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IT Business Analytics

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Linux operating system

Content Reference Guide

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Getting Started with the Content Reference Guide

The Content Reference Guide includes information about IT Business Analytics integrations with the supported data sources as well as information about the context, KPIs, and Metrics relevant for each data source.

Note: You can add tables to contexts and modify the contexts using the Context Designer. For details, see "Semantic Layer - Contexts and Universes" on the next page in the *Administrator Guide*.

Contexts

This section provides information about contexts.

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Semantic Layer - Contexts and Universes

ITBA semantic layer includes Contexts and universes.

The Context Designer feature enables you to create and manage Contexts (universes). The Contexts can be based on your target schema tables or on Excel (or .CSV) files that can be uploaded to the target schema using the Data Loader.

Context Designer can be used to upload data and create contexts based on the data, when you want to work with the IT Business Analytics application without using Data Warehouse and SAP BusinessObjects Enterprise. It is a direct way to upload data into the IT Business Analytics Studio using files without performing integrations to external sources or to other HP products. It can be used, to integrate third party data, testing, or for Proof of Concept (POC) sessions. It can also be used as a component of IT Business Analytics to integrate third party data.

Context Designer provides KPI results based on your real data.

Semantic Layer - Context Management

The Context Management feature enables you to view the Contexts that have being created in your application or the Contexts that have been loaded in your application, to delete Contexts, and to launch Context Designer where you can create a new Context, view the design of an existing Context, or upload a .CSV file.

To access:

In ITBA, click **ADMIN > Semantic Layer > Semantic Layer**. The Context Management page opens.

Tasks | UI Description

Tasks

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View existing out-of-the-box Contexts (universes)

1. In ITBA, click **ADMIN > Semantic Layer > Semantic Layer**. The Context Management page opens.
2. The list of out-of-the-box Contexts is displayed.
3. You can now:
   - Click **Launch Context Designer** to open the Context Designer. For details, see "Semantic Layer - Context Designer" on page 12.
   - Double-click the relevant Context in the list to open the Context Designer in context. For details, see "Semantic Layer - Context Designer" on page 12.
   - Click  to refresh the display.
   - Select the relevant context and click  to delete the context.

Export contexts using Content Acceleration Packs (CAPs)

To export contexts, proceed as follows:

1. Create a CAP that only includes the contexts you want to export. For details, see Create a CAP with the Business Analytics application data in the *Content Acceleration Packs Guide*.
2. Export the CAP you created. For details, see Download a CAP to the user's local system in the *Content Acceleration Packs Guide*.

Import contexts using Content Acceleration Packs (CAPs)

To import contexts, proceed as follows:

1. Copy the CAP that includes the relevant contexts to the relevant local system.
2. Upload the CAP. For details, see Upload a CAP to the Business Analytics application in the *Content Acceleration Packs Guide*.
3. Activate the CAP in **ADMIN > Data management > Activate CAP**. For details, see Activate a CAP in the *Content Acceleration Packs Guide*.
4. Verify the upload by accessing the contexts in **ADMIN > Semantic Layer > Semantic Layer**. For details, see "Semantic Layer - Context Designer" on page 12.

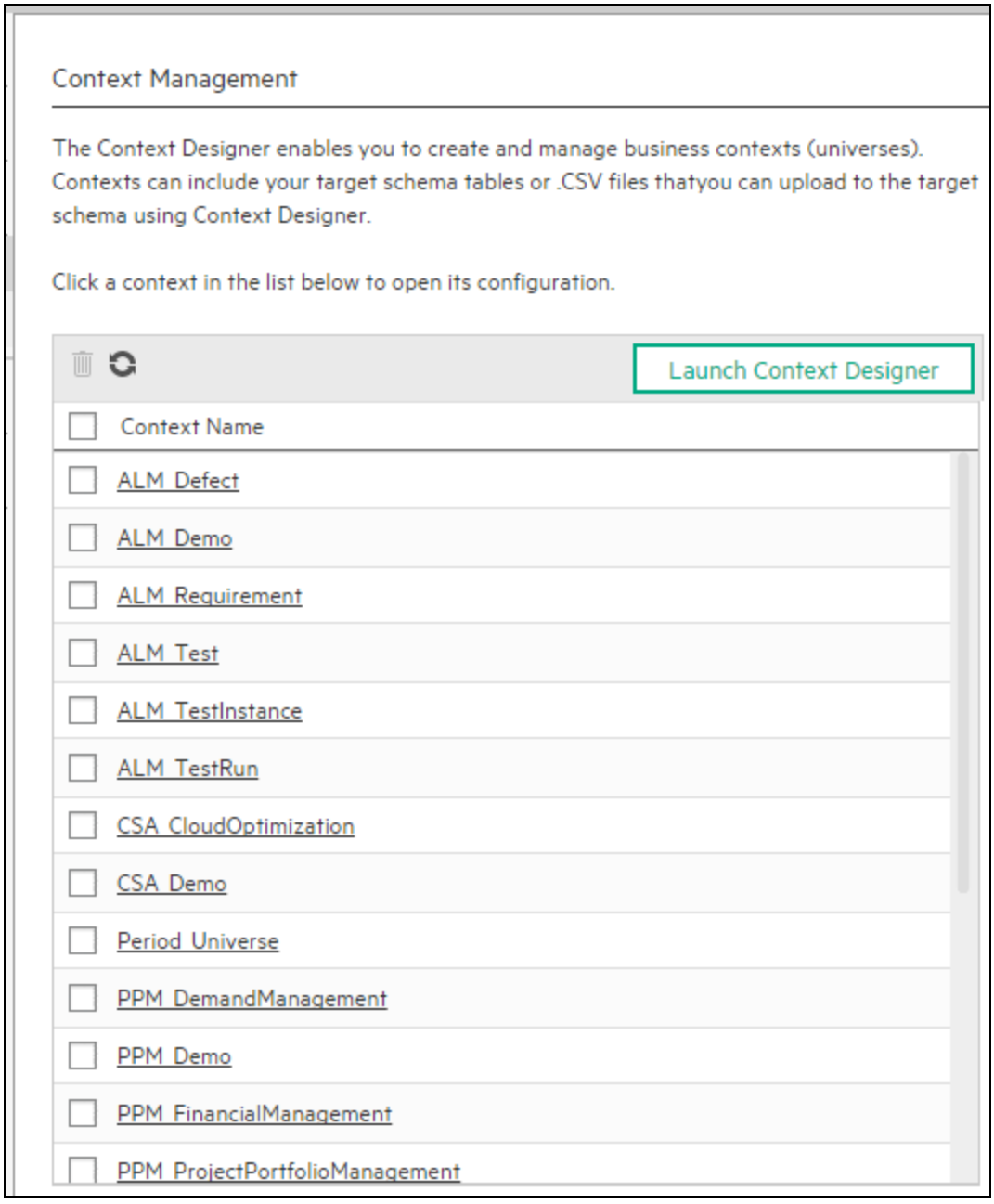
Note:

- If the context you import already exists, it is deleted and replaced by the context imported using the CAP.

UI Description

Context Management Page

The Context Management page enables you to manage the Contexts.



User interface elements are described below (when relevant, unlabeled elements are shown in angle brackets):

UI Element	Description
	Select the relevant context and click  to delete the context. You can select more than one context and click the icon to delete all the selected contexts from the list.
	Refreshes the display.
Launch Context Designer	Click to open the Context Designer. For details, see "Semantic Layer - Context Designer" on the next page.
<Context name>	Double-click the Context name to open its detail in the Context Designer. For details, see "Semantic Layer - Context Designer" on the next page.

Semantic Layer - Context Designer

The Context Designer feature enables you to create and manage Contexts (universes). The Contexts can be based on your target schema tables or on Excel (or .CSV) files that can be uploaded to the target schema using the Data Loader.

Context Designer can be used to upload data and create contexts based on the data, when you want to work with the IT Business Analytics application without using Data Warehouse and SAP BusinessObjects Enterprise. It is a direct way to upload data into the IT Business Analytics Studio using files without performing integrations to external sources or to other HP products. It can be used, to integrate third party data, testing, or for Proof of Concept (POC) sessions. It can also be used as a component of IT Business Analytics to integrate third party data.

Context Designer provides KPI results based on your real data.

- The total number of KPI Breakdowns (STUDIO and on-Demand) is limited to 5000 per dimension.
- If the calculation of a KPI or Metric ends in error, check the engine.log for a number of Breakdowns being larger than the default value. You can update the default value in $HPBA_Home\glassfish\glassfish\domains\BTOA\config\settings\engine-settings.xml. For details, see Logs and the LogTool in the *Administrator Guide*.

To access:

1. In ITBA, click **ADMIN > Semantic Layer > Semantic Layer**. The Context Management page opens. If not , click **Data Loader**. For details, see "Context Designer Page" on page 31.
2. In the Context Designer page that opens:
   - To create a new context, click **Create a new context**.
   - To edit a context, click **Open an existing context**.

Learn More | Tasks | UI Description

Learn More

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Semantic Layer (Context and Universe)

A semantic layer is a business representation of corporate data that helps end-users access data autonomously using common business terms. It maps complex data into familiar business terms such as product, customer, or revenue to offer a unified, consolidated view of data across the organization. By using common business terms, rather than data language, to access, manipulate, and organize information, it simplifies the complexity of business data. These business terms are stored as objects in a Business Context (or universe), accessed through business views. Business Contexts enable business users to access and analyze data stored in a relational database and OLAP cubes. This is claimed to be core business intelligence (BI) technology that frees users from IT while ensuring correct results.

Business Views is a multi-tier system that is designed to enable companies to build comprehensive and specific business objects that help report designers and end users access the information they require. Business Views is intended to enable people to add the necessary business context to their data islands and link them into a single organized Business View for their organization.

A Context or universe is a business representation of an organization's data that helps end-users access data using common business terms. A Context is the result of a semantic layer of metadata that creates a business oriented view of the data. A Context contains a schema of the tables that make up the dimension and measurement objects. A Context is an interface between the data warehouse and the analytics that display the data.

Context are made up of objects and classes that are mapped to the source data and are accessed through queries and reports. They correspond to the business contexts used in IT Business Analytics.

Each Context includes classes (entities), objects with a dimension attribute, and relationships between the entities. The entity's values are used in the calculation of values and statuses of the Key Performance Indicators (KPIs) or Metrics that represent them. The KPIs or Metrics are the building blocks used by the IT Business Analytics engine and the Studio.

IT Business Analytics Semantic Layer may include:

- Universes created in SAP BusinessObjects. For more details on universes, see the relevant SAP BusinessObjects documentation.
- Out-of-the-box Contexts created using the Context Designer.
- User-defined Contexts created using Context Designer and populated with data uploaded from .CSV files using Context Designer. For details on the Context Designer, see Semantic Layer - Context Designer in the *Content Reference Guide*.

If you want to change the formula of a KPI or Metric , you must be aware of the relationships in the context (universe) of the KPI or Metric. For details, see the KPI and Metric Library in Excel format, in the relevant integration sections in this document, or in the relevant Content Acceleration Pack (CAP) in the *Content Acceleration Packs Guide*.

The contexts, entities, and dimensions that are displayed and used in the Studio are part of the universes that are located in the **ITBA** library.

Context or Universe Contents

A Context (or Universe) is a set of entities. Each entity is a set of fields. Each field can be a dimension, measurement, or fact that can provide information about the business.

A formula calculates, for a specified time period, using the values of specific entities, a value that represents a specific aspect of the business. The value is assigned to a Key Performance Indicator (KPI) so that the KPI represents a specific aspect of the business.

Each Context includes some KPIs. The KPIs are the building blocks of the Studio and the KPI engine.

These entities that are used in the calculation of the KPIs are provided by the relevant integrated data source. Each data source corresponds to a specific Content Pack that provides the connection between the data source and ITBA.

Out-of-the-Box Contexts

You can only add more tables and entities to an out-of-the-box Context, you cannot remove or modify the original elements.

Terms

Dimension. An entity that describes, qualifies, or otherwise adds meaning to the measurements (facts) that business users want to analyze.

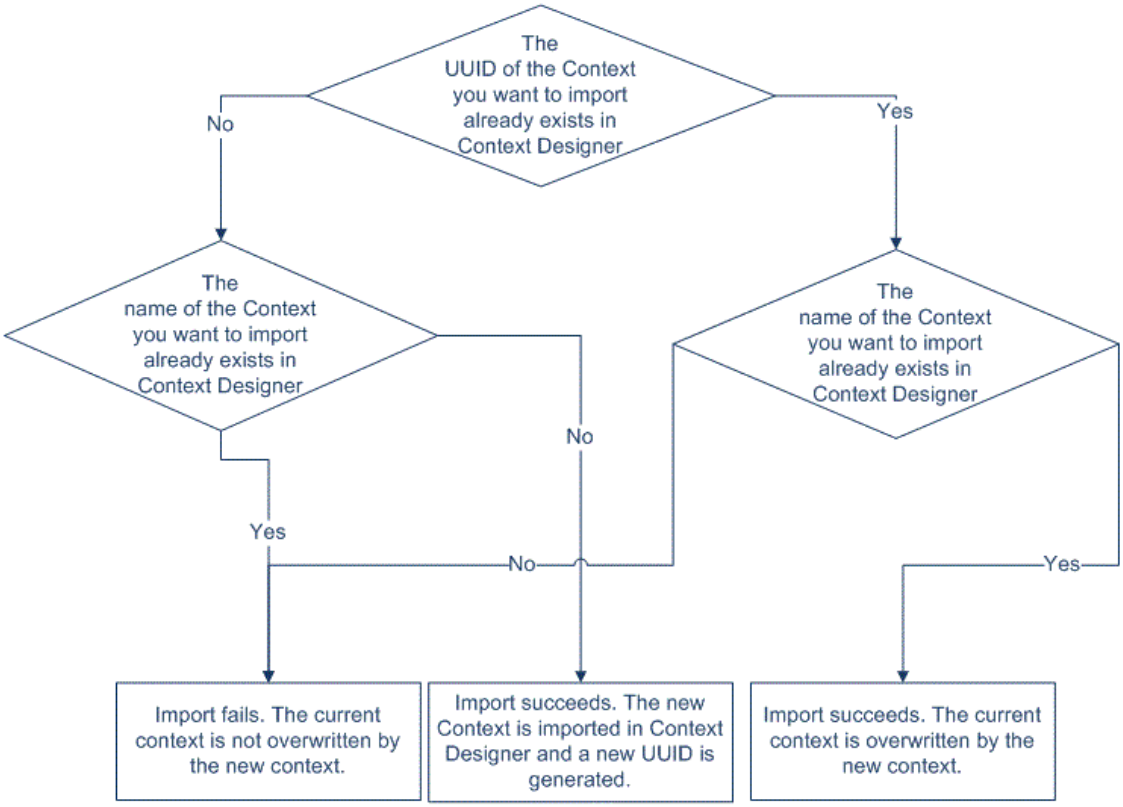
Measure. A value collected by the executable during execution, such as the number of rows processed during an ETL job, or an amount extracted from a table that describes expenses in a source application.

