

Semantic Layer Exercises

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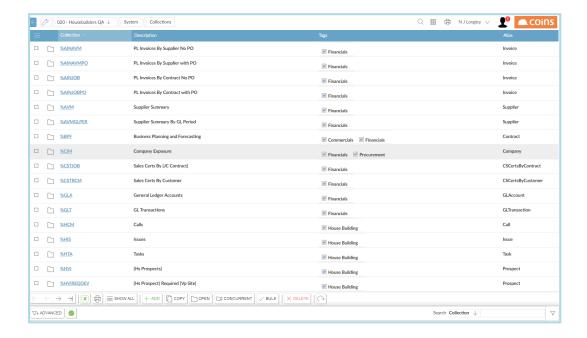
1 Exercise - A Simple Listing Report

In this exercise we are going to use the Semantic Layer to setup a Data Set for basic Contract Details and incorporate this into a report.

1.1 Build the Data Set

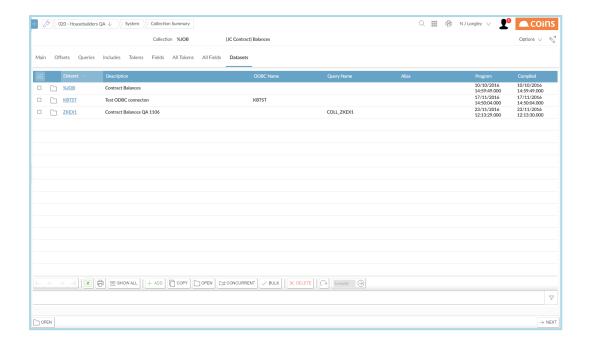
Navigate to the OA Reporting and BI module and select the Semantic Layer Subfolder.

Select the Collections menu option.



Select the Hyperlink on the %JOB Collection and select the Datasets Tab









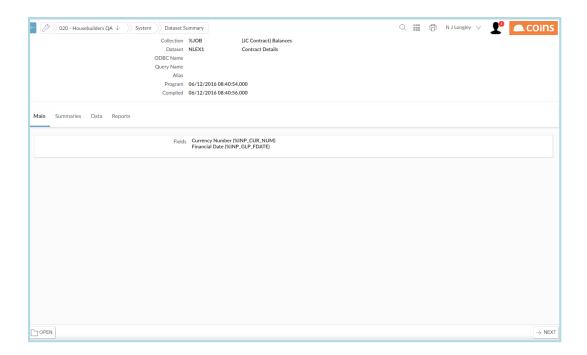
Enter a Dataset name of xxEX1 (Where xx are your initials).

Enter a description of Contract Details

Leave ODBC and Query Name details blank at this stage – we will return to these later

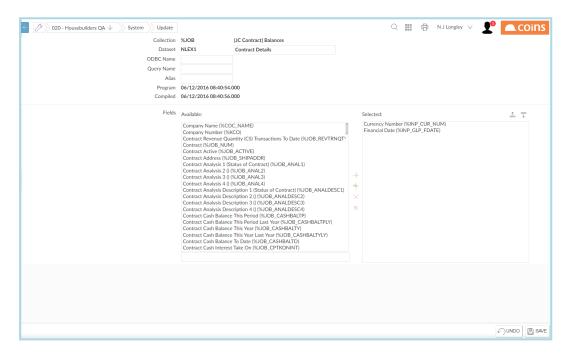






The Main Tab will display any mandatory fields that are required for the operation of the dataset.







From the Available field locate the following fields and move then to the Selected field.

Company Number (%KCO)

Contract (%JOB_NUM)

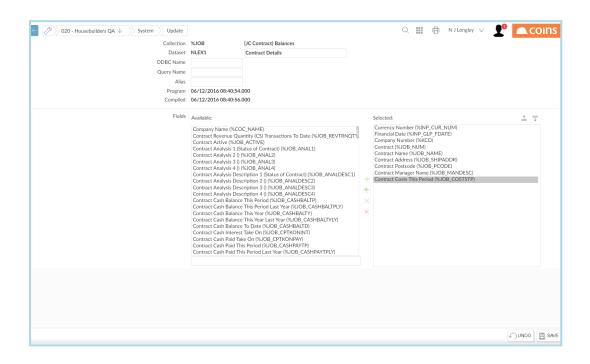
Contract Name (%JOB_NAME)

Contract Address (%JOB_SHIPADDR)

Contract Post Code (%JOB_PCODE)

Contact Manager Name (%JOB_MANDESC)

Contract Costs This Period (%JOB_COSTSTP)

