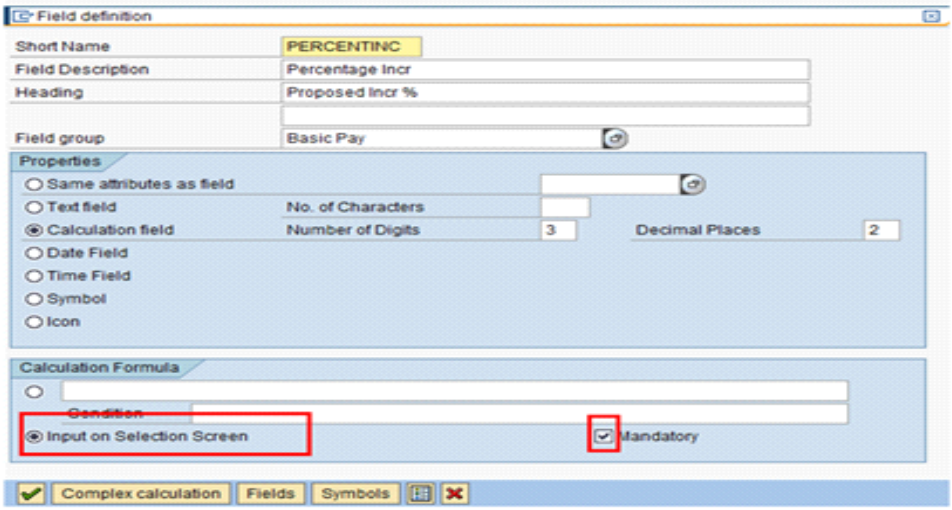
Sample Query

SAP #	Employee Name	Annual salary	Curr.	New Salary with 4% Increase	Curr.	Proposed Incr %	New Salary with Projected Incr	Curr.	High Pay
00001000	John Morton	87,555.33	USD	91,057.54	USD	0.07	93,684.20	USD	
00001001	Julia Frankford	42,639.00	USD	44,344.56	USD	0.07	45,623.73	USD	
00001002	Thomas Roberts	210,120.00	USD	218,524.80	USD	0.07	224,828.40	USD	STOP
00001003	James Martin	1,500,000.00	USD	1,560,000.0			1,605,000.00	USD	STOP
00001006	Pauline Horton	62,399.00	USD	64,894.9			66,766.93	USD	
00001007	Robert Gordon	200,000.00	USD	208,000.0			214,000.00	USD	STOP
00001009	Michael Roux	102,555.95	USD	106,658.1			109,734.87	USD	STOP
00001010	Laurie Dunlop	70,719.00	USD	73,547.7			75,669.33	USD	
00001011	Arnold Bullock	45,000.00	USD	46,800.0			48,150.00	USD	
00001012	Cheryl Van Barone	160,800.00	USD	167,232.0			172,056.00	USD	
00001013	Garry Hanson	98,000.00	USD	101,920.0			104,860.00	USD	
00001014	Victoria Von Nilson	46,000.00	USD	47,840.0			49,220.00	USD	
00001015	Jose Doore	72,555.03	USD	75,457.2			77,633.88	USD	
00001016	John Hill	70,719.00	USD	73,547.76	USD	0.07	75,669.33	USD	
00001017	Rob Horn	213,600.00	USD	222,144.00	USD	0.07	228,552.00	USD	
00001018	Margaret Hillton	49,919.00	USD	51,915.76	USD	0.07	53,413.33	USD	
00001019	Janet Hillman	108,000.00	USD	112,320.00	USD	0.07	115,560.00	USD	STOP
00001020	John Crutten	24,960.00	USD	25,958.40	USD	0.07	26,707.20	USD	
00001021	Ken Forest	95,000.00	USD	98,800.00	USD	0.07	101,650.00	USD	STOP
00001022	Rachel Gootherts	60,100.00	USD	62,504.00	USD	0.07	64,307.00	USD	
00001023	Aubrey Thompson	30,520.00	USD	31,740.80	USD	0.07	32,656.40	USD	
00001024	Catlyn Baumann	50,400.00	USD	52,416.00	USD	0.07	53,928.00	USD	

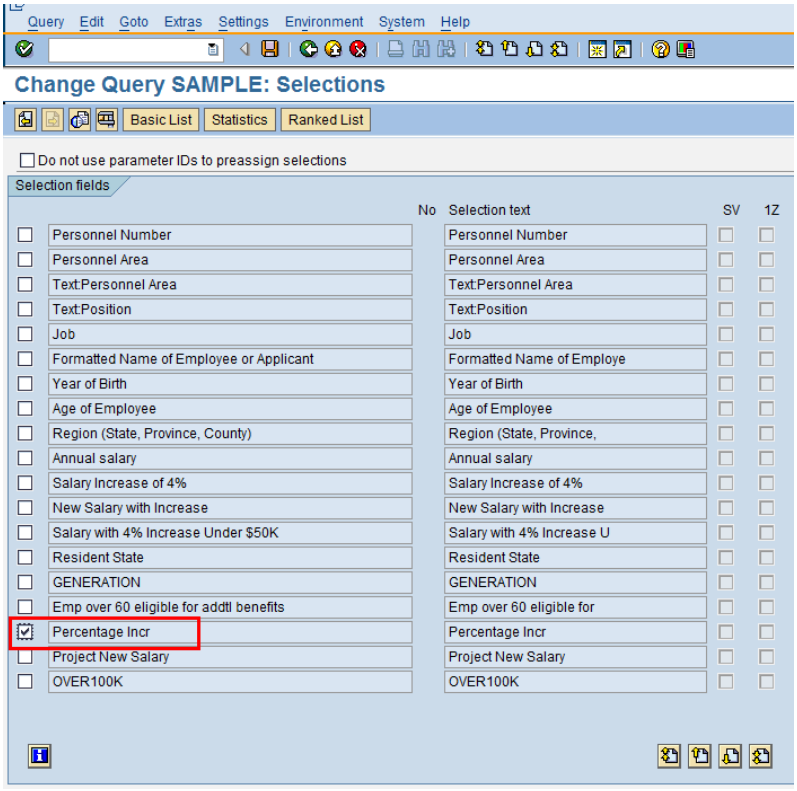
Notice that the output for the proposed increase percentage column is determined by the value entered on the selection screen prior to executing the report. The value entered determines the new salary amount and if the new salary is over $100K.