Metric. A framework to establish and collect measurements of success or failure on a regulated, timed basis that can be audited and verified.

Contexts, entities, and fields UUIDs

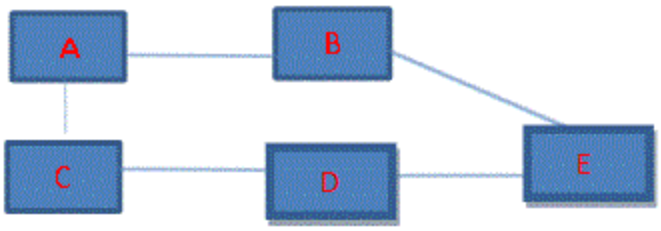
To uniquely identify contexts, entities, and fields, a universally unique identifier (UUID) is assigned to them. When you save a new context, the UUID is auto-generated.

The flowchart explains the different configurations and their impact on the import of a Context in the Context Designer:



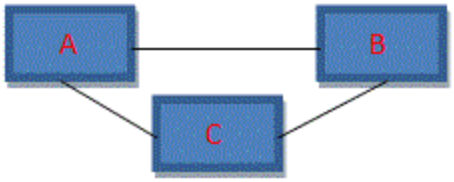
Loops in Contexts

Contexts can include tables that are linked together forming a loop.



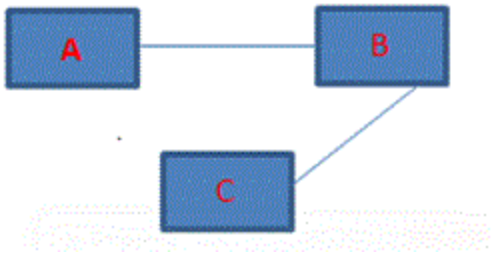
To perform the calculation of a KPI or Metric, the system selects the path with the lowest number of joins as the default path. If the formula includes both fields in A and in E, then the system will choose A-B-E (2 joins) instead of A-C-D-E (3 joins).

If the structure has the same number of joins and the formula includes fields from the three tables, then the system cannot select the path with the lowest number of joins (same number for each path).

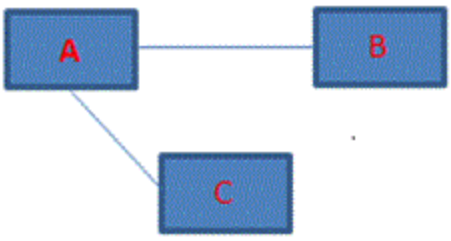


In that case, the selection of the path used for calculation is random.

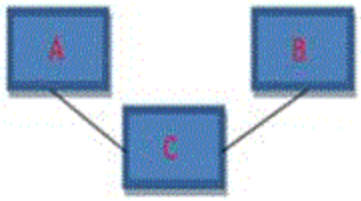
The paths could then be:



Or



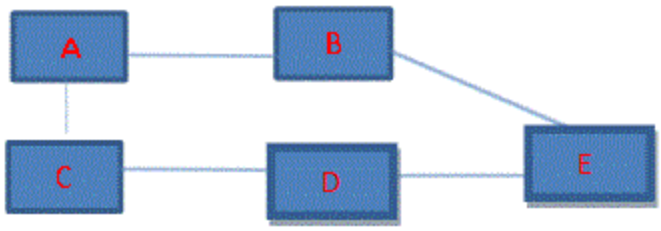
Or



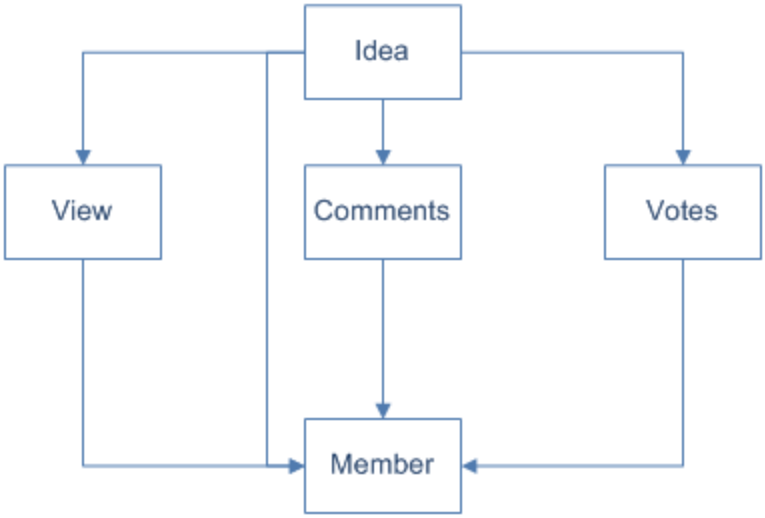
Tip: The problem of loops in context structure is that calculations may have different results depending on the path selected by the system (random or lowest number of joins), therefore loops are not recommended.

Workarounds:

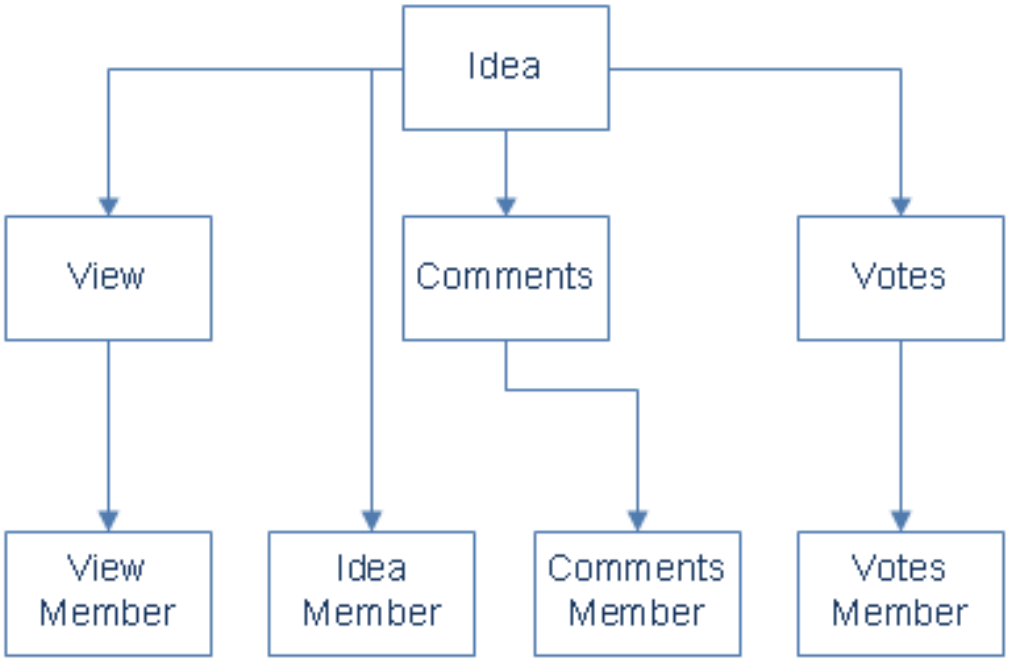
- **Modify the formulas:** If you want the path to follow a specific path, you must modify the formula so it includes the path. For example, if the formula is SUM (A.duration, *) filter E.status='OK' it will follow the A-B-E path because it has the smallest number of joins, but if you want it to pass via C you can modify the formula as follows: SUM (A.duration,*) with filter E.status='OK' but then the path could go A-C-D-E or C-A-B-E. If you want it to follow A-C-D-E you should use SUM (A.duration, C.id=C.id and D.id=D=id) with filter E.status='OK'.



- **Duplicate the table:**Duplicate the table that is linked to a large number of other tables. If you have the following context structure:

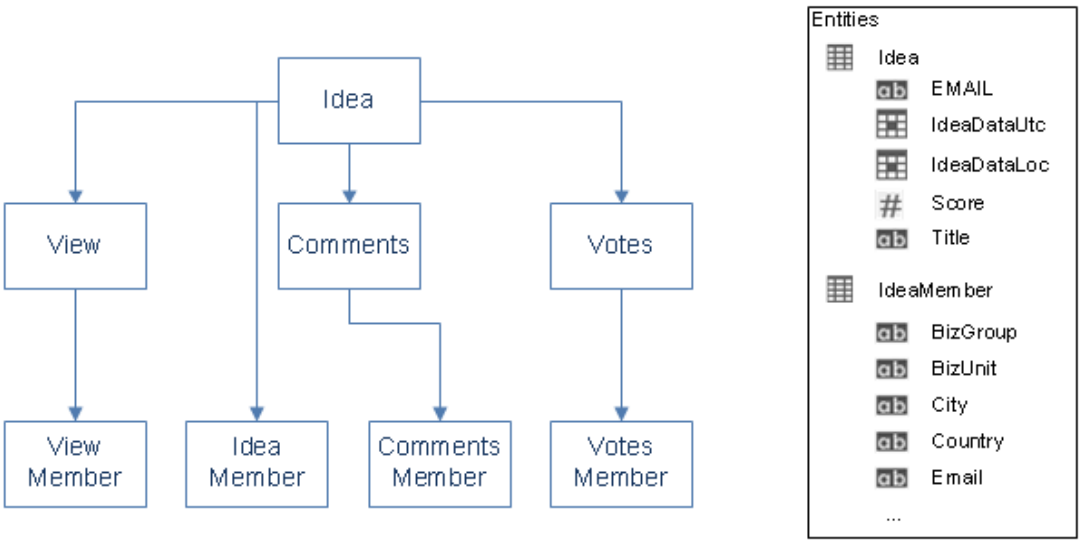


You can create the same structure without loops by using copies (aliases) of the Member table, give each table another name, and create the relevant joins, as follows:

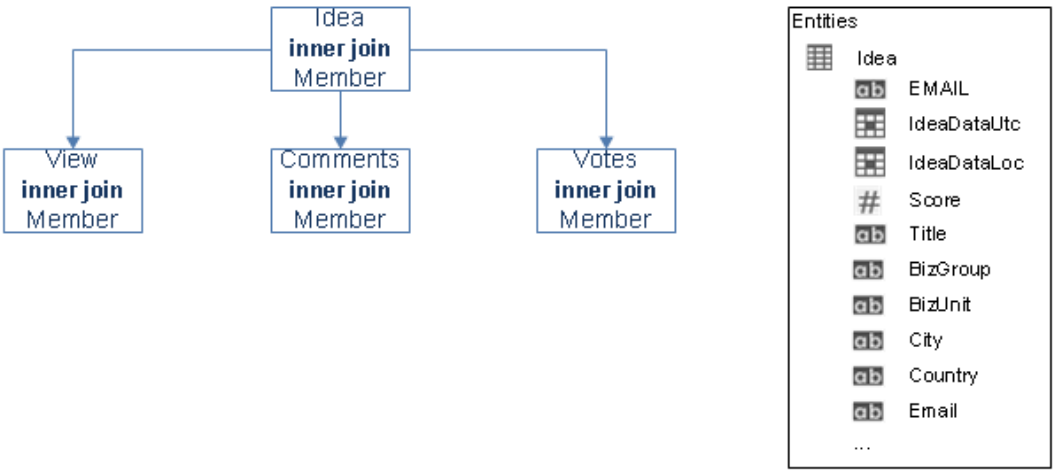


Once you have created the aliases you can drag them to the Entities area.

- **Modify the view:** If you have the structure below then when the tables are dragged to the Context Designer Entities area, then each entity and its attributes appear separately .



You can modify the views in the Target schema to correspond to the structure below, where the attributes of the entity include both the entity original attributes and the attributes corresponding to the person who submitted the idea. You create these views in the SQL server. This way when the tables are dragged to the Context Designer Entities area they display the entity and its attributes as well as the corresponding Member entity and its attributes.



Link between Contexts and KPI or Metric Formulas

When you create a Context, you select tables, create links between the tables, and select the relevant

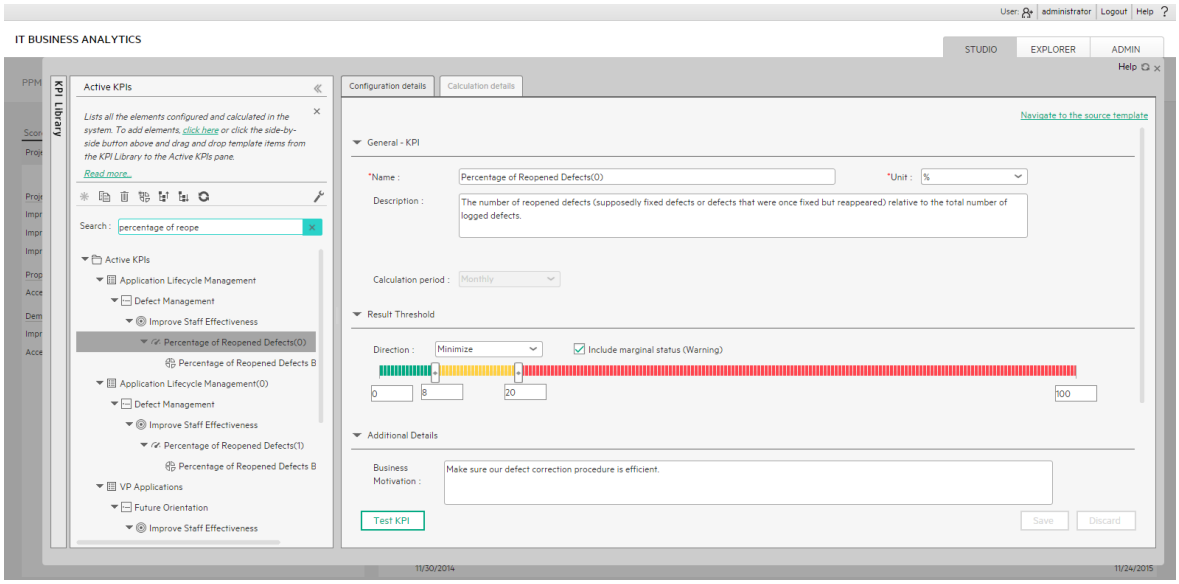
columns in the tables to be part of the Context. For details, see Semantic Layer - Context Designer in the *Administrator Guide*.