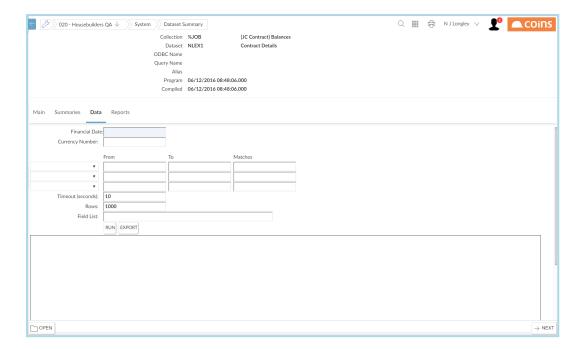




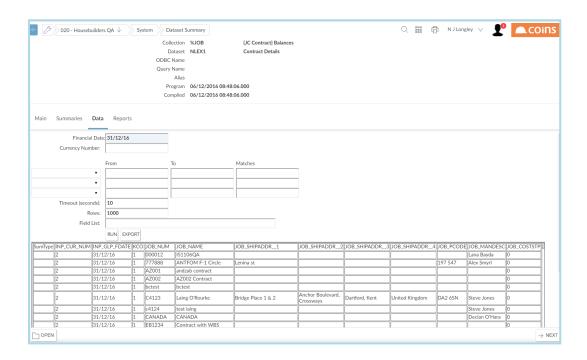
1.2 Test the Dataset

Select the Data tab





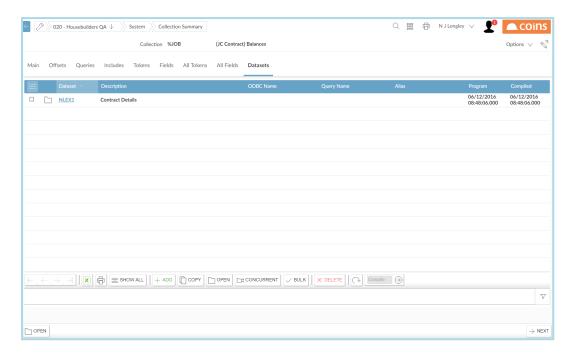
The yellow field indicates where a mandatory value is required – in this case it is the Financial Period on which we want to report. Enter a valid Financial Date and click Run



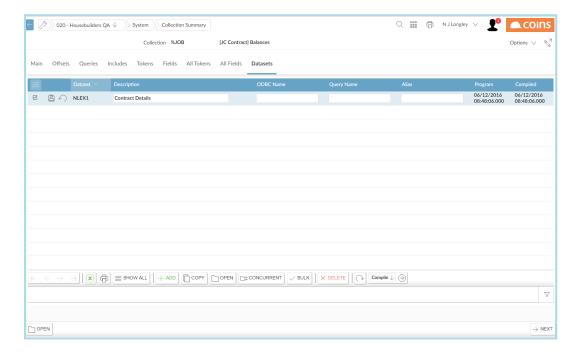


1.3 Make the Dataset available to the Reporting Tools

Return to the Collection %JOB and select the Dataset Tab

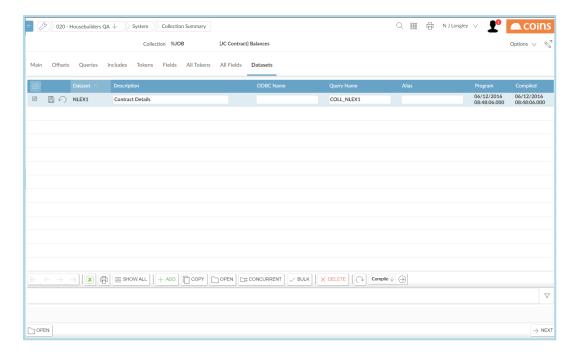


Open the Dataset by clicking against the Dataset Name.





In the Query Name field, enter COLL_xxEX1 (Where xx are your initials). We recommend prefixing Semantic Layer Query Names with COLL_ as it makes locating them easier later on.





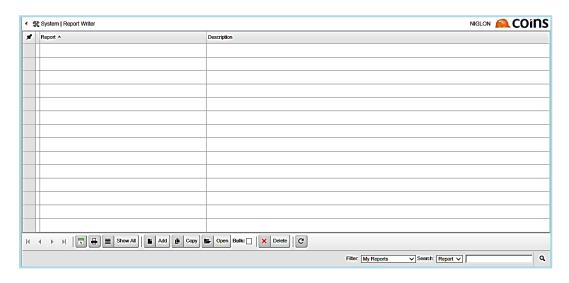


1.4 Using the Dataset in a Report Writer Report

This exercise assumes familiarity with the Report Writer Tool and therefore does not go into detail on its operation. A separate detailed guide on Report Writer is available from the COINS Learning Resources section in the Client Area on the COINS Website.



In the OA Reporting and BI Module, select the Report Writer Sub folder and select the Report Writer option

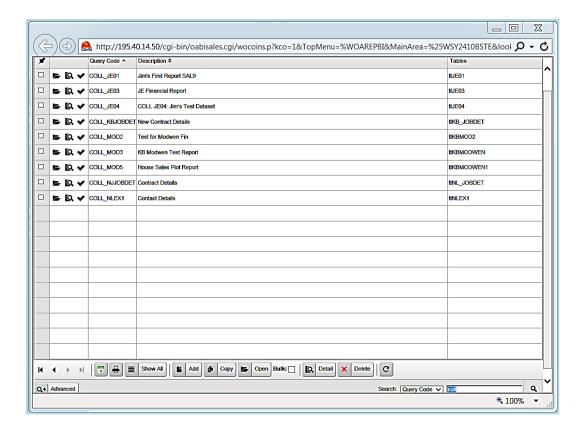




Give your report a name and description and click the Query lookup....

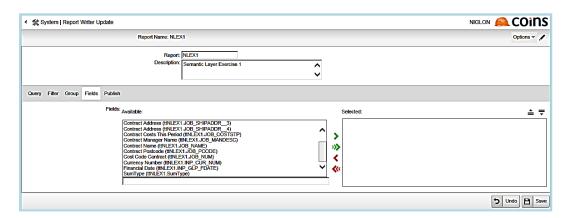
Set the Search filter to Query Code and COLL





Select the Query COLL_xxEX1 (Where xx is your initials) using the Select _____ button. This Query was created when you specified the Query Name against your Dataset within the Semantic Layer.