Additional notes on Local Fields

In an earlier example, we created a local field that was to be used as input on Selection Screen:



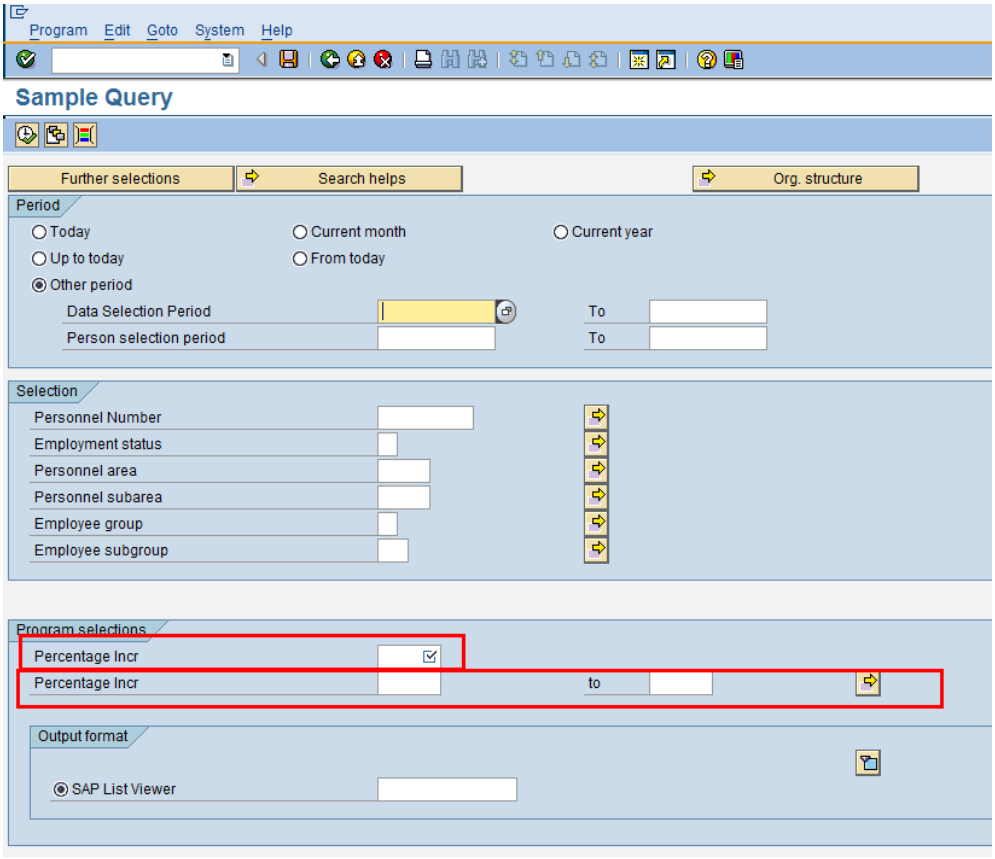
We did not select this new local field on the Selection screen (screen #4) as well. If we did the local field would appear twice on the Selection screen prior to report execution:



If the new local field is also checked as a selection screen field, it will appear twice on the query screen

This is the selection created by the required local field on Screen #3. In our example, it was a required entry.

This is the selection created by Screen #4

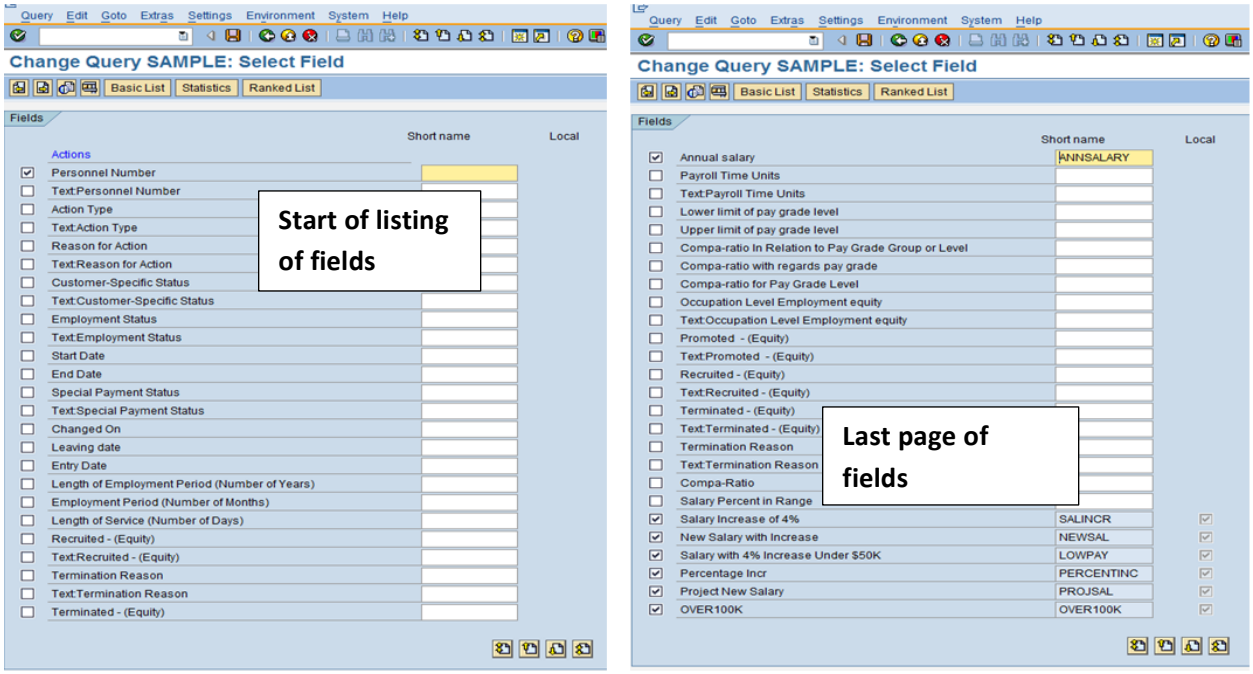


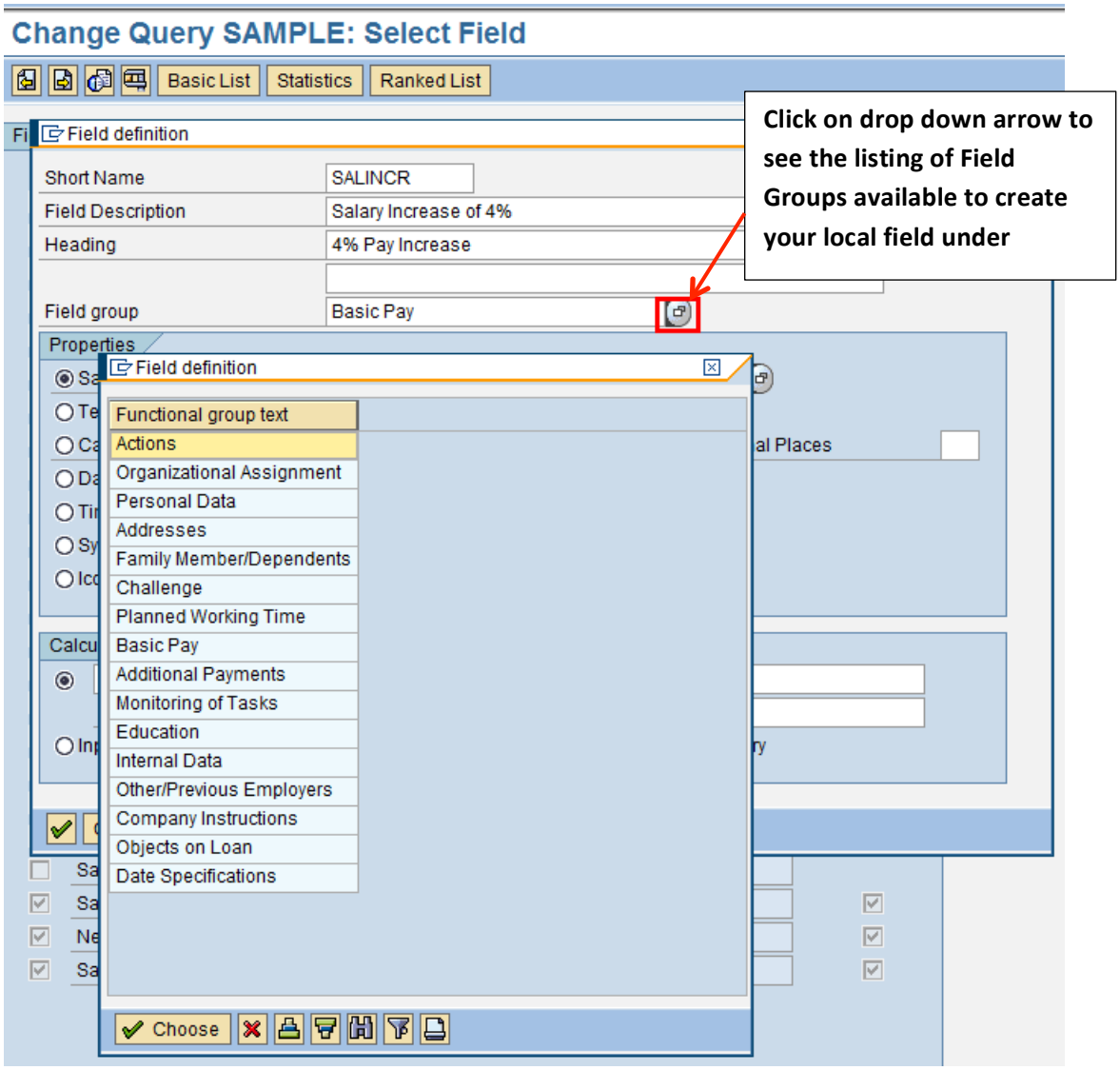
The morale of the story, do not click on the checkbox on the Selections screen (screen #4) when you create a local field that is defined as an input field. Otherwise, the local field will appear twice on the Selection screen used to execute your query; once with the properties of the local field that were defined in the Select Fields screen (screen #3) and again with the properties defined on the Selection screen (screen #4).

