

Supported Version: Oracle BAM 10.1.3

Objectives:

This document describes the steps to create a data object in the BAM ADC. These data objects reflect the business data that is captured in BAM for presentation, analysis, alerts etc. Data objects can also contain calculated or look up fields.

Prerequisites:

1. Basic knowledge of BAM and installed BAM software.
2. This document uses the BPEL OrderBooking Tutorial as an example to capture business data into BAM ADC data objects.

Creating BAM data objects:

We have to manually create the BAM ADC data objects for the OrderBooking Tutorial. The data from the OrderBooking process is captured into two different data objects.

BPELOrderBookingDataObject – this data object captures the business related data information of the order process. Information such as: OrderPrice, SupplierPrice, SupplierName, OrderStatus etc are stored in this data object as fields. (detailed list of all the field capturing business information is given below). A simple calculated field to calculate the profit is included in this dataobject.

BPELOrderBookingTimestamp – this data object captures the timing related information of the order process. Date/Time information of various process stages such as: OrderInitiated (recieveInput), CreditCheck, SupplierTiming (send & receive of communication to RapidDistributors & SelectManufacturing), OrderApproval timings (send & receive to human work flow) etc are stored in this data object as fields. (detailed list of all the field capturing business information is given below). Several calculated fields computing the time different between various fields, are included to capture the time duration spent at various order processing stages. (details given below).

Open BAM console, select Architect, and select data objects drop down list.

Create a folder called StudentLab, and create two data objects called BPELOrderBookingTimeStamp and BPELOrderBookingDataObject..

Manually creating new data object for timestamps

Click on “Create Data Object” to create a new data object. Enter the name of the data object as “BPELOrderBookingTimestamp”. Note: The DataObject name and all the field names are case sensitive – so make sure the name matches exactly as mentioned.

Click on “Add a Field” to create the fields for this Data Object.

Choose the field names, and type as shown in the screen shot.

Note: The TS suffix in the field names are used to reflect the fact that these are TimeStamp values of Type DateTime.

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(Tutorial_3_BAM_CreatingDataObjects.doc)

instanceId	String	100	Nullable	Public	Tip Text- blank
receiveInput_TS	DateTime		Nullable	Public	Tip Text- blank
invokeSM_TS	DateTime		Nullable	Public	Tip Text- blank
invokeRD_TS	DateTime		Nullable	Public	Tip Text- blank
receiveSM_TS	DateTime		Nullable	Public	Tip Text- blank
receiveRD_TS	DateTime		Nullable	Public	Tip Text- blank
invokePOA_TS	DateTime		Nullable	Public	Tip Text- blank
receivePOA_TS	DateTime		Nullable	Public	Tip Text- blank
callbackClient_TS	DateTime		Nullable	Public	Tip Text- blank
Alert	Integer		Nullable	Public	Tip Text- blank

Note these are case sensitive and these exact names will be used later for defining the composite object relationship.

The screenshot shows the Oracle BAM Data Objects configuration window. The left pane displays a tree view with 'Data Objects' selected. The main pane shows the configuration for a data object with the following fields:

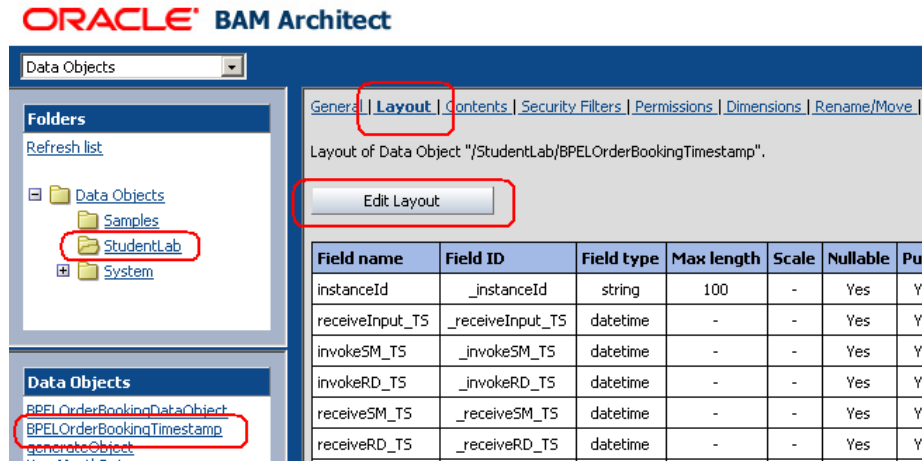
Field Name	Field Type	Max size	Nullable	Public	Tip Text
instanceId	String	100	Nullable	Public	
receiveInput_TS	DateTime		Nullable	Public	
invokeSM_TS	DateTime		Nullable	Public	
invokeRD_TS	DateTime		Nullable	Public	
receiveSM_TS	DateTime		Nullable	Public	
receiveRD_TS	DateTime		Nullable	Public	
invokePOA_TS	DateTime		Nullable	Public	
receivePOA_TS	DateTime		Nullable	Public	
callbackClient_TS	DateTime		Nullable	Public	

Note: This object is created to show users how to manually create data objects. Later parts of the next documents- we will design a plan to populate this data object based on event correlation id.