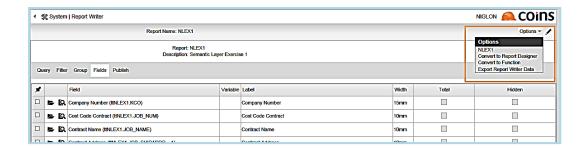
The fields available for selection are those as defined within the Dataset



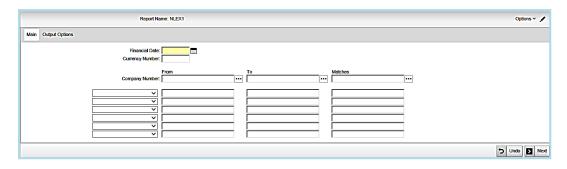
Select your fields arrange the order as required. Click Save

To run the report, click Options in the upper right of the screen





Select the Report name from the drop down menu

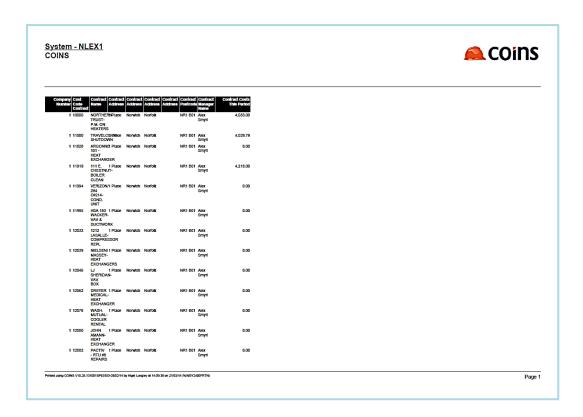


The selection screen from the Data tab on the Dataset definition is offered to the user for the record selection criteria. If any additional filtering is required, this can be built into the Report design using the Filter Tab.

Enter the record selection criteria. Yellow fields are mandatory. Note that the Company Number is not mandatory and will default to the Companies you have access to. This is a key difference to Standard OA Reports, which mostly run for a single COINS Company. Click

The report will be available on the Report Status Workbench





The report can now be modified to correct any issues with column width etc.



1.5 Using the Dataset in an OA Designer Report

This exercise assumes familiarity with the OA Designer Tool and therefore does not go into detail on its operation. If your company does not use the OA Designer Toolset, this exercise may be ignored.

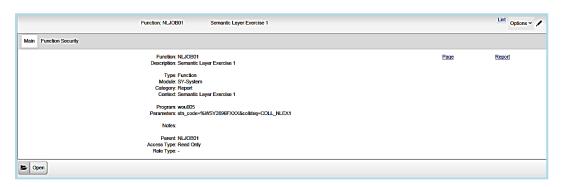


In the OA Reporting and BI Module, select the Functions folder and select the Function Maintenance option

Create a new function with the following parameters (where COLL_NLEX1 is query name of our dataset)

stn_code=%WSY2896FXXX&colldsq=COLL_NLEX1

For example:



In the OA Reporting and BI Module, select the Designer folder and select the Report Designer option



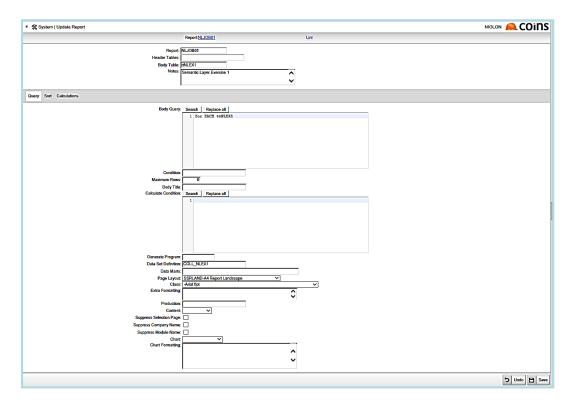


Add a new Report with the same name as the Function created above.

The body table will be ttNLEX1 (i.e. the name of the dataset prefixed with tt).

The body query will be: FOR EACH ttNLEX1

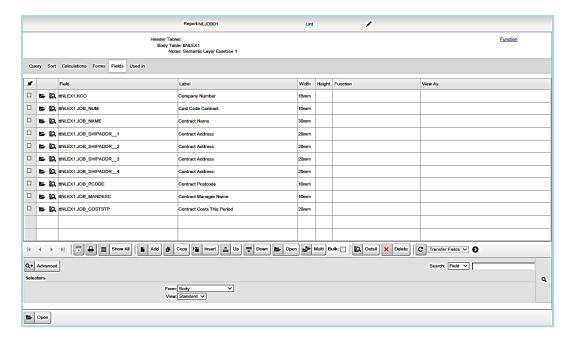
The Data Set Definition will be COLL_NLEX1 (i.e. the Query Name of the Dataset)





Click Save

Add a Body Form and add the required fields to it.

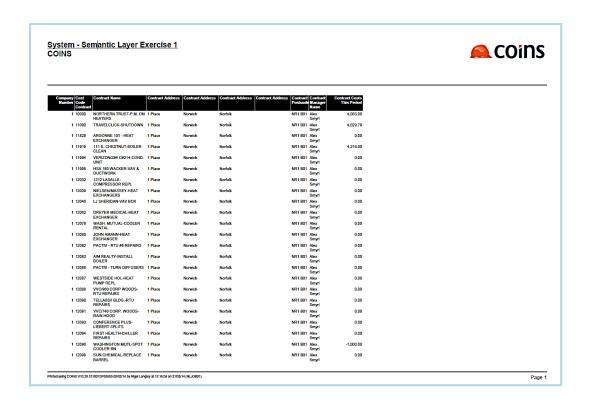


When the report is run, the Dataset selection screen is presented. Mandatory fields are in Yellow. Note that the Company Number is not mandatory and will default to the Companies you have access to. This is a key difference to Standard OA Reports, which mostly run for a single COINS Company.