When you create a KPI or a Metric you assign them a Context in the Studio. The Context tables become variables that you can use when creating KPI or Metric formulas, and the table columns become the variable entities.

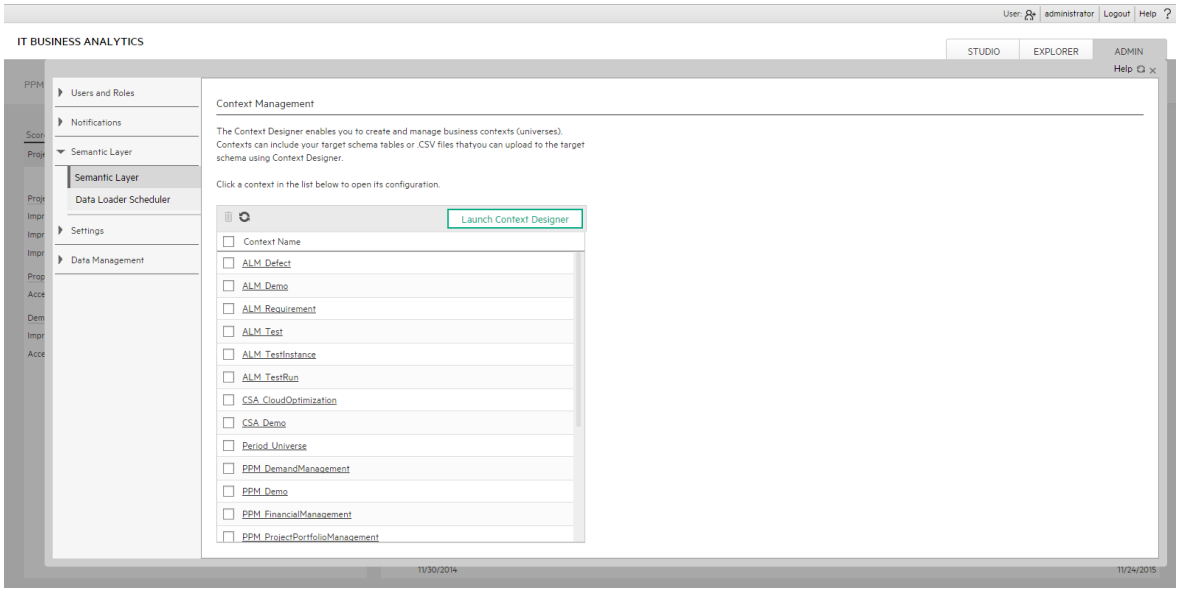
For example the **% of Reopened Defects** KPI has the following formula:

RATIO_MATH(COUNT_DISTINCT(DefectHist.Defect , DefectHist.ReopenFlag =1 And Defect.Status <> 'Closed') , COUNT(Defect ,Defect.DefectSummary<> 'INVALID' And Defect.DefectSummary<> 'UNKNOWN'),0)*100

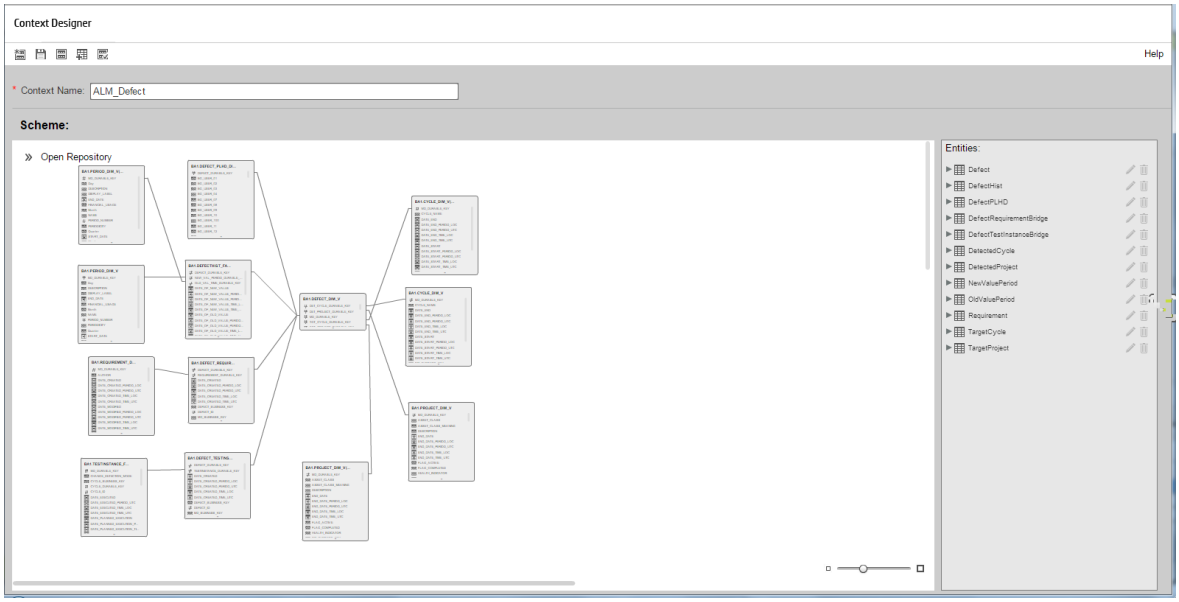
Its definition is:



The Business Context is ALM_Defect. Click **Admin > Semantic Layer** and open the ALM_Defect Context:



The contents of the Context including the ALM tables is displayed:

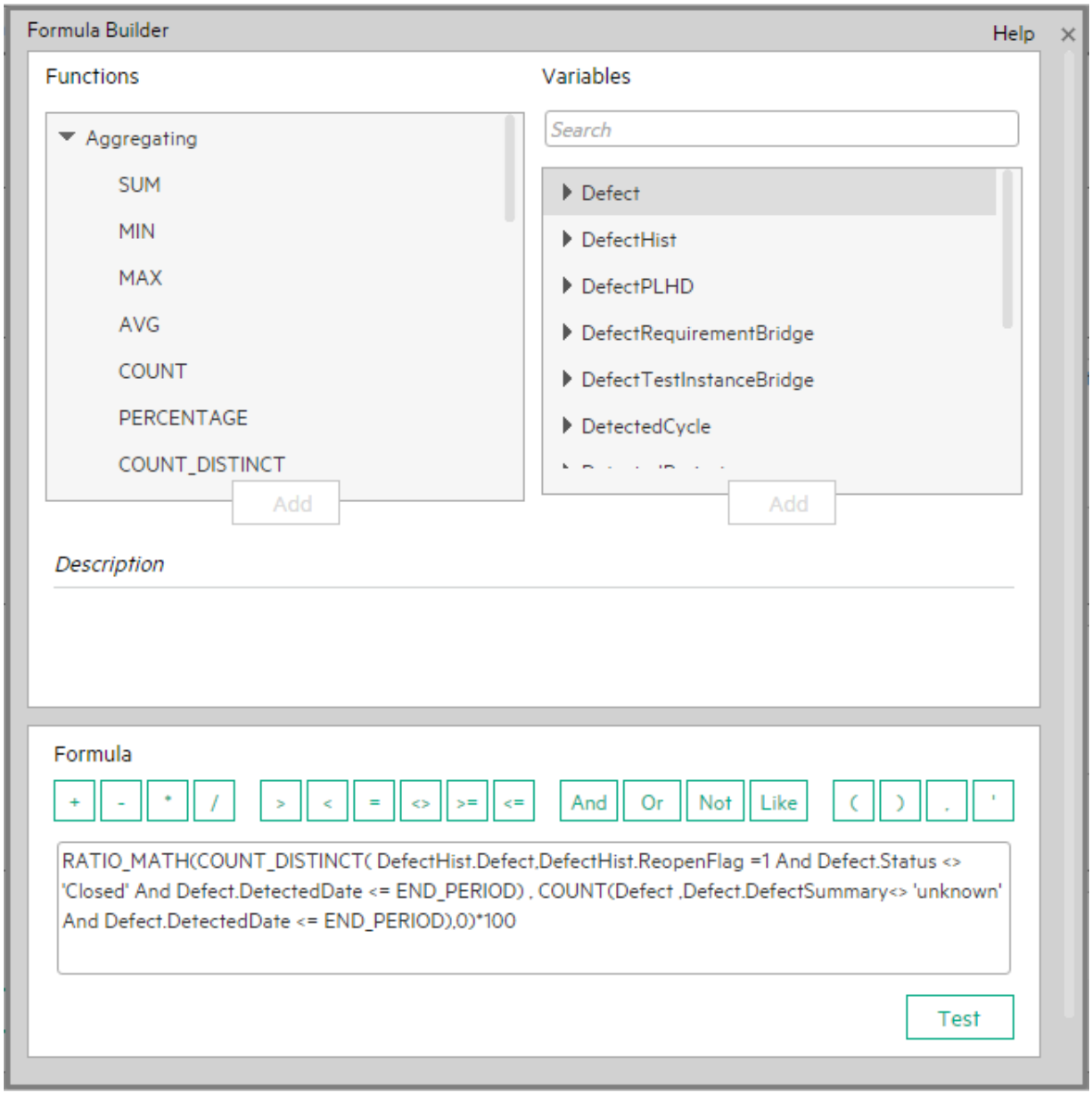


In the Entities area on the right, you can see the tables and the table columns that were selected to be part of the ALM_Defect Context itself.

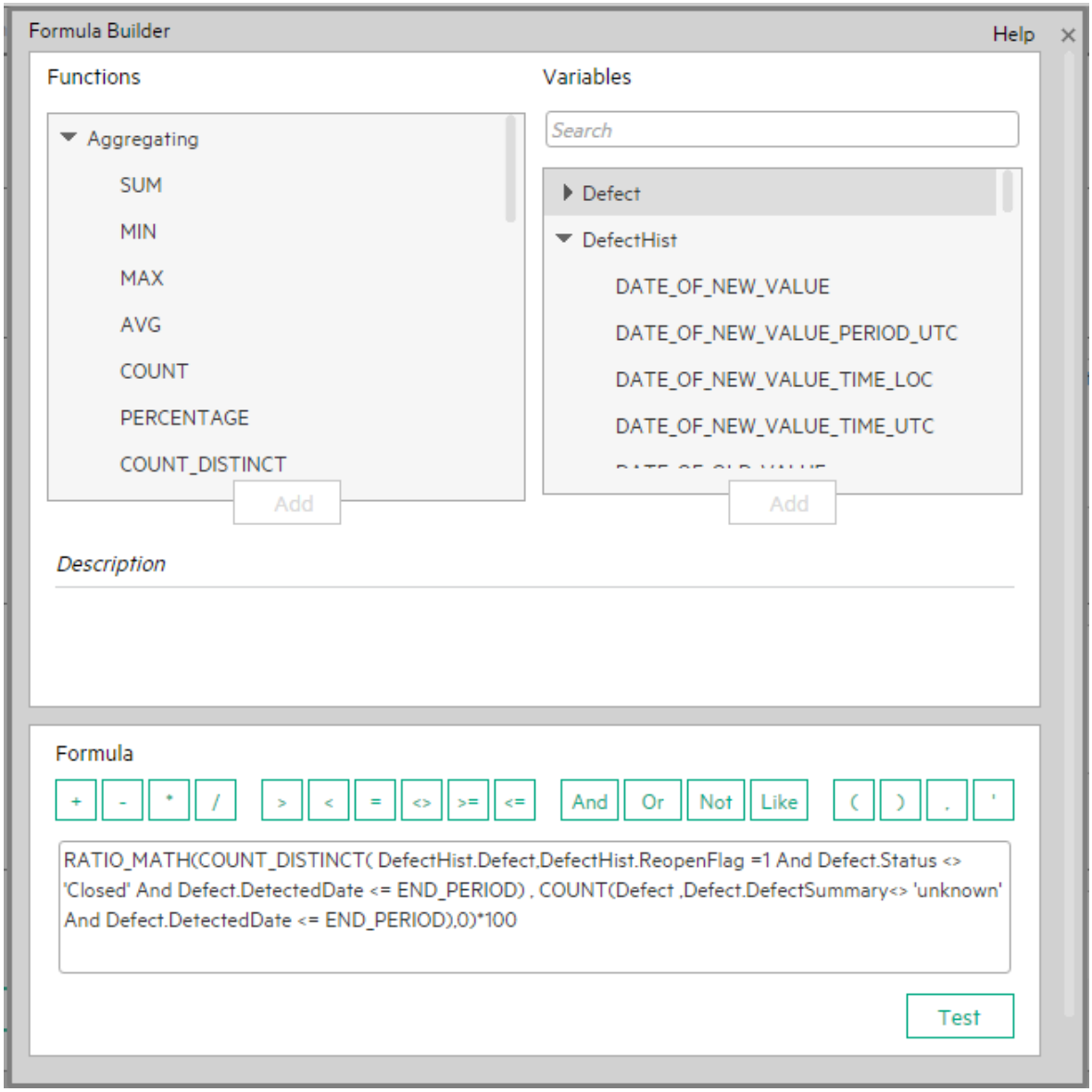
It is recommended that the person who creates the KPI or Metric formula should be familiar with the ALM entities that are used in the ALM_Defect context:

The **Defect_Hist** table corresponds to one of the entities (**DefectHist**) that appears in the list of Variables that can be used when creating or modifying the formula of a KPI based on the **ALM_Defect** context. To access the KPI or Metric formula, click **Studio**, highlight the relevant KPI (**% of Reopened Defects** for example), click the **Calculation Details** tab, and then click **Open Formula builder**.

The variables you see in the formula builder correspond to the Entities in the Context Designer (above) and correspond to the <EntityName> in the syntax of the formulas (as explained in KPI or Metric Formula in the *Business Analyst Guide*).



When you expand a variable, the items you see below correspond to the fields (in the Context Designer) and correspond to the <FieldName> items in the formulas syntax (as explained in KPI or Metric Formula in the *Business Analyst Guide*).