Dynamic calculation fields

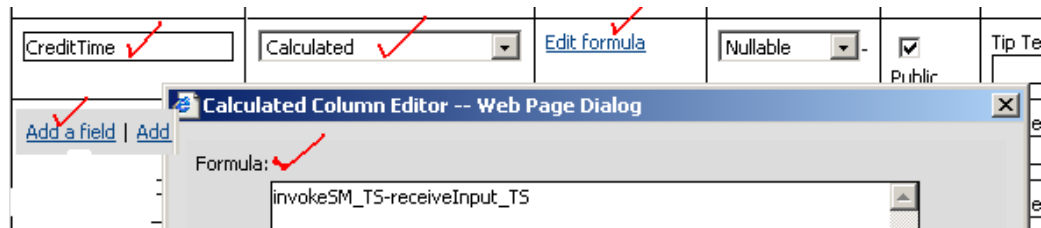
Create additional Dynamic Calculation fields on the above object. These calculated fields are later used in the reports for plotting graphs. Since the data does not change after they are populated, it is safe to compute the additional information in the data object, than in the reports (thereby avoiding performance penalties).

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Click on “Add a field”, give the fieldname as “CreditTime”, type = Calculated.

Click on “Edit Formula” and provide a formula (“invokeSM_TS-receiveInput_TS”) for calculating the time taken for executing the credit check. We do this by calculating the time difference between invokeSM_TS and receiveInput_TS.



Click on OK.

Similarly add the following “calculated fields”. (Note these values are case-sensitive)

FieldName	Type	Formula	Explanation
CreditTime	Calculated field	invokeSM_TS- receiveInput_TS	Time taken for credit check
SMTTime	Calculated field	receiveSM_TS- invokeSM_TS	Time taken for SelectManufacturing
RDTime	Calculated field	receiveRD_TS- invokeRD_TS	Time taken for RapidDistributors
UserReviewTime	Calculated field	receivePOA_TS- invokePOA_TS	Time taken for User Review (HWF)
UserReturnTime	Calculated field	callbackClient_TS - receivePOA_TS	Time taken to return result to user
End2EndTime	Calculated field	callbackClient_TS – receiveInput_TS	End to End processing time

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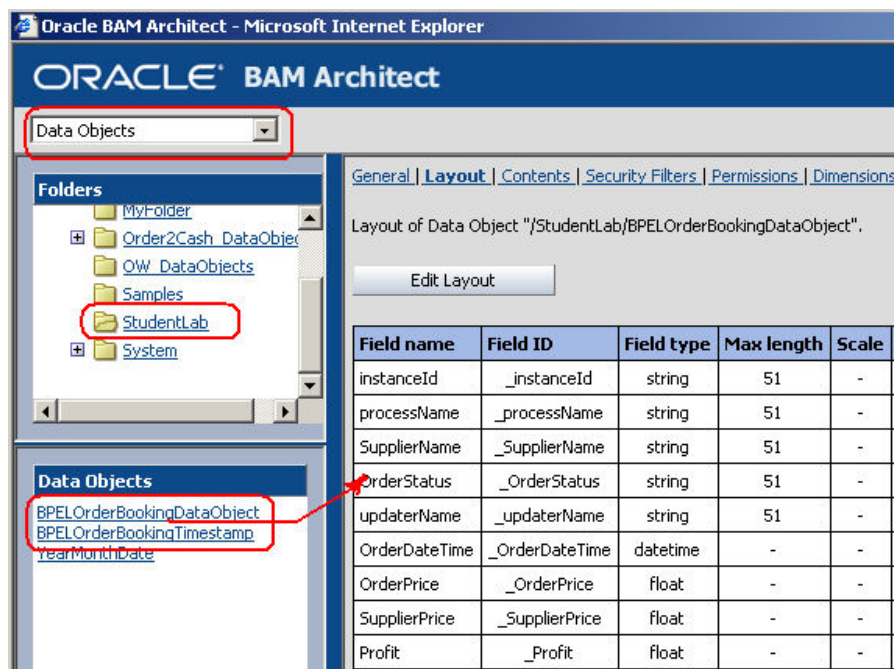
This completes defining the dynamic calculated fields in the object. Click “Save Changes” to save these changes. Click “Continue”.

Manually creating new data object for OrderBooking (orders data)

Click on “Create Data Object” to create a new data object. Enter the name of the data object as “BPELOrderBookingDataObject”. Note: The DataObject name and all the field names are case sensitive – so make sure the name matches exactly as mentioned.