If a local field is defined as an input field, it will always appear on the Selection screen. You cannot hide it or opt to use the version created in screen #4. If you tried to enter values in the second line for Percentage Increase (the line that appears because the checkbox was selected on screen #4), the query will not run. As tempting as it may be to be able to utilize multiple ranges and single values option that the second line affords, it will not work. The input defined field from the Field Selection screen can only contain one value.

Infogroup can be Changed when Creating a Local Field

When creating a new local field on the Select Fields screen (screen #3), you can be anywhere on the listing of fields and still be able to select which infotype to tie the local field to.

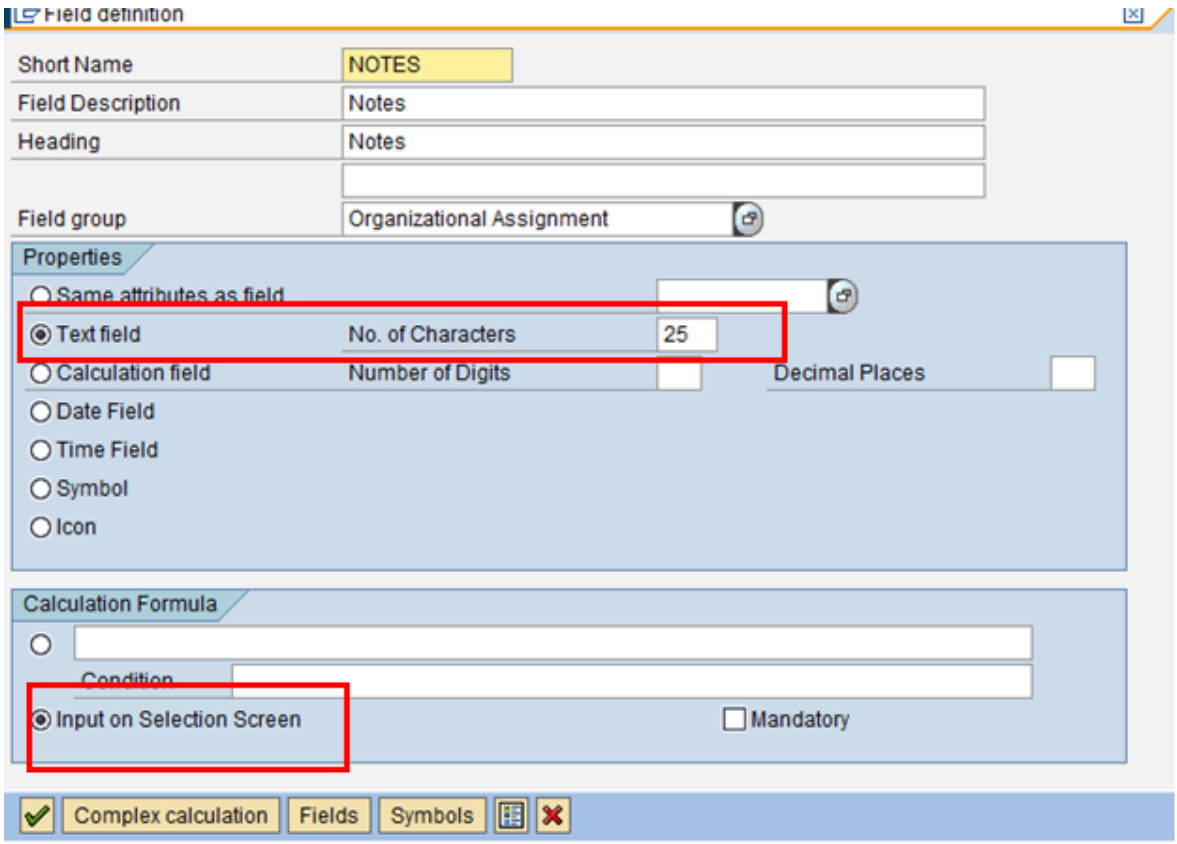




Once you select the Field Group and complete the creation of the local field, the new field will appear at the bottom of the list of data fields for that Field Group.