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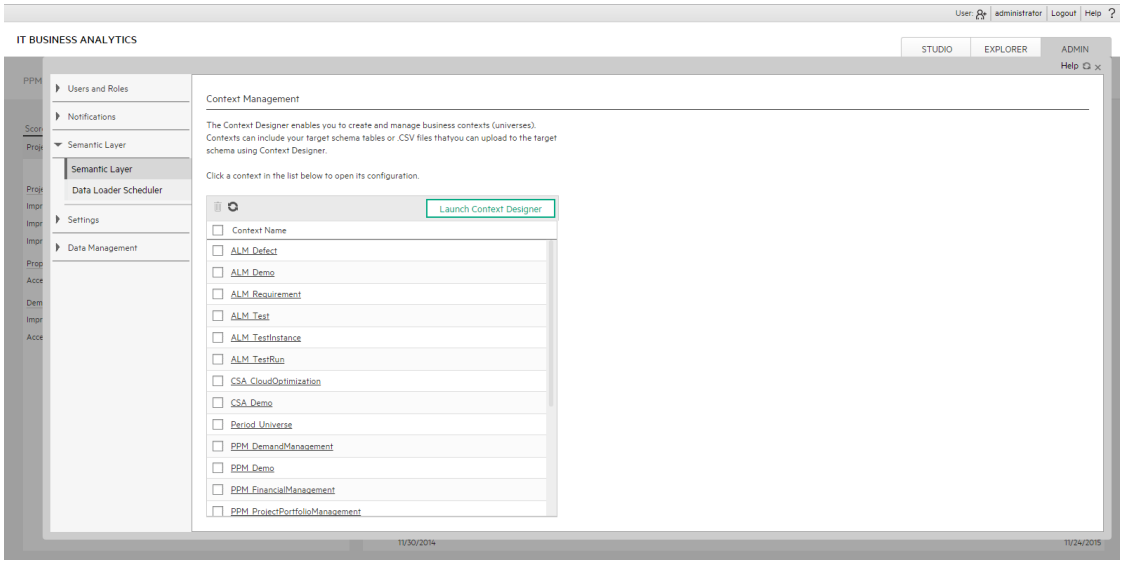
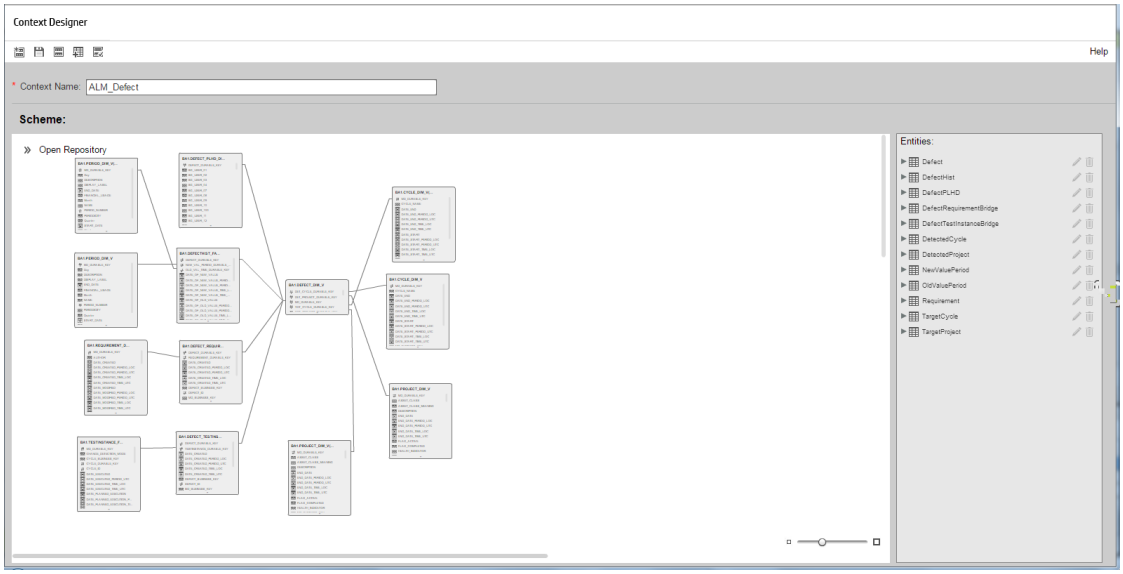
View existing Contexts (universes)

1. In Business Analytics, click **ADMIN > Semantic Layer > Semantic Layer**. The Context Management page opens.
2. The list of out-of-the-box Contexts is displayed.



3. Select the relevant context and click **Launch Context Designer**.
4. The structure of the Context is displayed.



Create a Context and use its contents in the Studio

1. Create a new Context
   a. In ITBA, click **ADMIN > Semantic Layer > Semantic Layer**.
   b. In the Context Management page, click **Launch Context Designer**.
   c. Click **Create a New Context**. The Context Designer page opens.
   d. Enter the name of the Context .
   e. Click **Open Repository**. The **Repository** area opens. You can use:
      - Tables from the **ExternalTables** list. These tables are created from external tables in CSV format that are uploaded to ITBA. For details on how to upload a CSV table, see "Semantic Layer - Excel (or .CSV) File Loader" on page 40. After the table is uploaded, a corresponding table named **ext.<csv_table_name>** is listed in the **ExternalTables** list.
      - Internal tables from the **InternalTables** list.

        If you are working with Enterprise ITBA, the tables listed in the InternalTables list are the Data Warehouse tables, the Period tables created during the post-install procedure, and the View table.
   f. Drag the relevant tables from the **Repository** to the **Scheme** area.
   g. Define the relationships between the tables by dragging a specific column from one table and dropping it over the relevant column in another table. A visual link is added to the graph to indicate the relationship.

h. Drag the relevant tables from the **Scheme** area to the **Entities** pane. The tables become variables and the columns become the variable entities that can be used to create KPI or Metric formulas when a KPI or Metric is assigned the Context in the Studio.

i. Click  to save the Context.

2. Load the Context and verify the variables and entities

   a. In ITBA, click **Studio**.

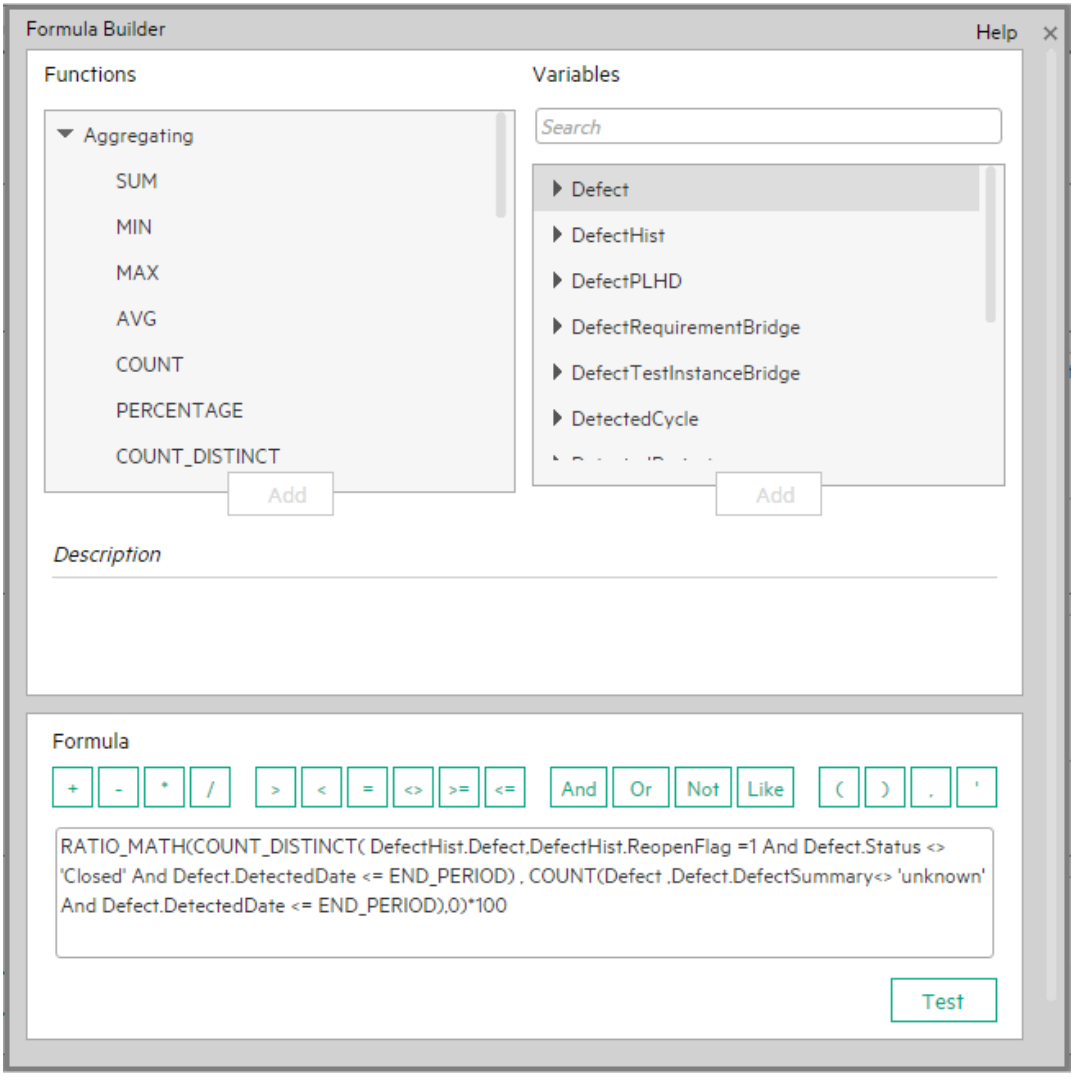
   b. Activate a KPI or a Metric or clone any active KPI or Metric that does not have a KPI Breakdown or Breakdown Metric. For details, see Activate Scorecards, Perspectives, Objectives, Metrics, or KPIs Using Templates or Create Active Scorecards, Perspectives, Objectives, Metrics, or KPIs in the *Business Analyst Guide*.

   c. Click the **Calculation details** tab, and click **Select business context**. For details, see KPI or Metric Configuration and Calculation Details in the *Business Analyst Guide*.

   d. In the Business Context dialog box, change its Context to the new Context.

   e. You can then modify the formula that is used to calculate the KPI or Metric status by selecting the variables that correspond to the entities and fields that were defined in the Context Designer. To do that click **Open Formula Builder**.

   f. In the Formula Builder dialog box, verify that the variables correspond to the tables you selected in the Entities area in the Context Designer, and that the entities of the variables correspond to the selected columns of those tables. Click **OK** to save the KPI.



Note: In the same way, you can modify the Filter of the KPI or Metric to use the variables corresponding to the .CSV file-based Context (universe).

Update a Context

1. In ITBA, click **ADMIN > Semantic Layer > Semantic Layer**. In the **Context Management** page, click **Launch Context Designer**. The Context Designer page opens. For details, see "Context Designer Page" on page 31.
2. Select the relevant Context.
3. Make the relevant changes: delete or add entities, fields, tables, columns, or relationships.

4. Click  to save the Context.
5. Load the Context and verify.

Export contexts using Content Acceleration Packs (CAPs)

To export contexts, proceed as follows:

1. Create a CAP that only includes the contexts you want to export. For details, see Create a CAP with the Business Analytics application data in the *Content Acceleration Packs Guide*.
2. Export the CAP you created. For details, see Download a CAP to the user's local system in the *Content Acceleration Packs Guide*.

Import contexts using Content Acceleration Packs (CAPs)

To import contexts, proceed as follows:

1. Upload the CAP. For details, see Upload a CAP to the Business Analytics application in the *Content Acceleration Packs Guide*.
2. Activate the CAP in **ADMIN > Data Management > Activate CAP**. For details, see Activate a CAP in the *Content Acceleration Packs Guide*.
3. Verify the upload by accessing the contexts in **ADMIN > Semantic Layer > Semantic Layer**.

Note:

- If the context you import already exists, it is deleted and replaced by the context imported using the CAP.

Add a column to a Target database table and the impact on the context

When you restructure the Target database by adding a column to a table, the corresponding tables in the relevant Contexts are automatically refreshed. You must then proceed as follows:

1. Restructure the Target database by adding a column to a specific table.

   The column is automatically and immediately inserted into the corresponding table in the Context, and the links between the Context tables are maintained. A new index is not created if you add a

new column directly in the target DB so you have to create an entry for the new column accessing by the SQL Studio Manager. The index is located under the table and then under the columns.

2. If needed, create additional links between the new column and the other tables.
3. If needed, drag the new column into the **Entities** area.
4. Save the context.

Note:

- If you change the type of a column from a table in the Target database, the formula that calculates KPIs based on the Context that includes that table, may also be invalid.
- If you change the name of a column from a table in the Target database, the effect is the same as adding a new column. Refer to the procedure above.

Remove a column from a Target database table and impact on context

When you restructure the Target database by removing a column from a table, the corresponding tables in the Contexts are automatically refreshed. You must then proceed as follows:

1. Remove the index corresponding to the relevant column by accessing the SQL Studio Manager. The index is located under the table and then under the columns.
2. Remove the relevant column from the table in the Target database.

   The column is automatically and immediately removed from the corresponding table in the Context, and the links between the Context tables are maintained. The link from this column to other tables are removed.
3. Remove the column from the **Entities** area.
4. Save the context.

Note:

- If you remove a column from a table in the Target database, the corresponding column is automatically and immediately removed from the relevant Context.
- If the column was also listed in the Entities then make sure to remove it from the Entities as well before saving and validating the modified context.

- If the column is removed from a table in the Target database, and the Context is not verified, the formula that calculates KPIs based on the Context, might also be invalid. If the removed column has a link to another column, the link is also removed

Clone a context

To clone a context:

1. Create a CAP that includes only the context. For details, see Create Content Acceleration Packs in the *Content Acceleration Packs Guide*.
2. Download the CAP to your local system. For details, see Download a CAP to the user's local system in the *Content Acceleration Packs Guide*.
3. Open the <context_name>.XML file and change the context name and at least one character in the UUID. Change also the UUID of all the entities, and the fields in the context.

   For example:

```
<?xml version="1.0" encoding="UTF-8" standalone="true"?>
-<contexts>
 -<context uuid="4c60950d-2fdc-49c5-a34e-5c041963d0bb" active="false"
name="SALARY">
  -<entity uuid="c3a48abd-7156-47a7-a489-527bfa2385c9" name="ext_IT_Salary_
new" isVisible="false">
      <field uuid="7adedab5-9336-490b-8594-db81fe559c37" name="NAME"
      isVisible="false"
      tableName="@extension.schemaName@.IT_Salary_new"
      columnName="NAME" qualification="DIMENSION" type="STRING"
      isLOV="false"/>
    </entity>
    -<table name="@extension.schemaName@.IT_Salary_new" height="126"
yPos="236.95" xPos="493.0">
     <column name="NAME" type="varchar"/>
     <column name="ORGANIZATION_NAME" type="varchar"/>
     <column name="ORG_ID" type="numeric"/>
     <column name="SALARY" type="numeric"/>
     </table>
  </context>
</contexts>
```

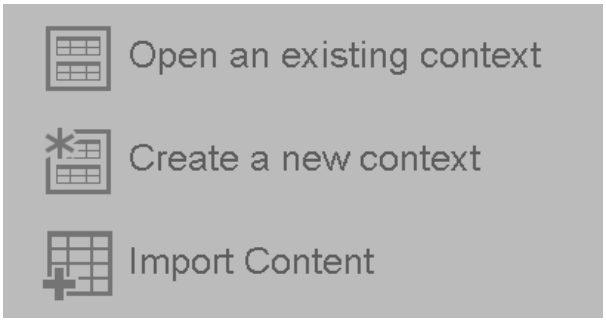
4. Save the XML file.
5. Rename the CAP in your local system.