Click on “Add a Field” to create the fields for this Data Object. Choose the field names, and type as shown in the screen shot.

instanceId	String	51	Nullable	Public	Tip Text- blank
processName	String	51	Nullable	Public	Tip Text- blank
SupplierName	String	51	Nullable	Public	Tip Text- blank
OrderStatus	String	51	Nullable	Public	Tip Text- blank
updaterName	String	51	Nullable	Public	Tip Text- blank
OrderDateTime	DateTime		Nullable	Public	Tip Text- blank
OrderPrice	Float		Nullable	Public	Tip Text- blank
SupplierPrice	Float		Nullable	Public	Tip Text- blank
Profit	Float		Nullable	Public	Tip Text- blank



Click “Save Changes” to save these changes. Click “Continue”. Close the Architect window.

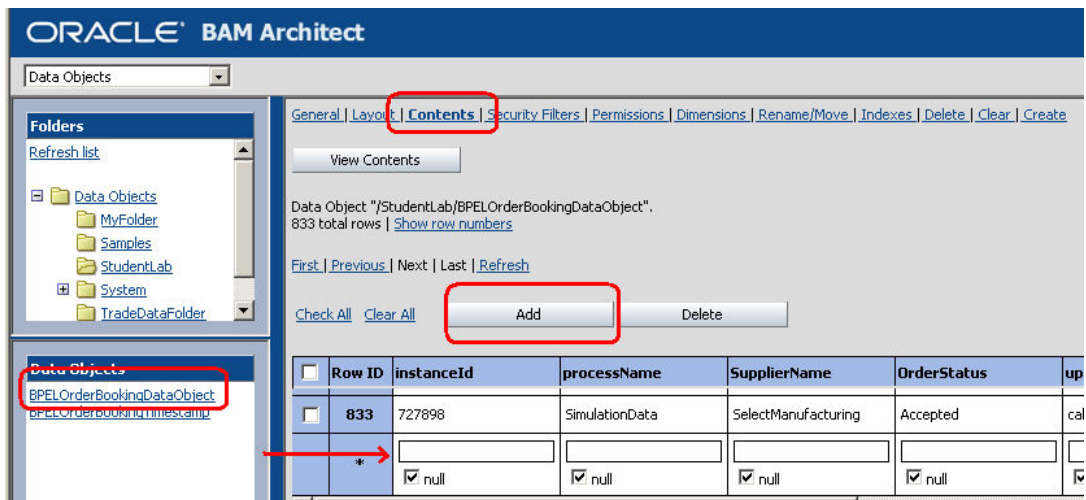
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Adding Content to data objects:

After creating the data objects, you can add contents manually to these data objects (i.e., add new rows of information), by editing it.

Click on the data object, and select “Contents” in the top list. Click on “Edit Content”.

Click on “Add” and manually enter some values (valid values) into the fields for the data object. After completing, click on “Save” link at the end of the row.



Edit the data object contents:

You can similarly edit the existing content of the dataobject, modify the values and save it. Follow the self-explanatory steps on the dataobject, content, edit content and save it.

Changing the layout of the data objects:

After creating the data objects, you can modify its layout and structure, by editing the layout. Click on the data object, and select “Layout” in the top list. Click on “Edit Layout”.

Click on “Add”/ “Remove” fields and manually modify the field names for the data object. After completing, click on “Save” link at the end of the row.

Note: Data Object layout cannot be modified if any alert rules or report server uses this data object. (You can stop the report server & event server to release the usage).

Exporting the data objects:

For the purpose of this tutorial, we will use the “iCommand” utility to export the data object defined above, and save it as an xml file. ‘iCommand’ utility is used to export the data from the repository into a flat file structure.

```
cd C:\temp
```

```
icommand cmd=EXPORT type= dataobject name=/StudentLab/BPELOrderBookingDataObject  
file=myfile1.do
```

```
icommand cmd=EXPORT type= dataobject name=/StudentLab/BPELOrderBookingTimestamp  
file=myfile2.do
```

Type “icommand” on dos prompt for self help messages & usage.

Summary:

1. This document explains the steps to create a BAM ADC dataobject.
2. These data objects store the business data in BAM repository for further analysis, reporting (creating dashboards), alert rules etc.
3. Data objects can contain calculated fields, lookup fields etc. Detailed documentation about creating dataobjects is available in Architect Guide.
4. Data object layout can be changed /modified after creating, provided they are not being actively used by any active reports or alert rules.
5. Data object can be populated by importing data using iCommand utility.

Questions & Clarifications:

If you have any comments or need additional information, please communicate through the Oracle BAM forum at: <http://forums.oracle.com/forums/forum.jspa?forumID=252>