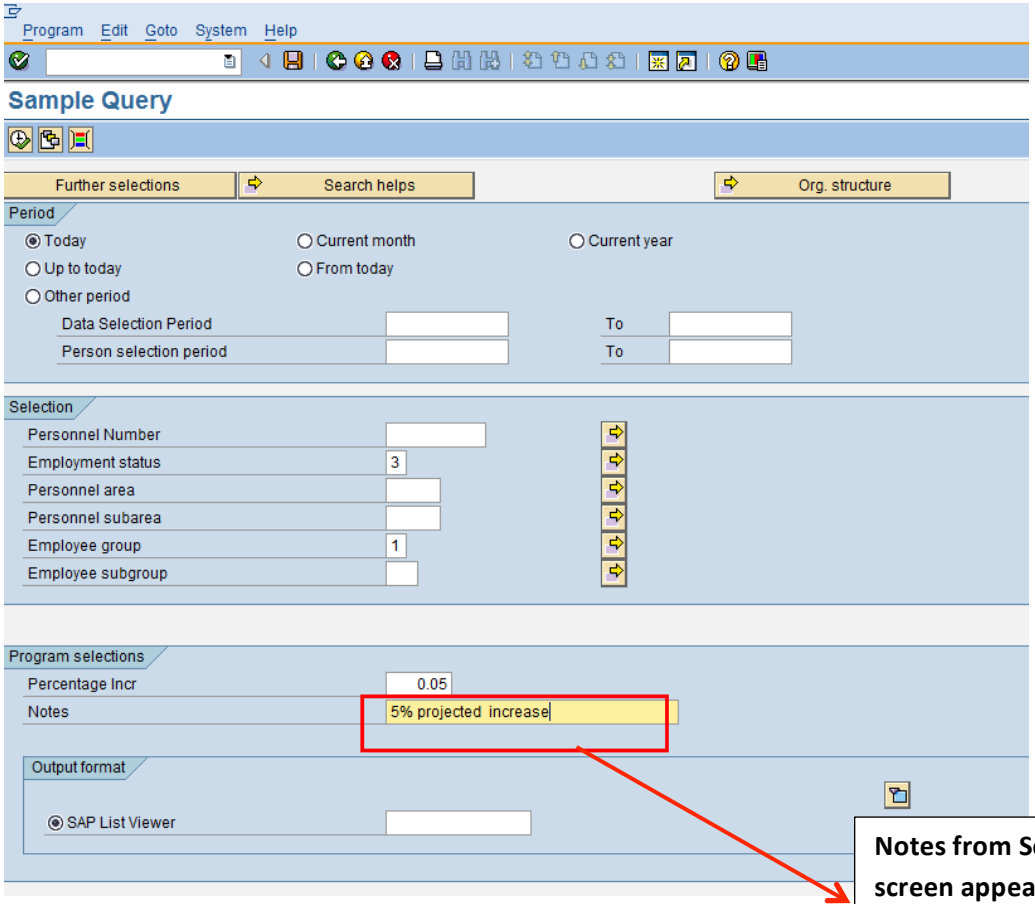
Using Local Field to Create Input Field that will Display on Report

Local fields used for input can only be non-numeric. This means that they won't be used in a calculation, but can be used to output text instead. For example, along with entering a percentage to use in a projected salary calculation, the user could also fill in a notes field on the Selection screen and this note could be displayed in the query results.

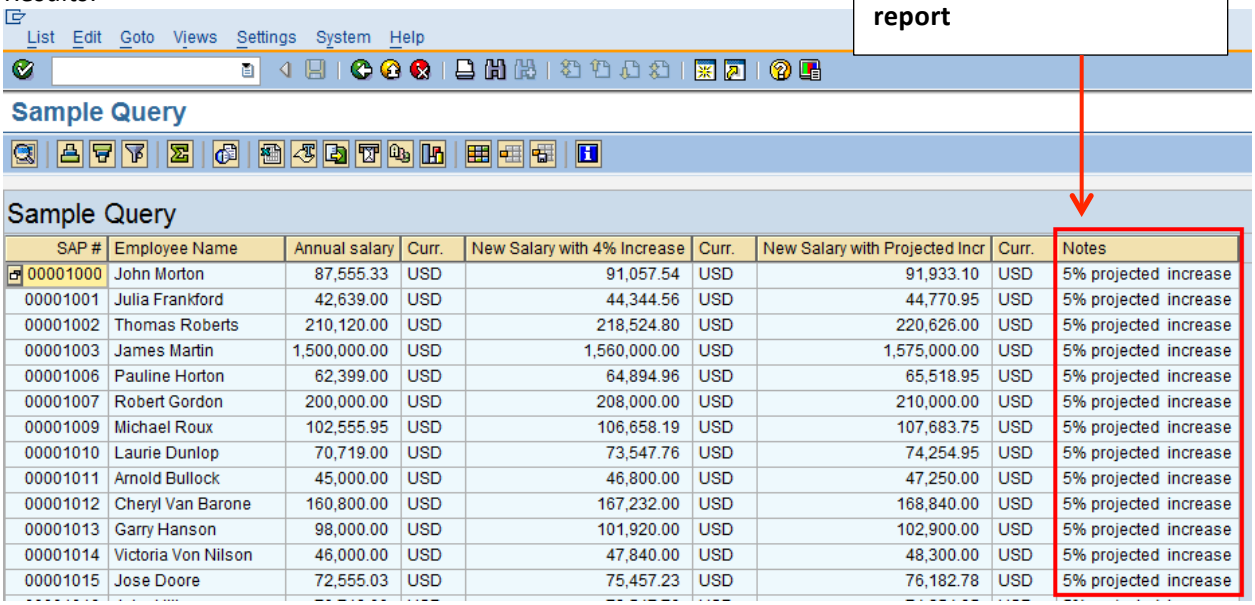


Notice that the local field NOTES is defined as a text field 25 characters in length and it is an optional entry on the Selection Screen.

When executing the query, the user selects the salary increase percentage and adds comments:



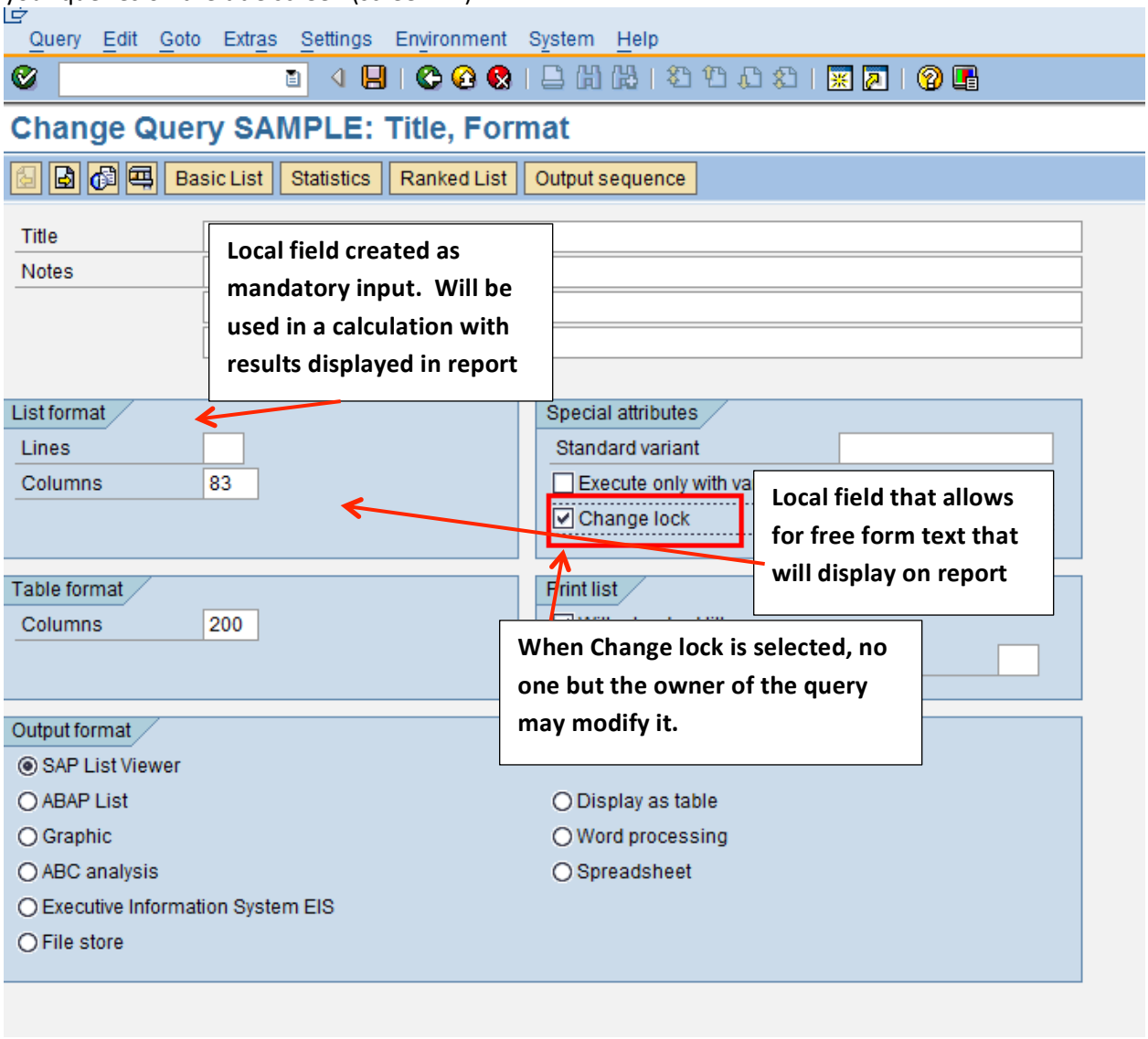
Results:



SAP #	Employee Name	Annual salary	Curr.	New Salary with 4% Increase	Curr.	New Salary with Projected Incr	Curr.	Notes
00001000	John Morton	87,555.33	USD	91,057.54	USD	91,933.10	USD	5% projected increase
00001001	Julia Frankford	42,639.00	USD	44,344.56	USD	44,770.95	USD	5% projected increase
00001002	Thomas Roberts	210,120.00	USD	218,524.80	USD	220,626.00	USD	5% projected increase
00001003	James Martin	1,500,000.00	USD	1,560,000.00	USD	1,575,000.00	USD	5% projected increase
00001006	Pauline Horton	62,399.00	USD	64,894.96	USD	65,518.95	USD	5% projected increase
00001007	Robert Gordon	200,000.00	USD	208,000.00	USD	210,000.00	USD	5% projected increase
00001009	Michael Roux	102,555.95	USD	106,658.19	USD	107,683.75	USD	5% projected increase
00001010	Laurie Dunlop	70,719.00	USD	73,547.76	USD	74,254.95	USD	5% projected increase
00001011	Arnold Bullock	45,000.00	USD	46,800.00	USD	47,250.00	USD	5% projected increase
00001012	Cheryl Van Barone	160,800.00	USD	167,232.00	USD	168,840.00	USD	5% projected increase
00001013	Garry Hanson	98,000.00	USD	101,920.00	USD	102,900.00	USD	5% projected increase
00001014	Victoria Von Nilson	46,000.00	USD	47,840.00	USD	48,300.00	USD	5% projected increase
00001015	Jose Doore	72,555.03	USD	75,457.23	USD	76,182.78	USD	5% projected increase

Preventing Others from Changing your Queries

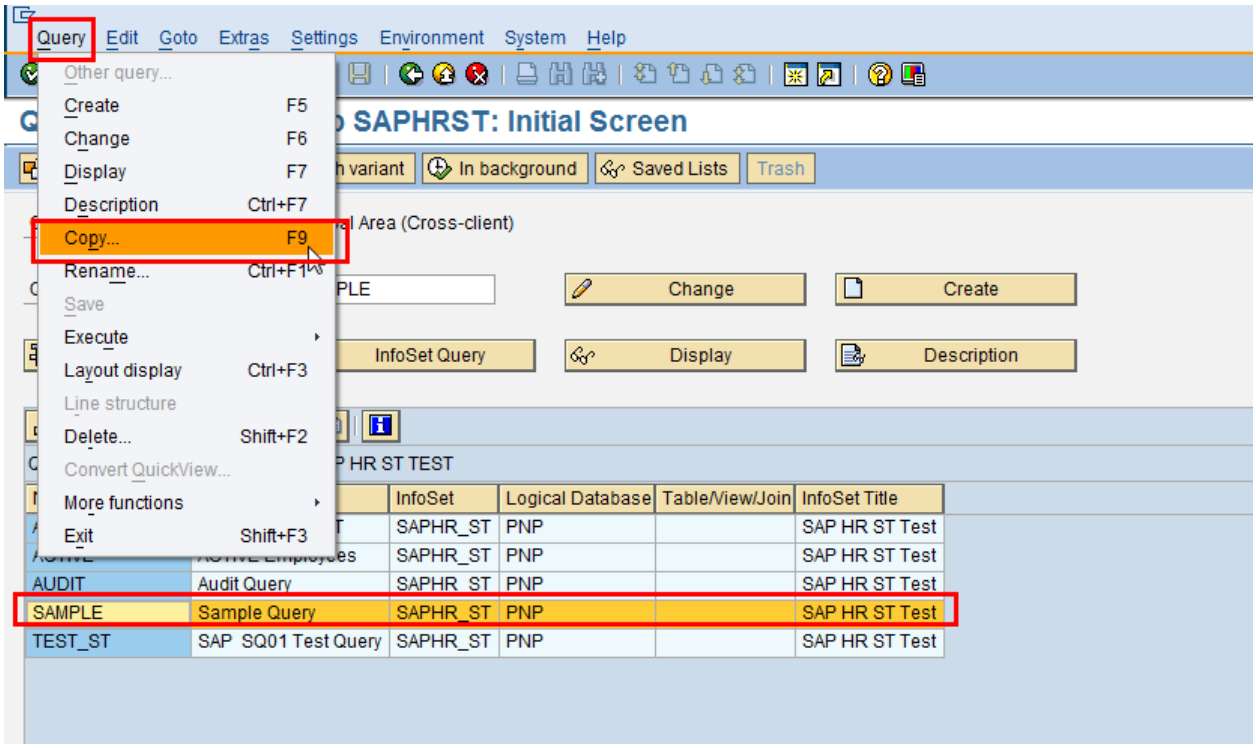
Other users in the user group will have access to your queries. They can run them, copy them and edit them. There is nothing to say that they couldn't modify your query and resave it. To avoid this, lock your queries on the title screen (screen #1):



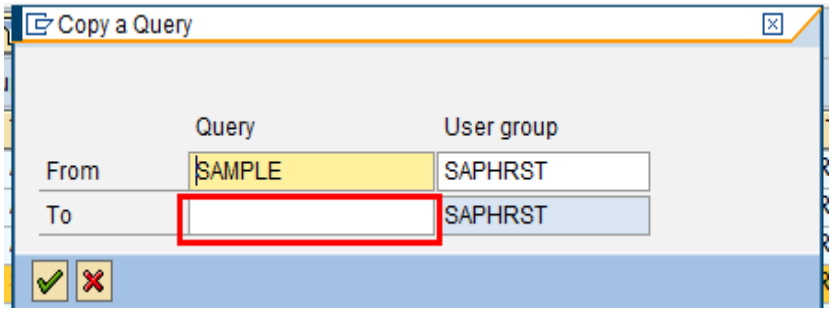
Copying Queries

You may decide to create a new query that contains many of the same local fields that an existing query does. Rather than creating a new query from scratch, you can copy an existing query.