6. Upload it. For details, see Upload a CAP to the Business Analytics application in the *Content Acceleration Packs Guide*.
7. Activate it. For details, see Activate a CAP in the *Content Acceleration Packs Guide*.

UI Description

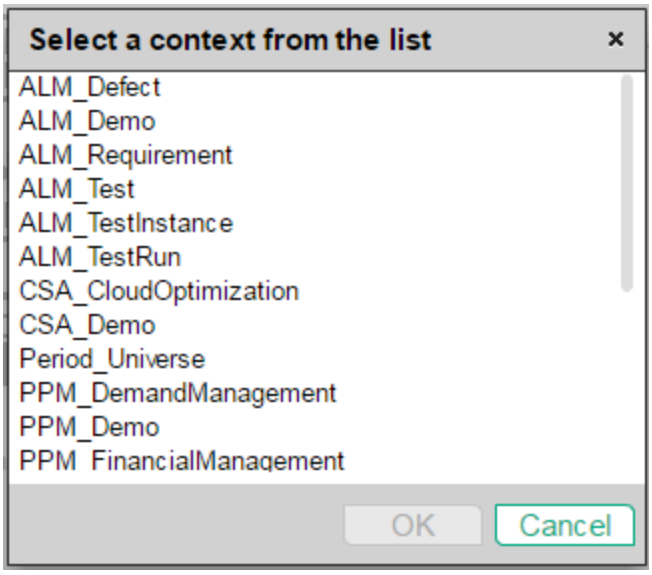
Context Designer Page

The Context Designer page enables you to manage the Contexts that you create using the Context Designer feature.



User interface elements are described below (when relevant, unlabeled elements are shown in angle brackets):

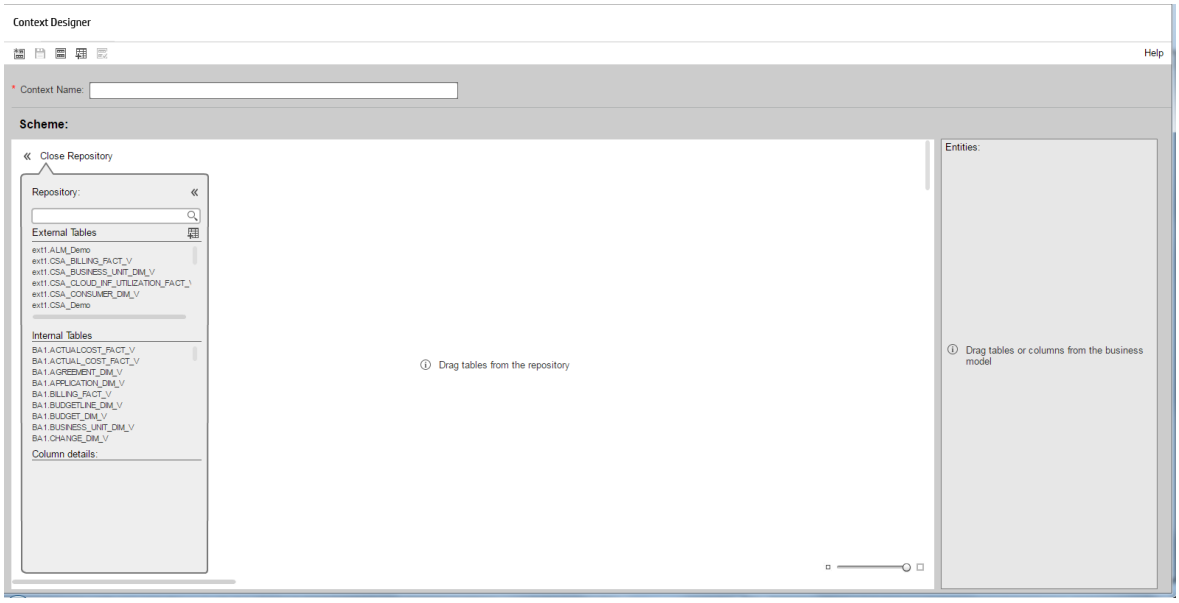
UI Element	Description
	Click to display a list of existing Contexts created in the Context Designer. Select the relevant Context and click **OK**.

	
	Click to create a new Context. The Context Designer Wizard opens. For details, see below.
	Click to open the Import Content wizard. For details, see "Semantic Layer - Excel (or .CSV) File Loader" on page 40.

Context Designer Wizard

The Context Designer wizard enables you to create a Context with tables, entities, and relationships. Once you have completed the Context, save it. The Context is then added to the list of Contexts available in the Studio. The tables that compose the universe are added as variables and the table columns as variable entities. The variables and entities can be used to calculate the formulas for the KPIs that are assigned the Context. For details, see KPI or Metric Configuration and Calculation Details in the *Business Analyst Guide*.

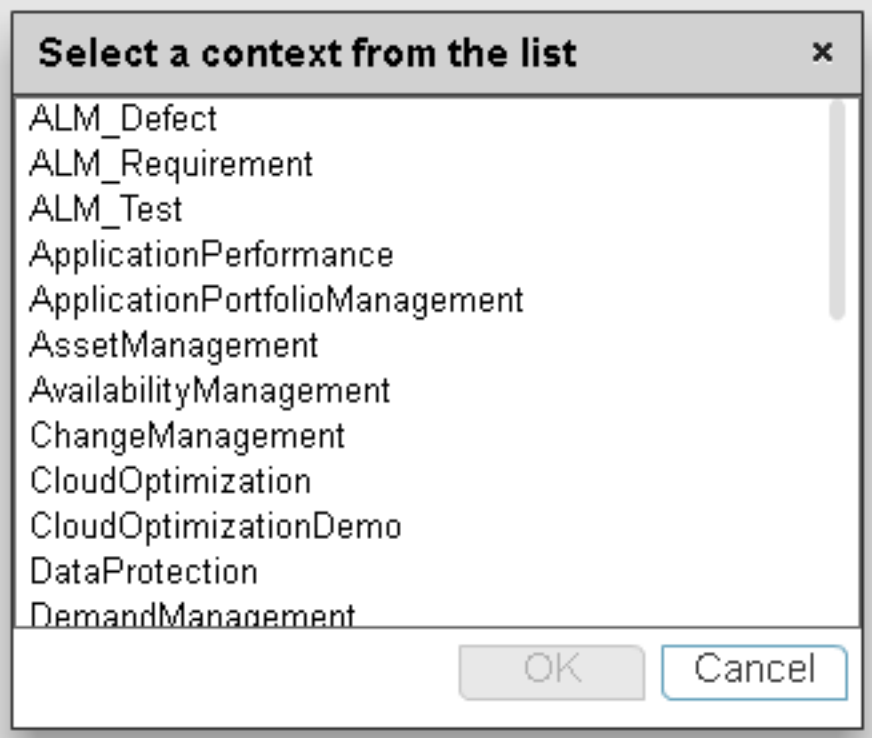
This page enables you to configure a Context.



Context Designer Toolbar

User interface elements are described below (when relevant, unlabeled elements are shown in angle brackets):

UI Element	Description
	**New.** Click to create a new Context.
	**Save.** Click to save the currently opened Context.
	**Open.** Click to display a list of existing Contexts created in the Context Designer. Select the relevant Context and click **OK**.

	
	Add table. Click to add tables in CSV format to the Repository. The data loader wizard opens. For details, see "Semantic Layer - Excel (or .CSV) File Loader" on page 40.
	Click to validate the Context. The validation checks if the name of the Context is unique, if all the tables in the Context exist in the Repository, and more. When you click the Save button, the Context is validated. An invalid Context is not saved.

Context Area

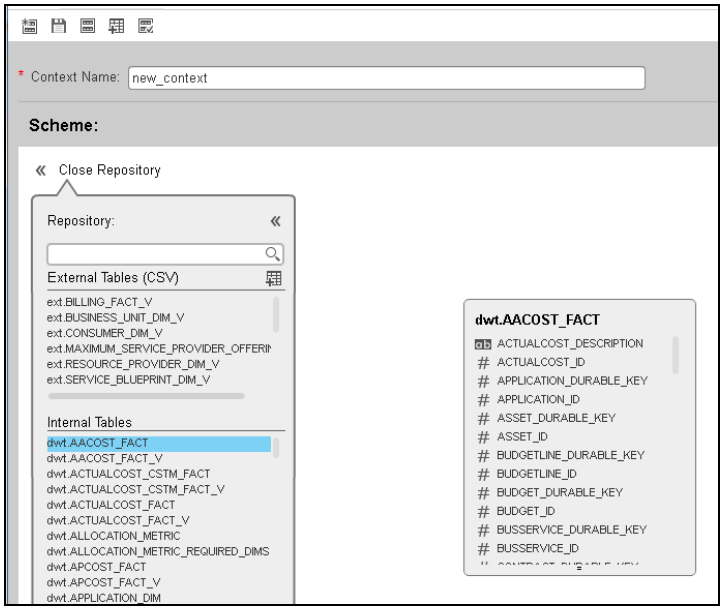
User interface elements are described below (when relevant, unlabeled elements are shown in angle brackets):

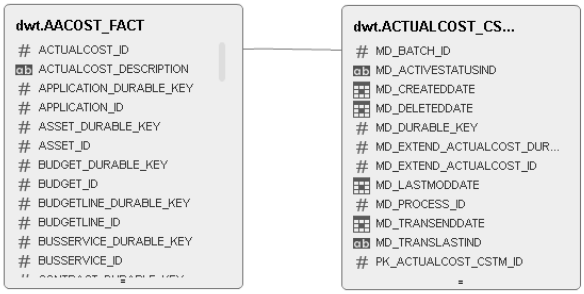
UI Element	Description
Context name	The name of the Context. **Limitation:** SAP BusinessObjects Enterprise Universe names should not duplicate Context names, and all names of Universes and Contexts should be unique. **Note:** If you have assigned to a KPI a Context created with the Context Designer, and then you modify the Context name in the Context Designer, make sure that you

UI Element	Description
	assign the modified Context to the KPI in the Studio otherwise the KPI becomes invalid as it uses a Context that does not exist.

Scheme Area

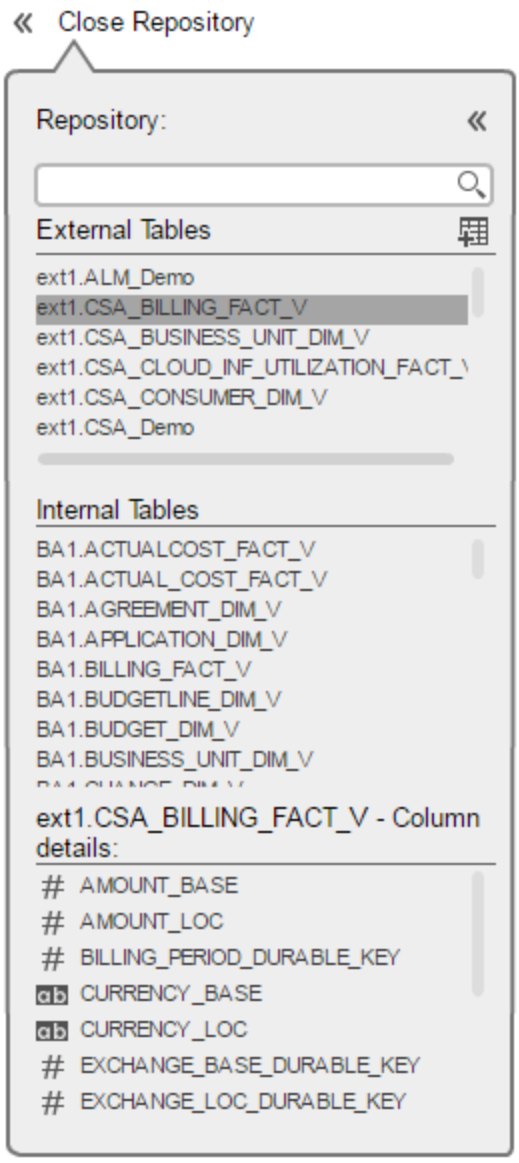
User interface elements are described below (when relevant, unlabeled elements are shown in angle brackets):

UI Element	Description
Repository	Click the button to open the table repository. For details, see "Repository" on the next page.
<Drag and drop>	Select the relevant table in the Repository and drag and drop it in the Scheme area to make the table part of the universe. 
<Create relationships>	Select the relevant entity in a table and drag and drop it on the relevant entity in another table to create the relationship between these two entities.

UI Element	Description
	 **Note:** • Double-click a table to shrink it down to its title. Double-click a shrunk table to expand it. • To delete a relationship, click it and press the **Delete** key.
	Use the slider to zoom in or out.

Repository

The Repository area enables you to select external or internal tables to add to the Context you are building.



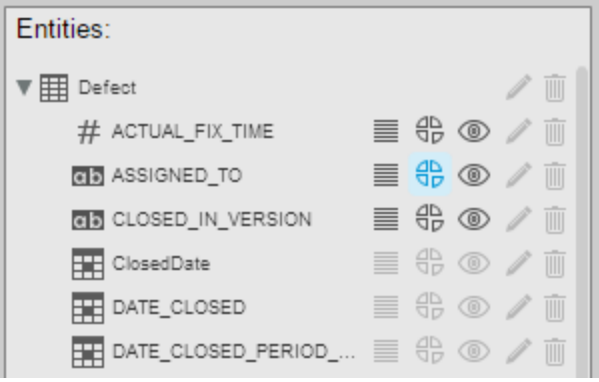
User interface elements are described below (when relevant, unlabeled elements are shown in angle brackets):

UI Element	Description
«	Click to close the Repository.
External Tables (CSV)	Lists the CSV tables that were uploaded using the data loader wizard. Click the relevant table to display its column details.
	Click to add tables in CSV format to the Repository. The data loader wizard opens. For details, see "Semantic Layer - Excel (or .CSV) File Loader" on page 40.

UI Element	Description
Internal Tables	Lists the tables. Click on the relevant table to display its entities in the Column details section.
Column Details	Lists the entities (columns) of the table selected in the **Internal Tables** section. Each entity is preceded by an icon indicating the type of entity: • - date. • - string. • - numeric

Entities Area

You drag tables from the Scheme area to the Entities area to add a variable corresponding to the table to the list of variables available to create the formula for the KPI that is assigned the Context. The table columns become the variable entities.