When run, the output will be available from the Report Status Workbench



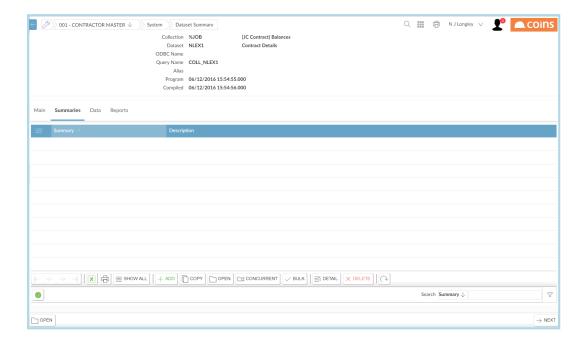




2 Exercise - Summaries

Within the Semantic Layer Dataset, you can have summary information created at the same time as the detailed data. These summaries can then be accessed within queries without the need to build separate datasets. This may be useful for running a series of inline reports based on detail and summary data – the dataset needs only be built once to feed each of the reports.

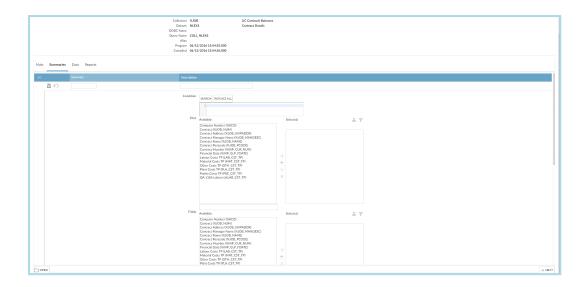
In the dataset we created in Exercise 1, open the dataset and click the Summaries Tab.



Here we can define different levels of summary, depending on your requirements.







The summary name can be any name you like, but COINS best practice is to use a three letter short code for the separate keys. KCO, JOB, MAN etc. for keys such as Company, Contract and Manager. Thus a summary on Company would be called KCO, a summary based on Company and Manager would be KCOMAN

Enter KCO as the summary name for our first summary level.

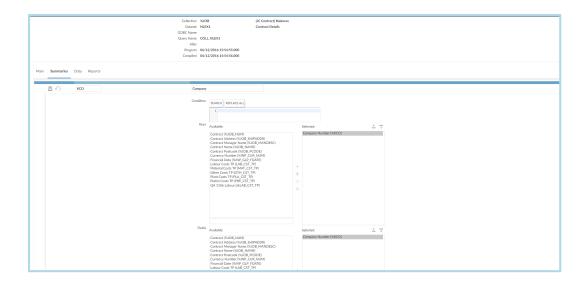
The Keys define which fields the summary will be based upon and the order you define them will set the order of the summary breakdown.

• Select the Key Company Number (%KCO)

The fields' selector determines the fields that you want brought across into the summary. All numeric fields will be included by default and do not need to be selected, but text fields such as Company Name, Account Number etc. will not come across unless you s[specify them. The fields you bring across should be relevant to the summary keys you set, so in this example we are summarising by company, so contract names and contract numbers will be irrelevant.

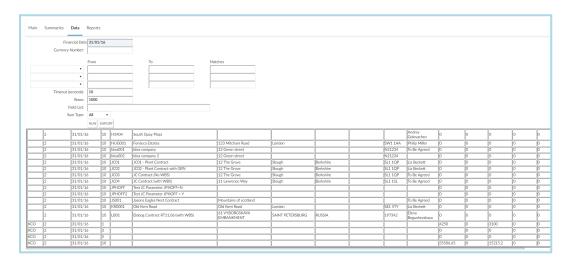
Select the Company Number field





Click Save and then click on the Data Tab

Run the data for a suitable period and scroll down the results to the last set of records.



Where the column Sumtype is blank, these are the detail records. At the end of the list will be records with the sumtype KCO for the summary records you have just created. The entry KCO is the name of your summary level.

Note: You can restrict which summaries are displayed by setting the Sum Type drop-down to the appropriate setting

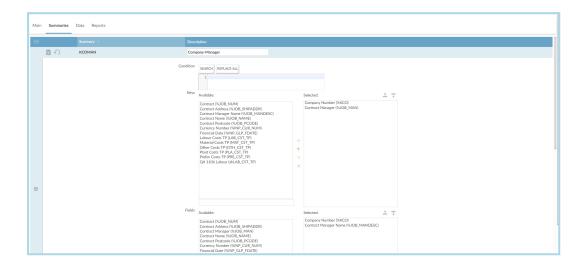
Return to the Summaries Tab and click Add to create another summary level



Use the Summary name KCOMAN and Description Company-Manager

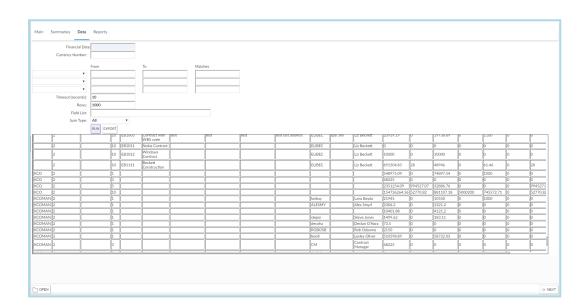
Set the Keys to Company Number (%KCO) and Contract Manager (%JOBMAN)

Set the fields to Company Number (%kCO) and Contract Manager Name (%JOB_MANDESC)



Click Save and then return to the Data Tab

Re-run the data and scroll to the last set of records





You should now see additional summary records with sumtype KCOMAN.

2.1 Using the summary data in a report

Within a report query, you can use the field sumtype to limit records to only those at your selected summary level.