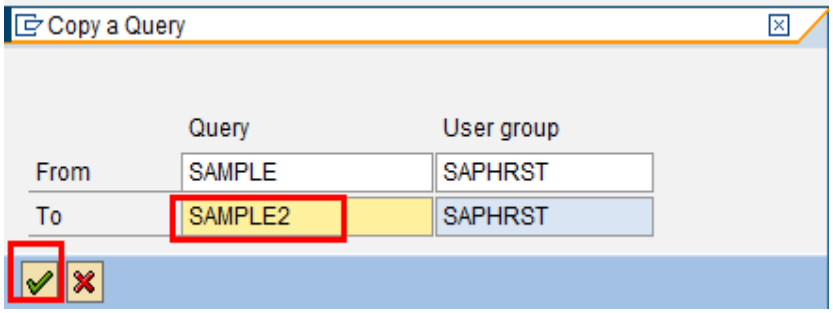
On the SQ01 maintenance screen, highlight the query you wish to copy and go to **Query→Copy**



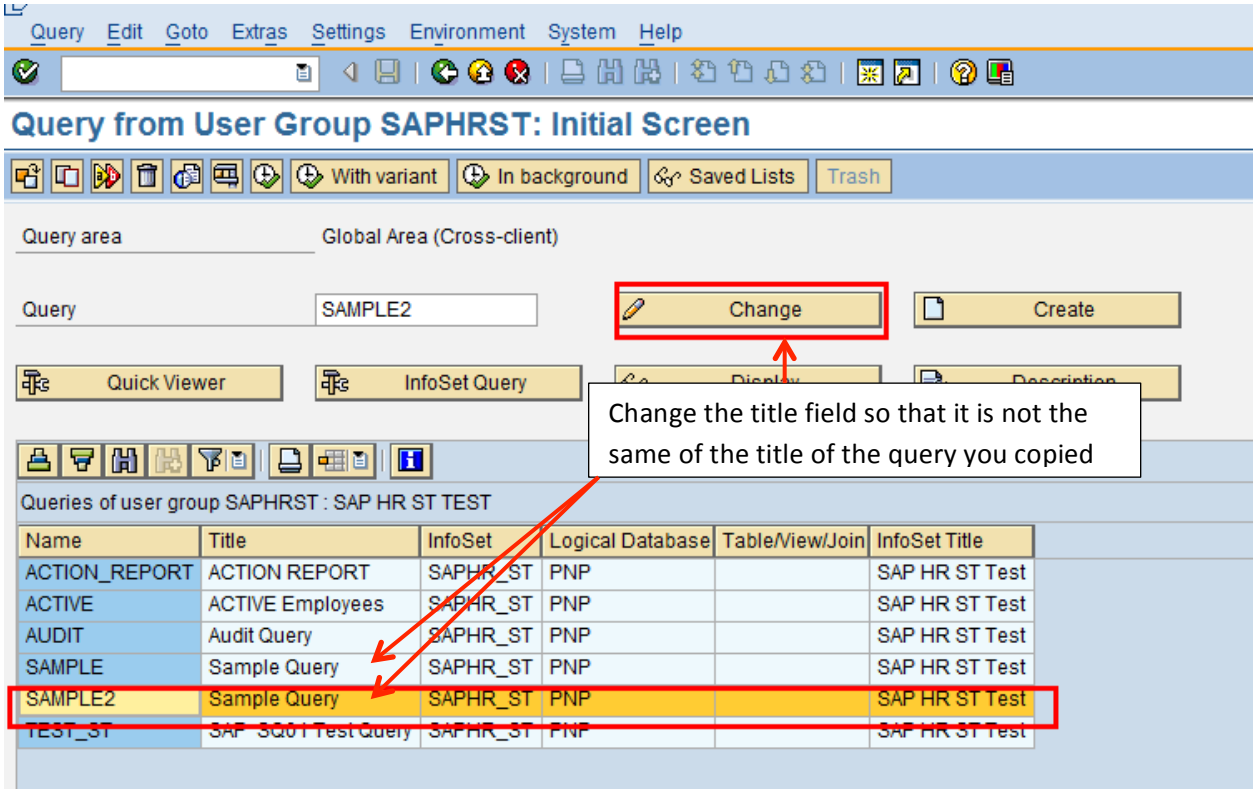
You will be prompted to name your new query:



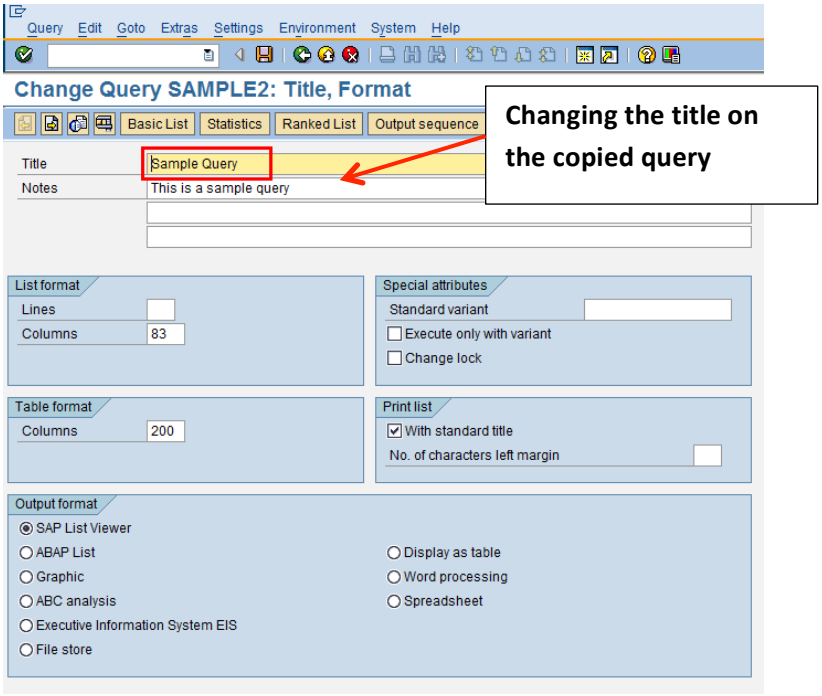
Name the query and click on the green checkmark to continue:



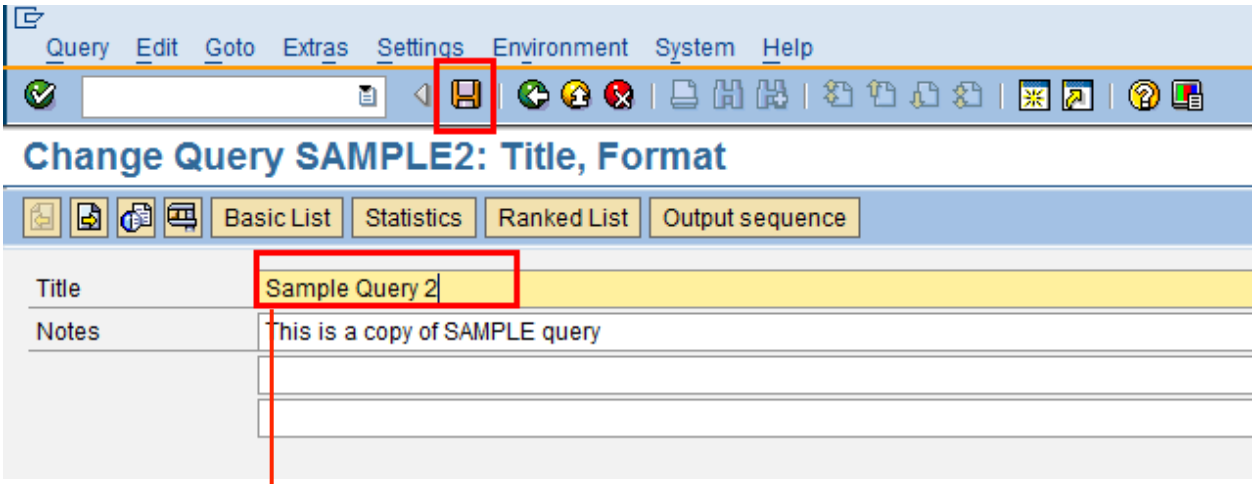
Your new query is now appears in the listing:



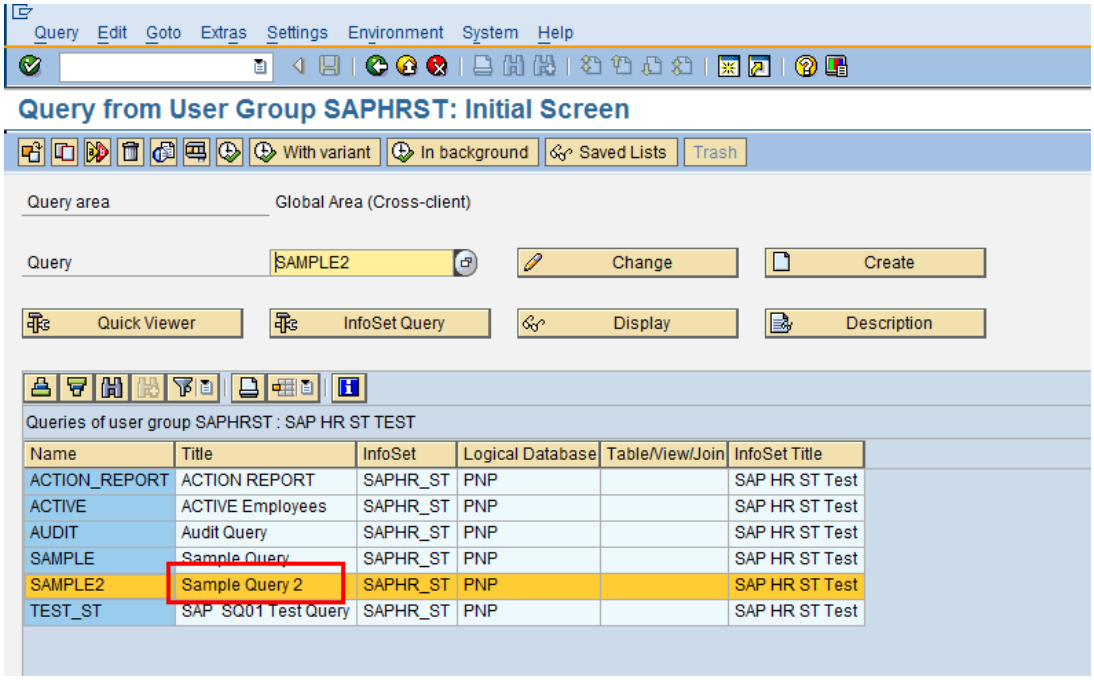
On the Title screen (screen #1), change the heading



Also modify the notes section to be more meaningful. Save the record

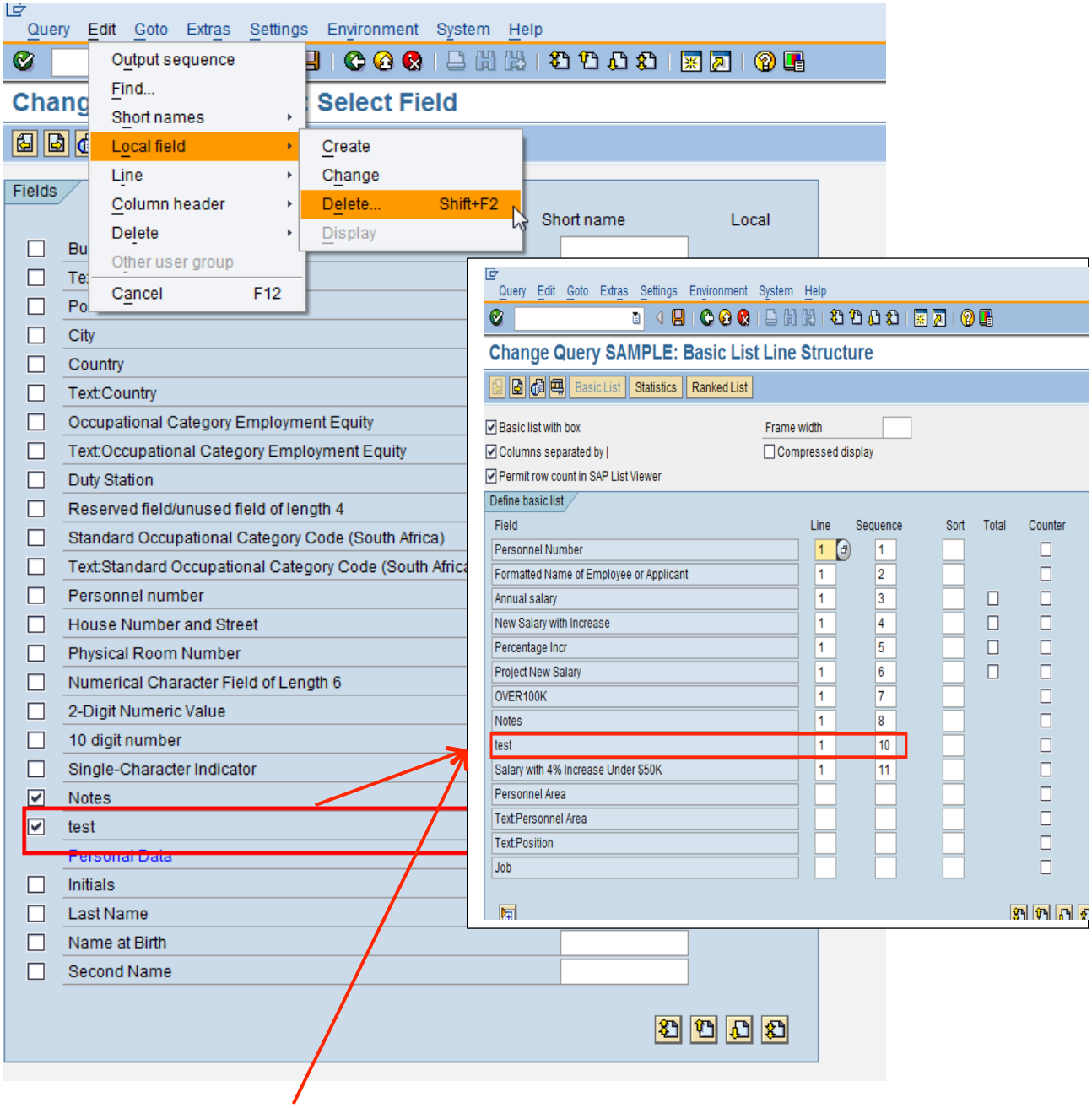


The title is now updated:

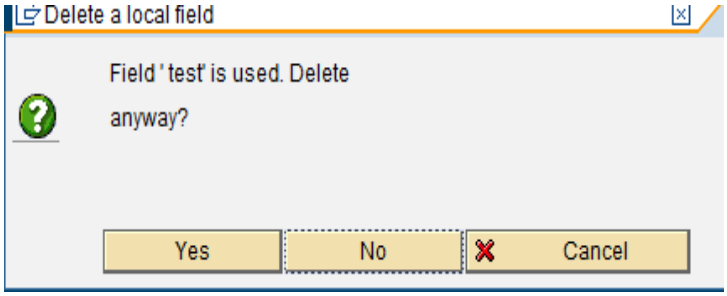


Deleting Local Fields

If you decide to eliminate a local field from a query, you may delete it on the Select Fields screen (screen #3). To do this, place your cursor on the local field and go to **Edit→ Local Field→ Delete**

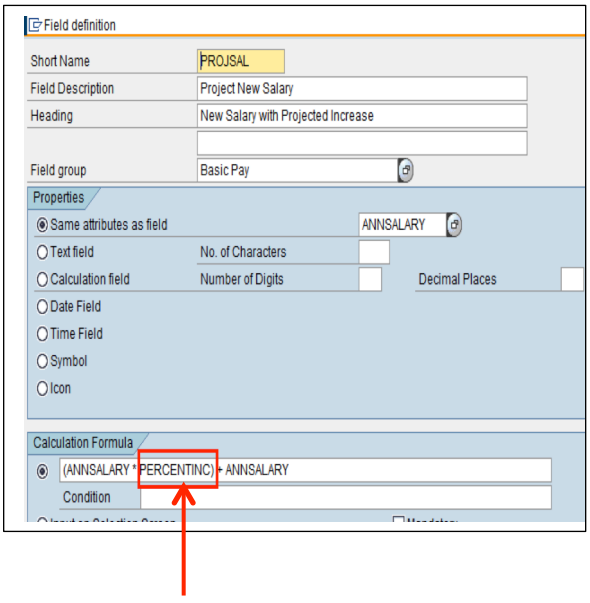


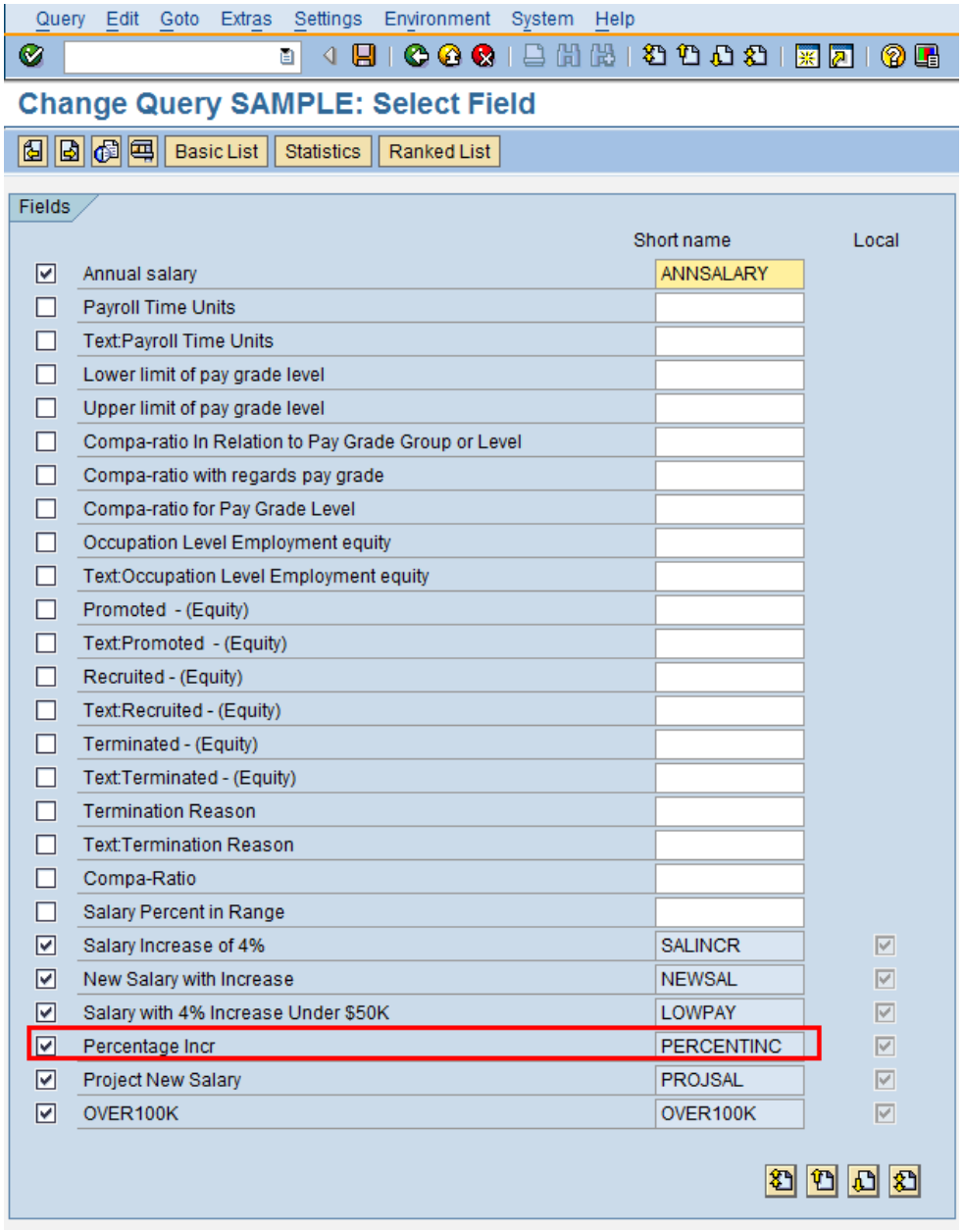
If this field is one of the report display fields (screen #5: Basic Line Structure), you will get a warning message.



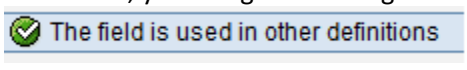
You may continue and the local field will be deleted. It will be removed from the Basic List Structure screen as well.

To delete local fields that are used in other local field calculations, you must first delete the reference in the other local field.





Otherwise, you will get a message and you will not be able to delete the local field.



Recap

SAP Query is a robust tool that enables users to create sophisticated reports with no programming. An easy to follow series of screens help the user create queries that are so much more powerful than ad hoc queries. The SAP query tool allows users to define the type of report to be created and the form the

output will appear in. Local fields, which are defined in and are specific to a query, can be used in several powerful ways. Local fields can define formulas used to calculate output values. In addition, local fields can determine the output value of fields based on the outcome of conditional statements. Local fields also can be used to add symbols and icons to reports based on conditions. Users can be prompted to enter a value on the selection screen in order to dynamically calculate output fields. The possibilities for reporting are endless.

What's Next

There are nine additional screens that a user can walk through to add further customization to reports. Subtotals, column headers, footers, and graphics can be added to your report. Text can be added to fields, and colors can be added. The next article will discuss how to add these features to your report to make it even more useful.