User interface elements are described below (when relevant, unlabeled elements are shown in angle brackets):

UI Element	Description
<Drag and drop>	Drag and drop a table from the middle pane to the Entities pane to add the table's entities and fields to the list of available entities and fields available to be added to a KPI formula in the Formula Builder. For details, see KPI or Metric Formula in the *Business Analyst Guide*.
<Table>	The table that you dragged from the Scheme area to the Entities area is displayed followed by its columns.
<Left column>	Icons indicate the format of the column.

UI Element	Description
	•  - date. •  - string. •  - numeric
<Right columns>	The icons to the right of the column enable you to decide to:  - Enable the auto completion feature. For details, see Variables in the *Business Analyst Guide*.  - Enable the creation of a Breakdown for the relevant KPI. This can cause performance issues if the KPI Breakdown has more than 100 values.  - Enables you to set the dimension permission for this entity dimension in the Dimension Permission page. For details, see Dimension Permissions in the *Administrator Guide*. **Note:** You must also have selected  to enable the creation of a Breakdown. The list of fields that are available for breakdowns is configured in the Context Designer. By default,numeric fields are not dimensions, therefore they are not available for breakdowns. If you want them to be available for breakdown, open the Context Designer and in the Entities area, click  to enable the creation of Breakdowns. For details, see Semantic Layer - Context Designer in the *Content Reference Guide*. Date fields are not available for breakdowns.
Remove	Click to remove the selected table or entity.

Semantic Layer - Excel (or .CSV) File Loader

The Context Designer feature enables you to create and manage Contexts (universes). The Contexts can be based on your target schema tables or on Excel (or .CSV) files that can be uploaded to the target schema using the Data Loader.

Context Designer can be used to upload data and create contexts based on the data, when you want to work with the IT Business Analytics application without using Data Warehouse and SAP BusinessObjects Enterprise. It is a direct way to upload data into the IT Business Analytics Studio using files without performing integrations to external sources or to other HP products. It can be used, to integrate third party data, testing, or for Proof of Concept (POC) sessions. It can also be used as a component of IT Business Analytics to integrate third party data.

Context Designer provides KPI results based on your real data.

Note: It is recommended to use Excel files instead of .CSV files.

To access:

- In ITBA, click **ADMIN > Semantic Layer > Semantic Layer**. The Context Management page opens. Click **Launch Context Designer** and select **Import Content**.
- In the Context Designer page, click the **Import Content** icon in the toolbar to open the Import wizard.
- In the Context Designer page, in the Repository area, click the **Import Content** icon to open the Import wizard.

Learn More | Tasks | UI Description

Learn More

To understand more about Contexts, see the Learn More section in "Semantic Layer - Context Designer" on page 12.

Import an Excel or a .CSV file in Context Designer or use them as data sources in IDE

The differences between the two techniques is as follows:

- **Context Designer:** When you import an Excel or a .CSV file using the Context Designer located in the Admin tab, a Context based on the structure of the file is created in Context Designer. You can then extend the context by adding other tables and creating connections. The newly created context can then be used as a base for KPIs.

  This process is fast and efficient and displays value very quickly. It is recommended for one-time operations, when the data does not change very often, when you don't need historical information, or for POCs.

  Note that you can also schedule the automatic import of an Excel or a .CSV file. You can even schedule the automatic import of an Excel or a .CSV files with a changed structure.

- **IDE:** When you use an Excel or a .CSV file as the data source in the IDE, you create a content pack and a basic ETL.

  This process is more complex, but provide more flexibility. It is recommended for Production environments. Because this procedure creates a content pack and uses an ETL, it enables the use of all the other capabilities of the system. It provides the handling of historical information, the scheduling of data import from the same Excel or .CSV file when the file changes periodically, the creation of Target database tables different from the original Excel or .CSV table, the connection to other entities, the splitting of the original Excel or .CSV table into different tables in the Target database, or the addition of the original data to other tables in the Target database. In addition, the process identifies changes and deletions of data, and can handle large amounts of data.

Tasks

This section includes:

Upload tables in Excel format to the Tables Repository 41
Upload tables in .CSV format to the Tables Repository 42
Use Case - Create a New Business Context Using .CSV Files 43

Upload tables in Excel format to the Tables Repository

You can upload data into the Table Repository of the Context Designer, using Excel files and without

integration with external sources or with other HP products. It can be used to integrate third party data sources, testing, or for Proof of Concept (POC) sessions. You can, in the same way, replace the data in an existing table, or add data to an existing table when the table has been loaded using an Excel file.

Note: You can upload Excel tables with .XLSX or.XLS formats.

To upload data from the Excel file into the Table Repository:

1. Create the Excel file containing the data you want to use in the Table Repository (for example: latest.XLSX).

   Recommended: Excel tables should have unique names across all active Content Acceleration Packs (CAPs). For details on CAPs, see Create Content Acceleration Packs in the *Content Acceleration Packs Guide*. See also additional limitations in Limitations in the *Content Reference Guide*.

2. In IT Business Analytics, click the **ADMIN** > **Semantic Layer > Semantic Layer**.
3. In the **Context Management** page, click **Launch Context Designer** .
4. Click **Import Content** to open the Import Wizard (data loader). Follow the steps to upload the Excel file. For details, see Content Import Wizard in the *Content Reference Guide*.

   The file is uploaded. The upload operation saves the changes you made to the Excel file. The new table appears in the External Tables area.

Upload tables in .CSV format to the Tables Repository

You can upload data into the Studio using .CSV files and without integration to external sources or to other HPE products. It can be used to integrate third party data sources, testing, or for Proof of Concept (POC) sessions. You can, in the same way, replace the data in an existing table, or add data to an existing table when the table has been loaded using a .CSV file.

To upload data from the .CSV file into the Studio:

1. Create the .CSV file containing the data you want to use in the Studio (for example: latest.CSV).

   Recommended: CSVtables should have unique names across all active Content Acceleration Packs (CAPs). For details on CAPs, see Create Content Acceleration Packs in the *Content Acceleration Packs Guide*. See also additional limitations in Limitations in the *Content Reference Guide*.

2. InITBA, click the **ADMIN** > **Semantic Layer > Semantic Layer**.

3. In the **Context Management** page, click **Launch Context Designe**r .
4. Click **Import Content**  to open the Import Wizard (data loader). Follow the steps to upload the .CSV file. For details, see "Content Import Wizard" on the next page.

   The file is uploaded. The upload operation saves the changes you made to the .CSV file. The new table appears in the External Tables area.

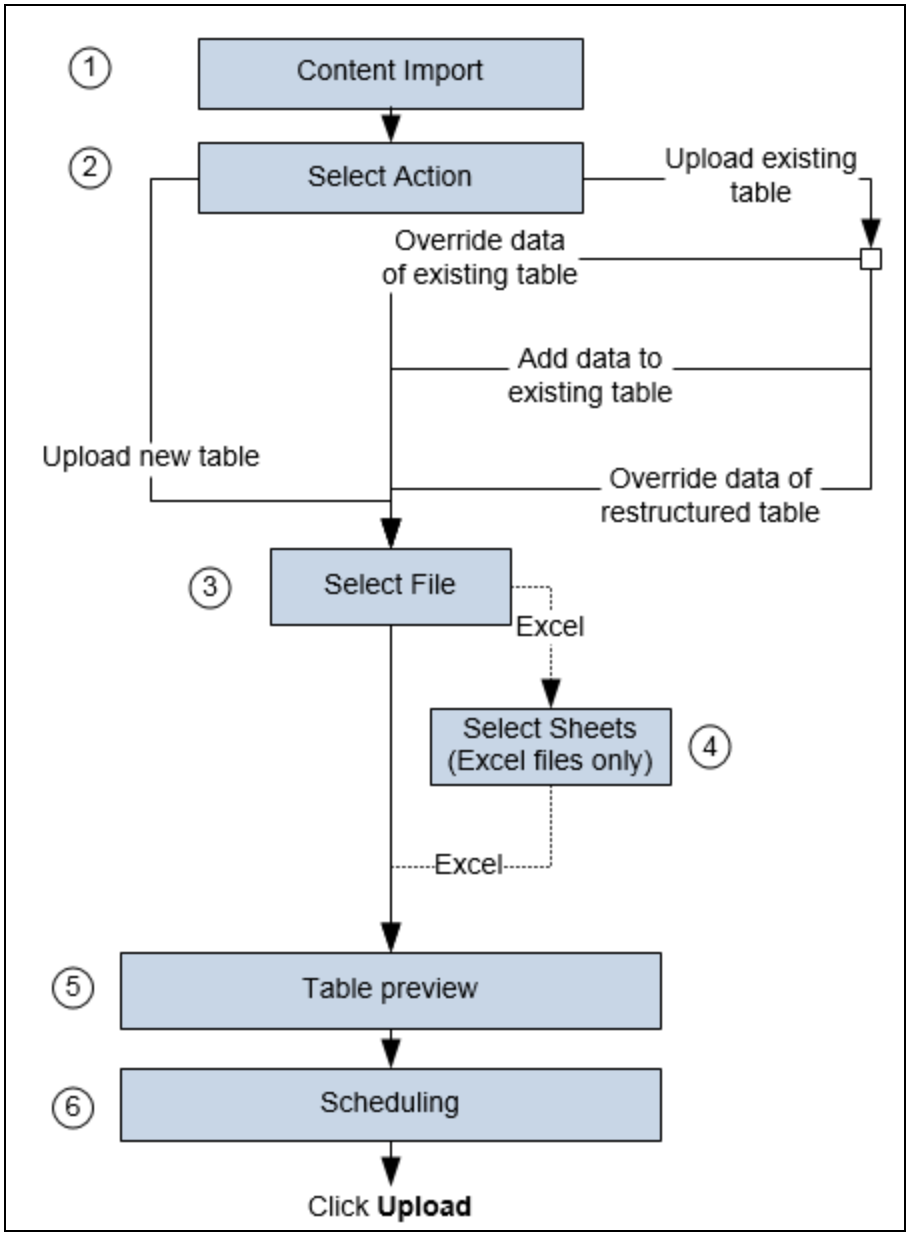
Use Case - Create a New Business Context Using .CSV Files

For details, see Create a New Business Context in the *Getting Started*.

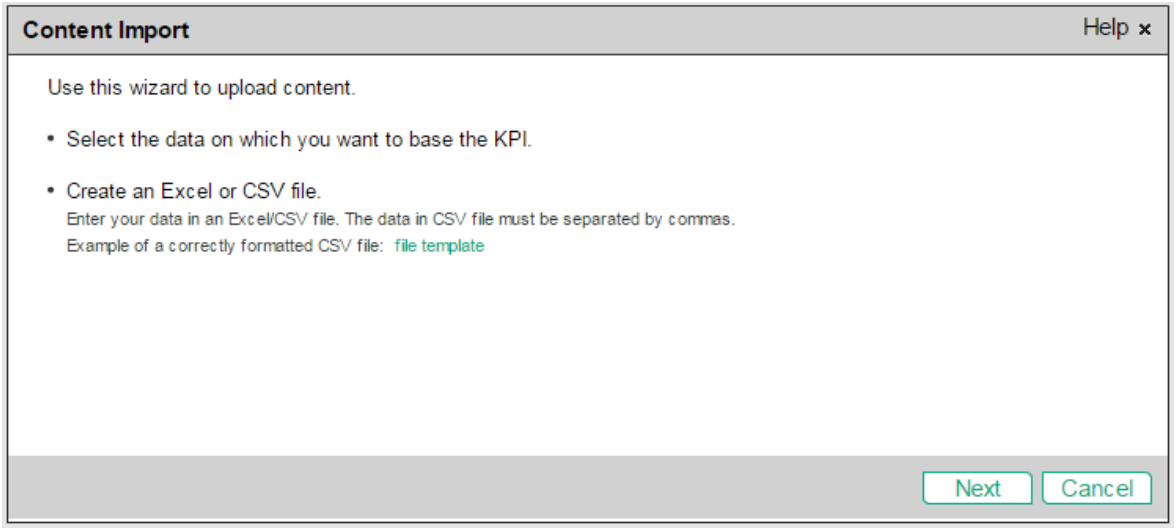
UI Description

Content Import Wizard

The wizard enables you to upload content.



1 - Content Import

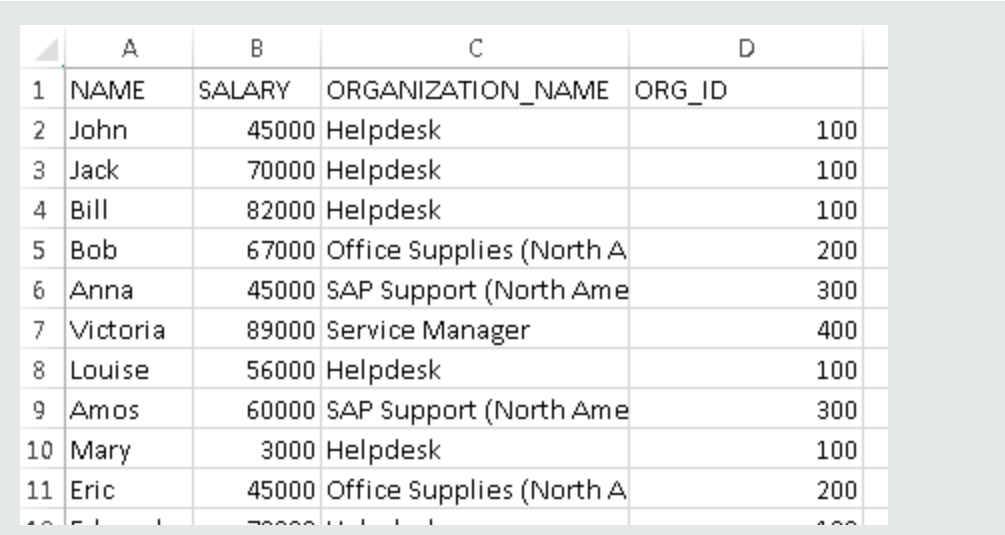


User interface elements are described below (when relevant, unlabeled elements are shown in angle brackets):