For example:

Our dataset is NLEX1 so our query to report only on summarise manager records might be:

FOR EACH ttNLEX1 WHERE ttNLEX1.sumtype = 'KCOMAN'

To report on detail records only, and ignore the summaries, simply use a test for records where sumtype is blank:

FOR EACH ttNLEX1 WHERE ttNLEX1.sumtype = "

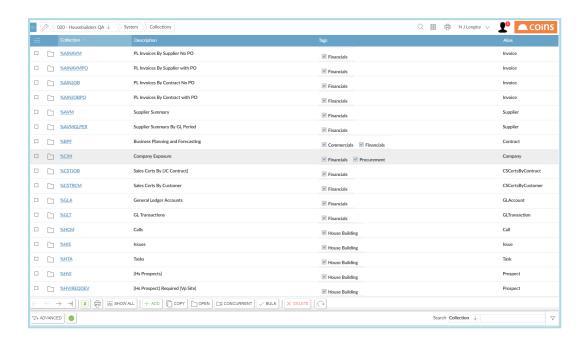


3 Exercise - Adding fields to a Collection

In this exercise we are going to add create some additional fields within the %JOB collection and add them to the dataset we created in Exercise 1

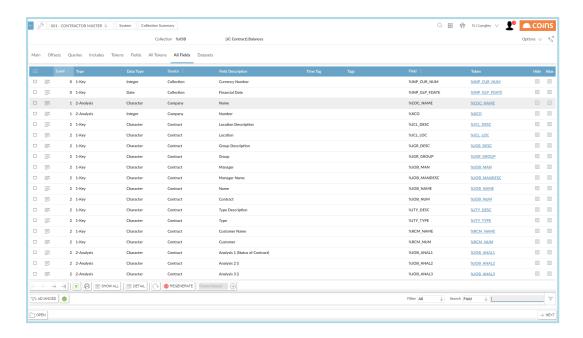
3.1 Add the fields

• Navigate to OA Reporting and BI > Semantic Layer > Collections



• Select the Hyperlink on the %JOB Collection and select the All Fields Tab

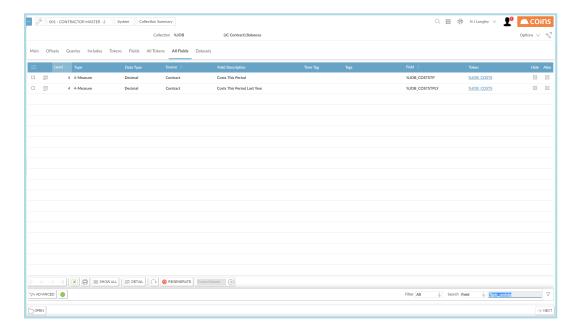




In our Dataset, we used the field Contract Costs This Period (%JOB_COSTSTP). However, we have been asked to also report on Costs last period, and the period before that. These were not available within the collection, so we need to add this functionality into the collection before we can add it to our dataset.

Since we already have a field looking at period costs, we can base our new fields on the existing one

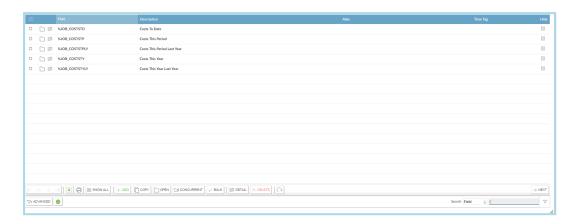
• Set the Search Filter to Field and %JOB_COSTSTP





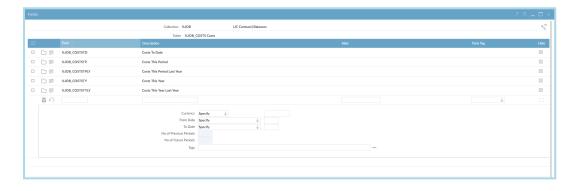
Against the field, you will see a column called Token. Tokens define the way data in a field is generated. Multiple fields may use the same token, but by altering some parameters, each can change the way in which they use it.

• Select the hyper link against the Token (%JOB_COSTS).



This screen lists the fields currently defined by this Token. As we can see, there are no fields defined that look one or two periods back from This Period.





Specify a field name of xxCostsTPL1 (Where xx are your initials) and a description of Costs Last Period.

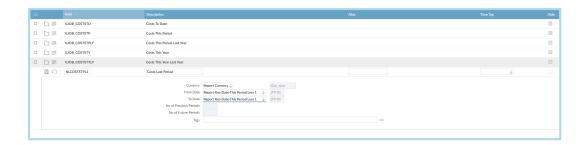
Set Currency to Report Currency

Set From Date to Report Run Date - This Period Less 1

Set To Date to Report Run Date - This Period Less 1



Previous and Future Periods should be set as 0 (Zero)



Click Save

Copy the field you have just created. Change its name to xxCostsTPL2 and its description to Costs This Period Less 2.

Amend the From and To dates to Report Run Date - This Period Less 2



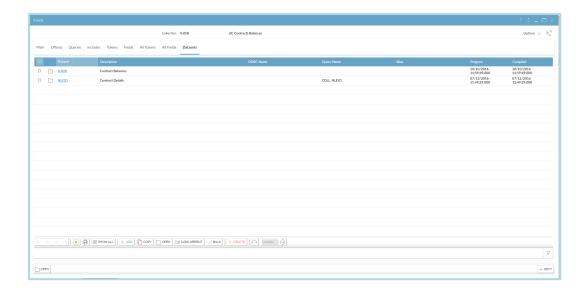
Click Save

3.2 Add the fields to the Dataset

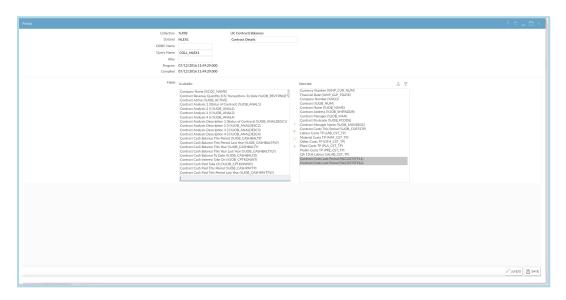
Once the fields are created in the collection, they are immediately available to selection in new or existing Datasets. In this exercise we will add them to our existing dataset xxEX1.