UI Element	Description

Select the data on which you want to base the KPI.	You can use Excel (or .CSV) files as a data source. A .CSV file contains data separated by commas. Each Excel file sheet or each .CSV file that is uploaded corresponds to a Context with only one entity. The name of the Context that is created is the name of the Excel sheet (or .CSV) file. The names of the columns in the Excel sheet (or for .CSV files, the first row of the file) represent the names of the entity fields. These fields become the variables that can be used to create the formula that is used to calculate the value of the KPIs or Metrics associated with the Context.
	File Structure
	The .CSV file should have a table structure.
	Example The following is an example of a .CSV file in CSV format:
	`MD_BUSINESS_KEY,SLA_NAME,SLA_STATE,SLA_TYPE,DATE_START,DATE_END`
	`SLA01,SLA01,Passed,Corporate,1/1/2011 13:00:00,2/1/2011 19:00:00`
	`SLA02,SLA02,Passed,Corporate,1/2/2011 13:00:00,2/2/2011 19:00:00`
	`SLA03,SLA03,Passed,Corporate,1/3/2011 13:00:00,2/3/2011 19:00:00`
	`SLA03,SLA03,Passed,Corporate,1/3/2011 13:00:00,2/3/2011 19:00:00`
	`SLA04,SLA04,Passed,Corporate,1/4/2011 13:00:00,2/4/2011 19:00:00`
	`SLA13,SLA13,Passed,Corporate,1/3/2011 13:00:00,2/3/2011 19:00:00`
	`SLA14,SLA14,Passed,Corporate,1/6/2011 13:00:00,2/6/2011 19:00:00`
	Example The following is an example of an Excel file:

UI Element	Description



	A	B	C	D
1	NAME	SALARY	ORGANIZATION_NAME	ORG_ID
2	John	45000	Helpdesk	100
3	Jack	70000	Helpdesk	100
4	Bill	82000	Helpdesk	100
5	Bob	67000	Office Supplies (North A	200
6	Anna	45000	SAP Support (North Ame	300
7	Victoria	89000	Service Manager	400
8	Louise	56000	Helpdesk	100
9	Amos	60000	SAP Support (North Ame	300
10	Mary	3000	Helpdesk	100
11	Eric	45000	Office Supplies (North A	200

Limitations for .CSV and Excel files

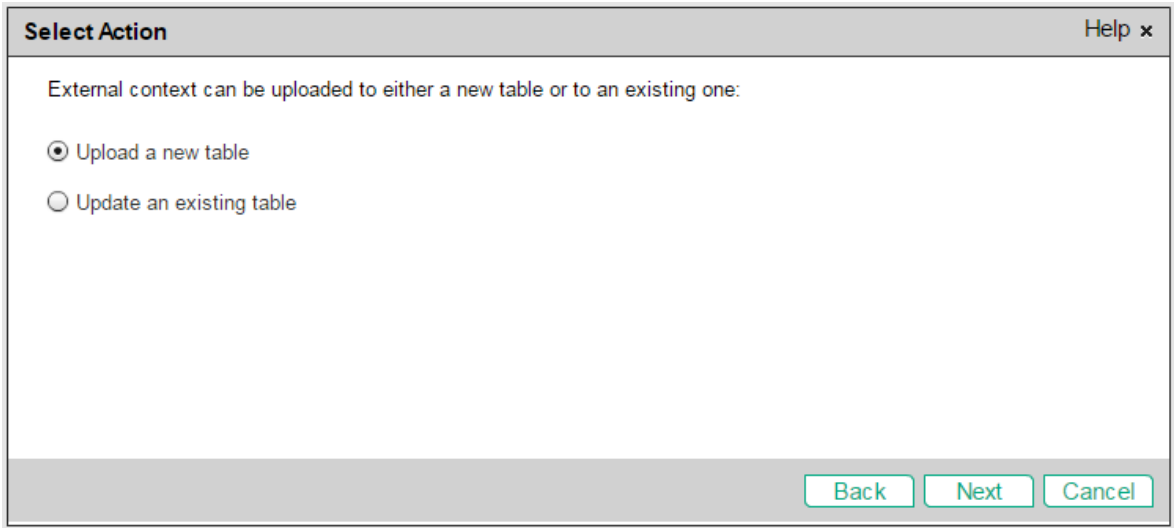
- **Data file size.** The maximum size of the data file is 20 MB. This is configurable using the **Maximum Size of .CSV file (MB)** setting in **ADMIN > Settings > BA Settings**.
- **Names:**
  - **General:**
    - The entity field names should follow the rules of column titles in the database (only alphanumeric characters and underscores (_)).
    - The name of the data file should follow the rules of Context names (only alphanumeric characters and underscores (_)).
  - **.CSV file.**
    - The maximum number of characters in an entity field name is 30 characters (an entity field name is the string between commas in the first row of the .CSV file).
    - Data included between commas (corresponding to columns) should not include commas.
  - **Excel file:**x
    - The maximum number of characters in a sheet name in an Excel file is 254 characters.
    - Excel file sheets should have a name even if they are empty.
    - Excel file sheets should not have empty columns at the beginning or in the middle of the columns.
    - The names of the Excel sheets should follow the rules of Context names (database tables) and include only alphanumeric characters, and underscores

<table>
<tr><th>UI Element</th><th>Description</th></tr>
<tr><td></td><td>(_).
The maximum number of digits in a data field is 18 digits and 2 decimal digits.
The maximum number of characters in a data field is 254 characters.
A data field should not include a formula.
A column should not include different types of data (for example, numeric, and date data).
A date column should only include dates.
Make sure you also check out the limitations in Limitations in the Content Reference Guide.

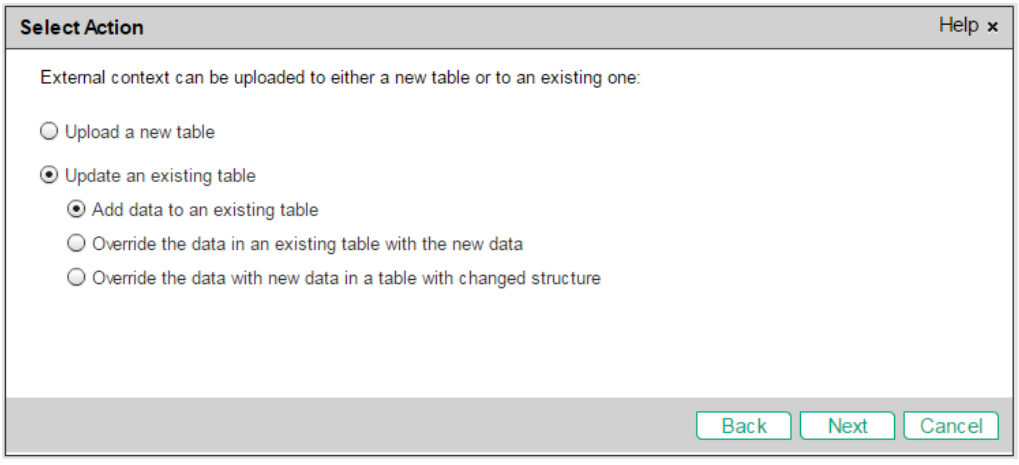
Tip:
The date data obtained from the data sources is automatically reformatted internally using the YYYY.MM.dd HH:mm:ss (based on 24 hours) format. All internal calculations are performed using this format.
If you are using CSV files, you can select the date format in the <Data upload> wizard. The selected format is automatically reformatted internally using the YYYY.MM.dd HH:mm:ss (based on 24 hours) format.
The dates displayed in the application user interface are reformatted according to the browser locale.</td></tr>
<tr><td>Create a .CSV or Excel File</td><td>Hover above file template to display an example of the file structure in table format that can be uploaded.

<table>
<tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th></tr>
<tr><td>1</td><td>Field_1_Name</td><td>Field_2_Name</td><td>Field_3_Name</td><td>Field_4_Name</td></tr>
<tr><td>2</td><td>Field_1_Value_1</td><td>Field_2_Value_1</td><td>Field_3_Value_1</td><td>Field_4_Value_1</td></tr>
<tr><td>3</td><td>Field_1_Value_2</td><td>Field_2_Value_2</td><td>Field_3_Value_2</td><td>Field_4_Value_2</td></tr>
<tr><td>4</td><td>Field_1_Value_3</td><td>Field_2_Value_3</td><td>Field_3_Value_3</td><td>Field_4_Value_3</td></tr>
<tr><td>5</td><td>Field_1_Value_4</td><td>Field_2_Value_4</td><td>Field_3_Value_4</td><td>Field_4_Value_4</td></tr>
<tr><td>6</td><td>Field_1_Value_5</td><td>Field_2_Value_5</td><td>Field_3_Value_5</td><td>Field_4_Value_5</td></tr>
<tr><td>7</td><td>Field_1_Value_6</td><td>Field_2_Value_6</td><td>Field_3_Value_6</td><td>Field_4_Value_6</td></tr>
<tr><td>8</td><td>Field_1_Value_7</td><td>Field_2_Value_7</td><td>Field_3_Value_7</td><td>Field_4_Value_7</td></tr>
</table></td></tr>
</table>

2 - Select Action



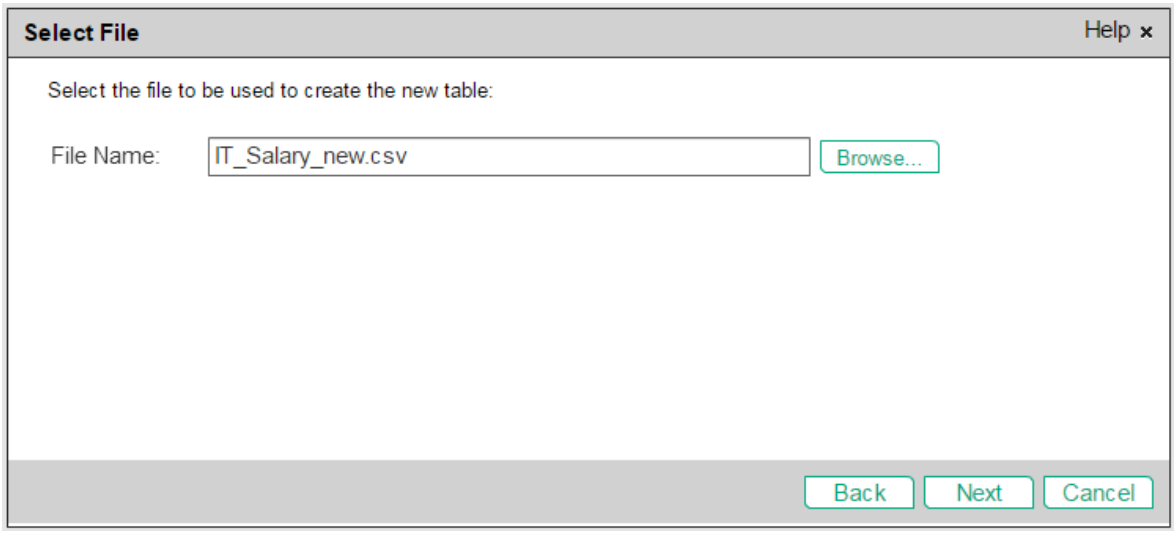
User interface elements are described below (when relevant, unlabeled elements are shown in angle brackets):

UI Element	Description
Upload a new table	Select this option if you want to create a new table in the Context Designer using the information from the Excel or .CSV file.
Update an existing table	Select this option if you want to update an external table that was previously uploaded to the Context Designer. When you click this option, the following options are displayed:  • **Add data to an existing table.** Select this option when you want to add data to an

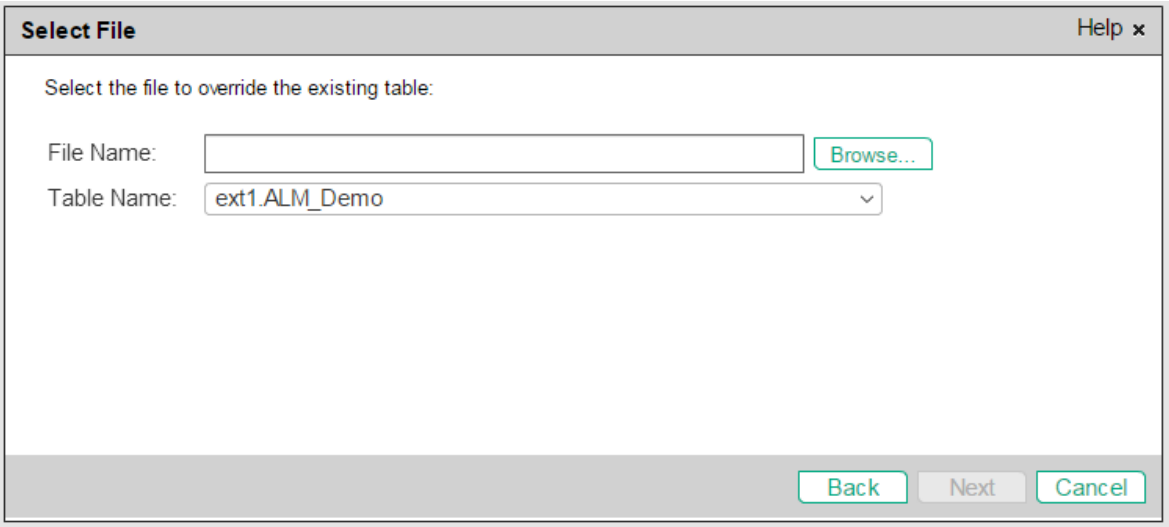
UI Element	Description
	existing table. The data from the new imported file is added at the end of the existing table. The formats of the two imported files must be the same. • **Override the data in an existing table with the new data.** Select this option when you want to override the data of an existing table with the data of the file you are uploading. The formats of the two imported files must be the same. • **Override the data with new data in a table with changed structure.** Select this option when you want to override the data of an existing table with the data of the file you are uploading. The formats of the two imported files is different. You might have added or removed columns. If you want to override the data of a table with changed structure and the file you import is an Excel file with more than one sheet, note that you can only import one sheet at a time. You must import separately each one of the sheets.