In Collection %JOB, navigate to the Datasets Tab





Open the Dataset xxEX1 and add your two new fields to the dataset





Check the Program and Compiled date and Time have updated



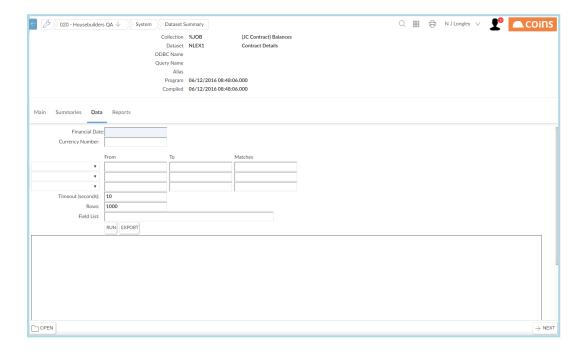


If these do not update, your changes will not be effective and you may need to seek assistance to identify why the compile did not take place. As checks are made at all stages of your changes, this should be a rare occurrence.

At this point, your dataset will have the new fields and any new reports based on this dataset will have them available for selection. Any existing reports based on this dataset will have the columns available for adding next time you edit the design but will not automatically have the columns added.

3.3 Test the Dataset

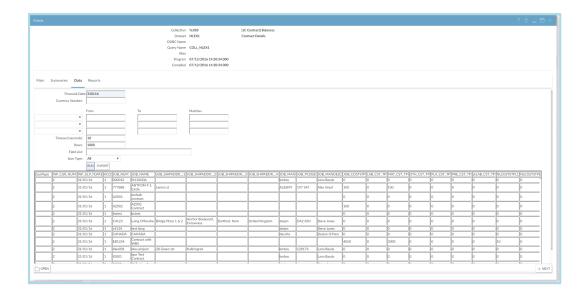
Select the Data tab



The coloured field indicates where a mandatory value is required – in this case it is the Financial Period on which we want to report. Enter a valid Financial Date and click Run

Your new fields should now appear on the output with the figures changing as appropriate.







4 Exercise – Adding Calculated Fields to a Collection

In the last exercise, we created new fields based on a Token and modified parameters. In this exercise, we are going to create a number of fields using calculations to control their functionality. If performing this exercise, familiarity with either OA Designer, or with Excel formulas is very desirable because this exercise requires the entry of formulas.

Please note that the calculations used are Progress Code and NOT the calculation syntax used elsewhere in the OA BI Toolset. Refer to Appendix of common formulas

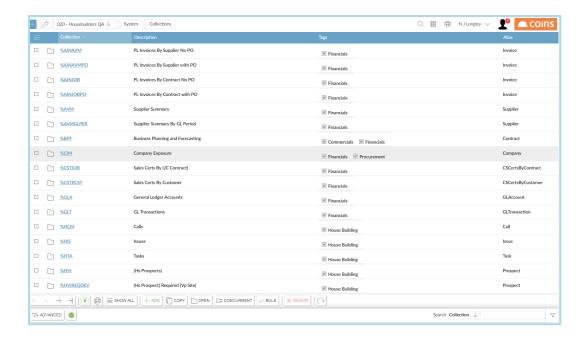
4.1 Add the fields

Our dataset currently reports on Costs for each contract, but we now want to break the costs down to each costs category for the current period. The costs Token did not offer a parameter to do this so we need to make used of the Calculated Fields Tokens.

Navigate to the OA Reporting and BI module and select the Semantic Layer folder.

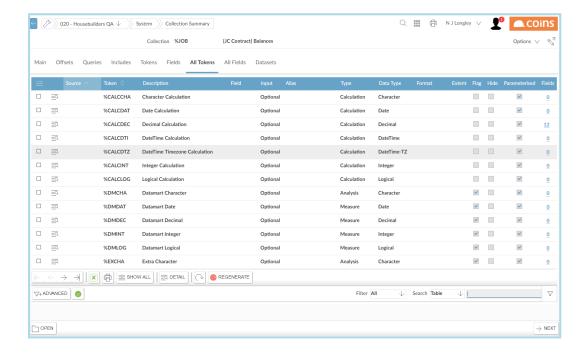
Select the Collections menu option.





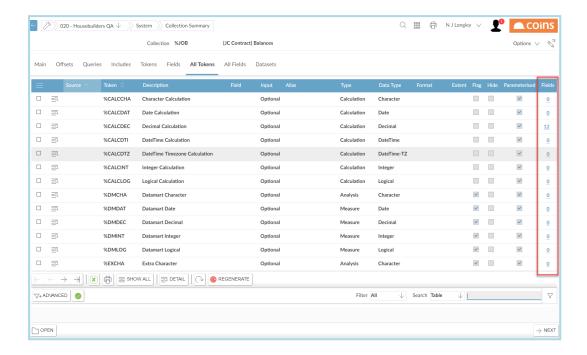
Select the hyperlink on the %JOB Collection and select the All Tokens Tab.

Set the Search filter to Token and search for *calc*

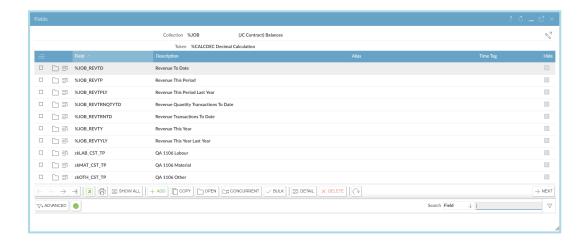




There are calculated field Tokens for each of the data types (Integer, Decimal, Character etc.). The Fields column on the far right indicates the number of fields that have been created against a token and provides a hyperlink to the field definitions.



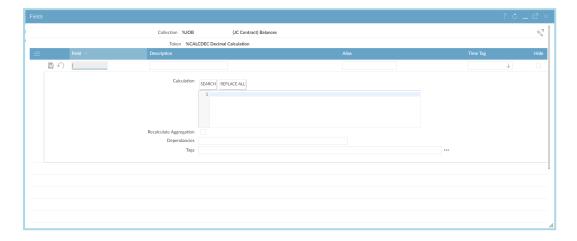
We are going to create fields containing cost figures so select the hyperlink for the fields against %CALCDEC.





The %JOB Collection contains links to Contract data and Cost Code data and we can reference this is our calculations.





Our first field is going to breakdown Labour Costs, so give the field a name (for example xxLAB_CST_TP where xx = your initials) and a description that will be meaningful to your users.

Our calculation needs to look at the Category code against each cost code and add up the costs to date if it matches 'L', (which is the category code for Labour in the COINS training database – your COINS system may use a different code). There is already a field in the Collection for accumulating Cost Code Costs for this period (%JCC_COSTSTP) so we can use this as the basis to accumulate our broken down costs

Our calculation (in Progress syntax) is as follows.

(IF jc_costcode.jcc_defcat = 'L' THEN {&table}.JCC_COSTSTP ELSE 0)

The calculation requires %JCC_COSTSTP in order to function, so we need to ensure that it is automatically added to any datasets. We can do this by adding an entry for %JCC_COSTSTP to the Dependencies field.







Copy the field and change its name to xxMAT_CST_TP with a description appropriate for Material Costs.

Change the Calculation to look for a Category code of M (Materials)





Repeat from step 11 for category codes A (Prelims), O (Other), P (Plant) and S (Subcon)

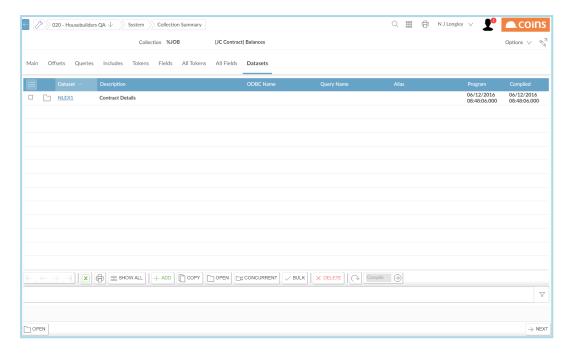


4.2 Add the fields to the Dataset

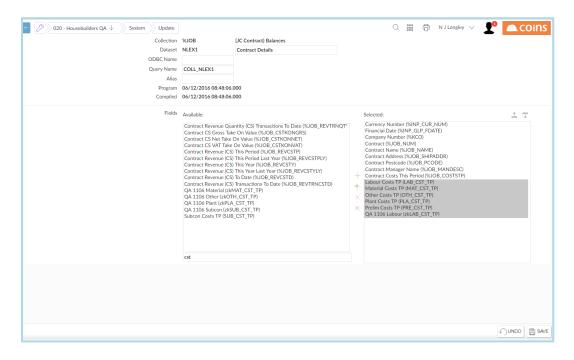
Once the fields are created in the collection, they are immediately available to selection in new or existing Datasets. In this exercise we will add them to our existing dataset xxEX1.



In Collection %JOB, navigate to the Datasets Tab



Open the Dataset xxEX1 and add your two new fields to the dataset





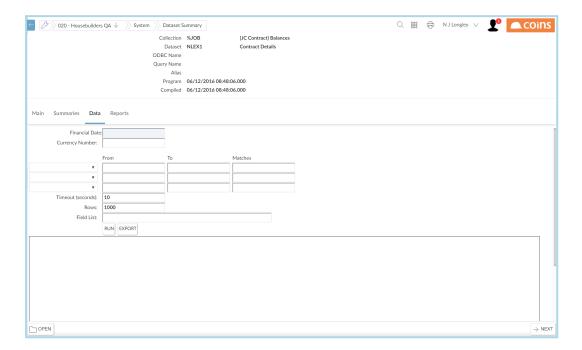
Check the Program and Compiled date and Time have updated



At this point, your dataset will have the new fields and any new reports based on this dataset will have them available for selection. Any existing reports based on this dataset will have the columns available for adding next time you edit the design but will not automatically have the columns added.

4.3 Test the Dataset

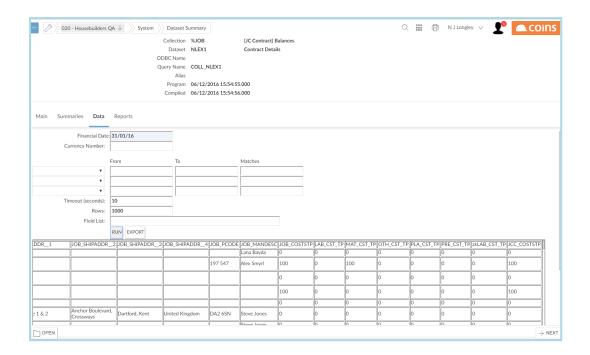
Select the Data tab



The coloured field indicates where a mandatory value is required – in this case it is the Financial Period on which we want to report. Enter a valid Financial Date and click Run

Your new fields should now appear on the output with the figures changing as appropriate.







5 Exercise - Adding Fields to a Collection Table

In exercise 3 we added a field to a collection. It should be emphasised that only if the field is relative to another field, the value of which is not known until the collection; for instance a field which relies on the Financial Date (as in the previous examples), should it be created on the collection.

If the field is relative to the table only then it should be created on the table as a field. In this way it will be available to any collection that uses that table in the query. By creating a field on the collection it is only available to that collection.

5.1 Add a new Token

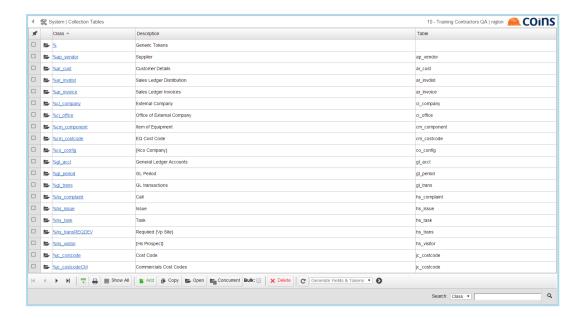


Similar to RO fields, Tokens are Progress code subroutines that collect data. For this exercise we are going to create a token to check the hold code on supplier records and if a supplier is on-hold, we are going to generate a field that will contain the text "ON-HOLD" that we can use in a report.

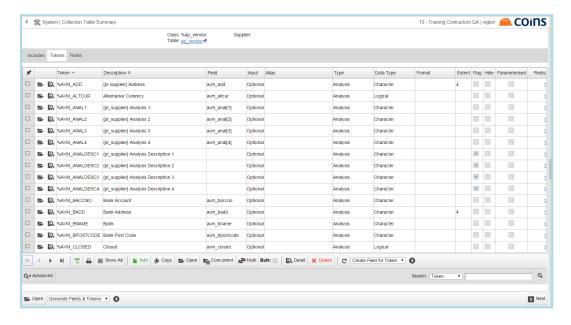
Navigate to the OA Reporting and BI module and select the Semantic Layer folder.

Select the Collection Tables menu option





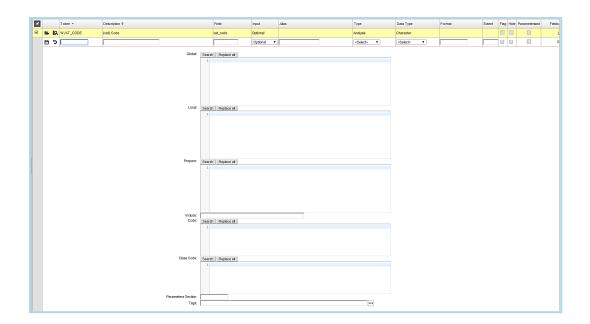
Select the hyperlink on the table %ap_vendor and select the Tokens tab.



If we look through the available Tokens, we can find %AVM_HOLD which has a single field that returns the value of the Hold field on the supplier record. This will be a Logical Y or N value. We want to create a Token that will take this Y or N value and create a field that will contain either blank or "ON-HOLD"

Click Add





Give the Token a name of HOLD_TEXT, do not prefix with % as this is not a standard Token and we do not want it overwritten in future updates from COINS. Token names should be named similarly to the fields they represent in the database.

The token name and description should mak it obvious to a designer what the token will do.

Add description of On Hold Report Text.

Add a field name of hold_text

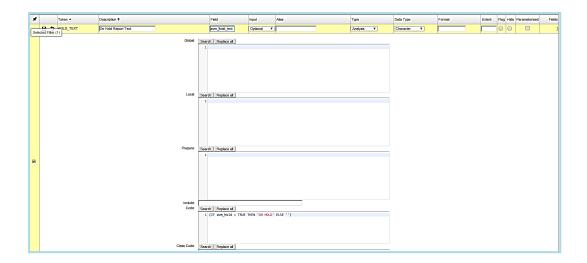
Set Input to Optional

Set Type to Analysis, and Data Type to Character.

We now need to add some progress code that tells the Token how to generate field values. In the Code section add the code:

(IF avm_hold = TRUE THEN 'ON HOLD' ELSE ")





Click Save.

Select the new field and on the Action Dropdown select Generate Fields & Tokens and click Apply.

If there are any errors in the Progress code, these will be indicated in a dialog box. These errors will need to be corrected before the Token/field can be created. If there are no errors, the Token will be created and the Fields column will change from 0 to 1.

Navigate back to Collections and open the %AVM collection.

Create a new dataset called Exercise5xx where xx = your initials. E.g. Exercise5NL

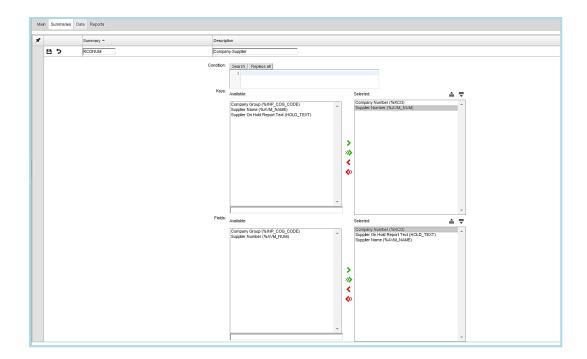
Open the Main Tab and add the fields for Company number (KCO), Supplier Number (%AVM_NUM), Supplier Name (%AVM_NAME) and Supplier On Hold Report Text (HOLD_TEXT)

Click Save

Create a Summary called KCONUM, with Keys of Company Number (%KCO) and Supplier Number (%AVM_NUM)

Add the fields for Company Number(%KCO), Supplier Name (%AVM_NAME) and Supplier On Hold Report Text (HOLD_TEXT)





On the Data Tab, enter the Company Group TCQA (this is the company group in the COINS training environment – you system will have different Company Group names)

Set the Sum Type to Company-Supplier and click Run