3 - Select File

This page is displayed when you selected the **Upload a new table** option:



This page is displayed when you selected the **Update an existing table** option:



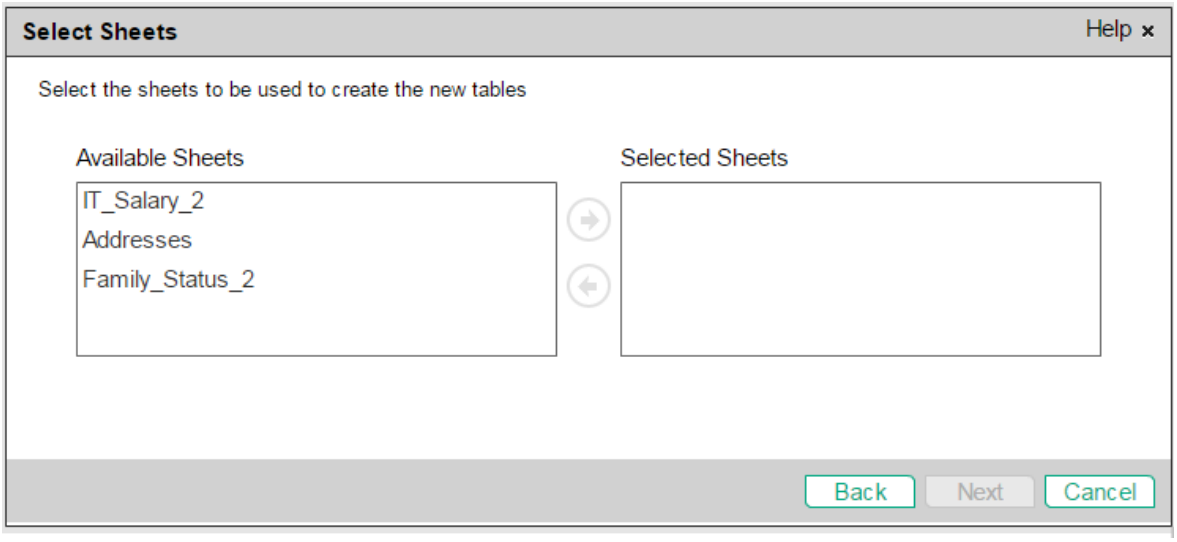
User interface elements are described below (when relevant, unlabeled elements are shown in angle brackets):

UI Element	Description
File Name	Select the file you want to upload.
Table Name	Select the relevant table name.

4 - Select Sheets

This page displays the table created from an Excel file.

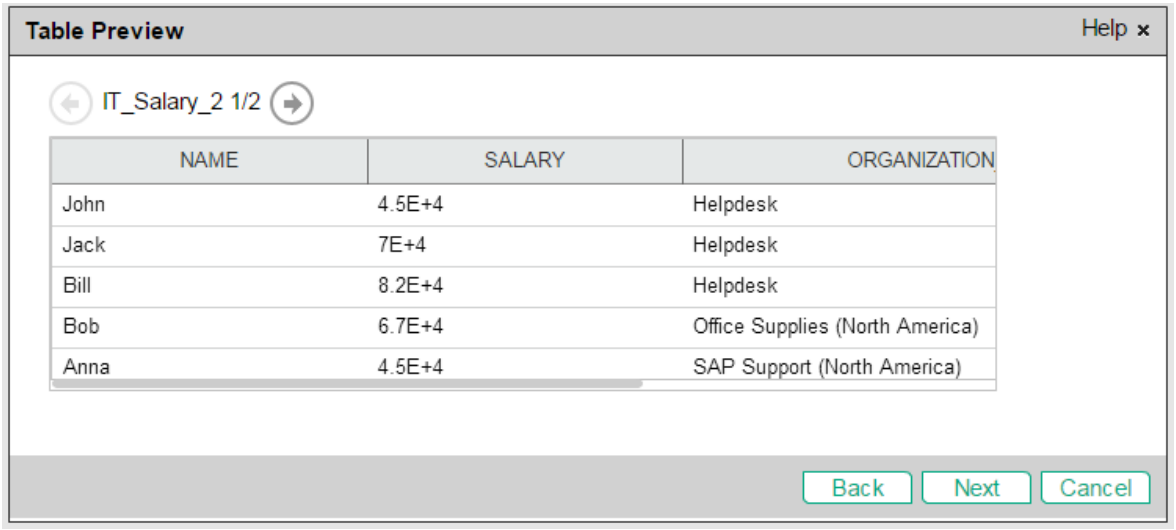
Select the sheets you want to upload.



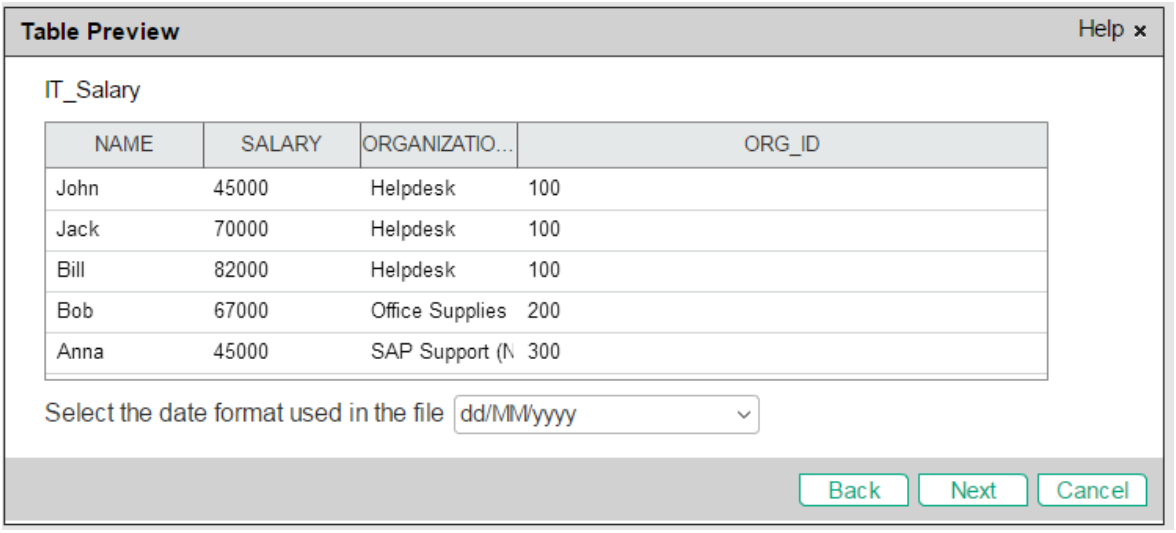
In you are performing the override of an Excel file with more than one sheet, note that you can only import one sheet at a time when you override the data of a table with changed structure. If you change the structure of more than one sheet, perform the import for each one of the sheets.

5 - Table Preview

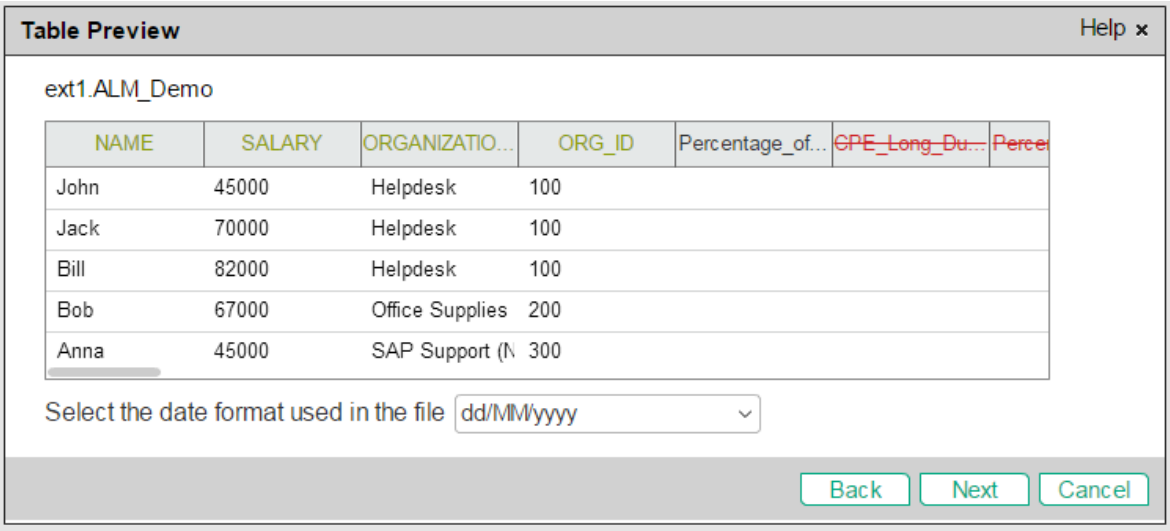
This page displays the table created from the Excel file:



This page displays the table created from the .CSV:

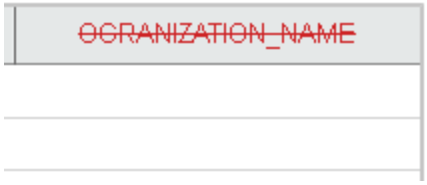


The page displays the table with a new column when you override an existing file.



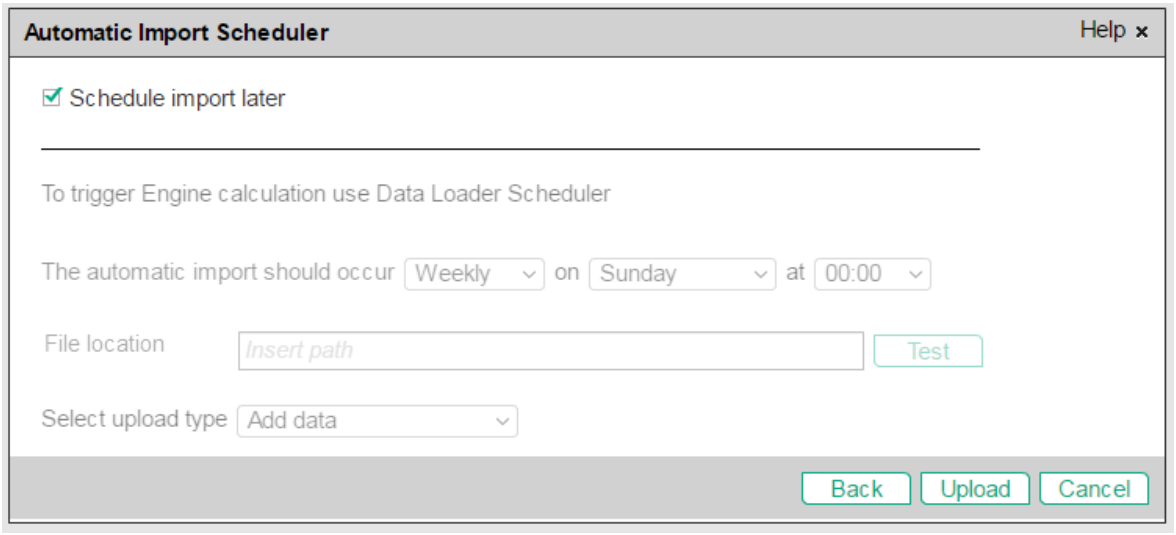
User interface elements are described below (when relevant, unlabeled elements are shown in angle brackets):

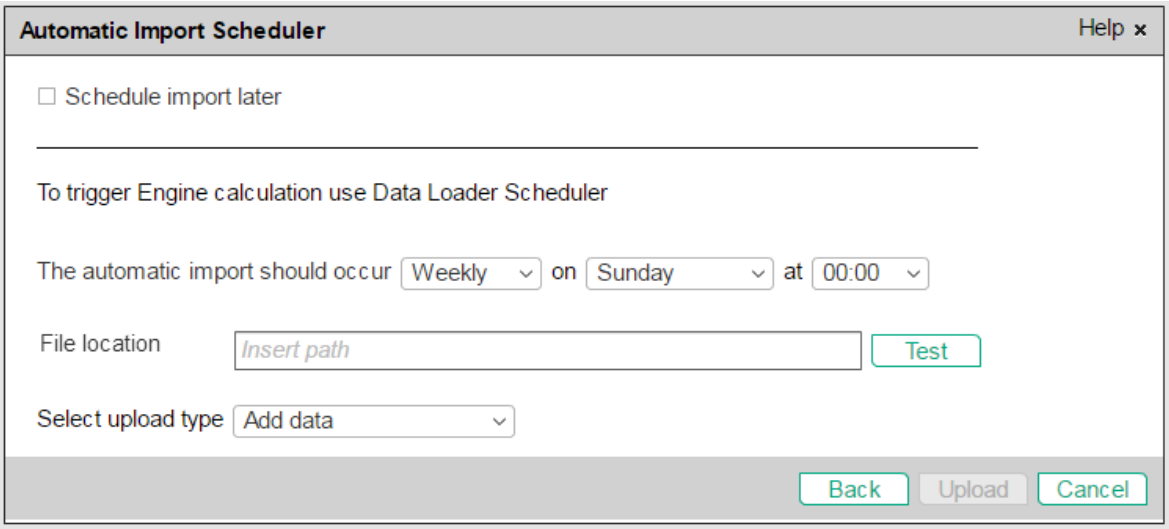
UI Element	Description
<table_name>	The name of the table. It corresponds to the selected sheet in the Excel file or to the CSV file itself.
<sheet_nbr/total_ nbr_sheets>	The sheet number and the total number of uploaded sheets in the Excel file. Click the arrows to display the other table previews.
<table>	The contents of the .CSV or Excel file are displayed in the box in table format. If you selected more than one sheet of the Excel file, arrows appear and you can view a sample of each sheet you selected. You can set the date format only for the CSV file. If you override an Excel file you can only import one sheet at a time if the sheet structure has changed. In the table in the Table Preview page: • The title of a column that was added to the imported file but did not exist in the database is green.  • The title of a column that was removed from the imported file but exists

UI Element	Description
	in the database is red and crossed-out. 
Select the date format you used in the file	Select the date format you used in the .CSV file.

6 - Automatic Import Scheduler

You can schedule the upload of a .CSV or Excel file automatically.





User interface elements are described below (when relevant, unlabeled elements are shown in angle brackets):

UI Element	Description
Schedule import later	Select to schedule the automatic import at a later time. For details, see "Semantic Layer - Data Loader Scheduler" on the next page. This is the default.
The automatic import should occur <periodicity> at <time>	Select to import the file: **Daily.**and select the time (from **00:00** to **23:30**) when you want to perform the import operation. **Weekly.** and select the day (**Monday** to **Sunday**) and time (from **00:00** to **23:30**) when you want to perform the import operation. **Monthly.**, and select the date (**1** to **31**, or **last day of the month**) and time (from **00:00** to **23:30**) when you want to perform the import operation.
File location	The location of the .CSV or Excel file that you want to upload automatically. Use the format described in the field. The location must be accessible by BA.
Select upload type	• **Add data.** Select this option when you want to add the data from the new imported file at the end of the existing table. The formats of the two imported files must be the same. • **Override data.** Select this option when you want to replace the data of the existing table with the data of the file you are uploading The formats of the two files must be the same.

Semantic Layer - Data Loader Scheduler

You can schedule the import of Excel (or .CSV) files into Context Designer.

You can also schedule the automatic import of Excel (or .CSV) files directly into Context Designer when you import for the first time. For details, see "Content Import Wizard" on page 44.

> **Note:** It is recommended to use Excel files instead of .CSV files.

You can also select to schedule the import at a later time.

To access:

Click **ADMIN > Semantic Layer > Data Loader Scheduler**.

Tasks | UI Description

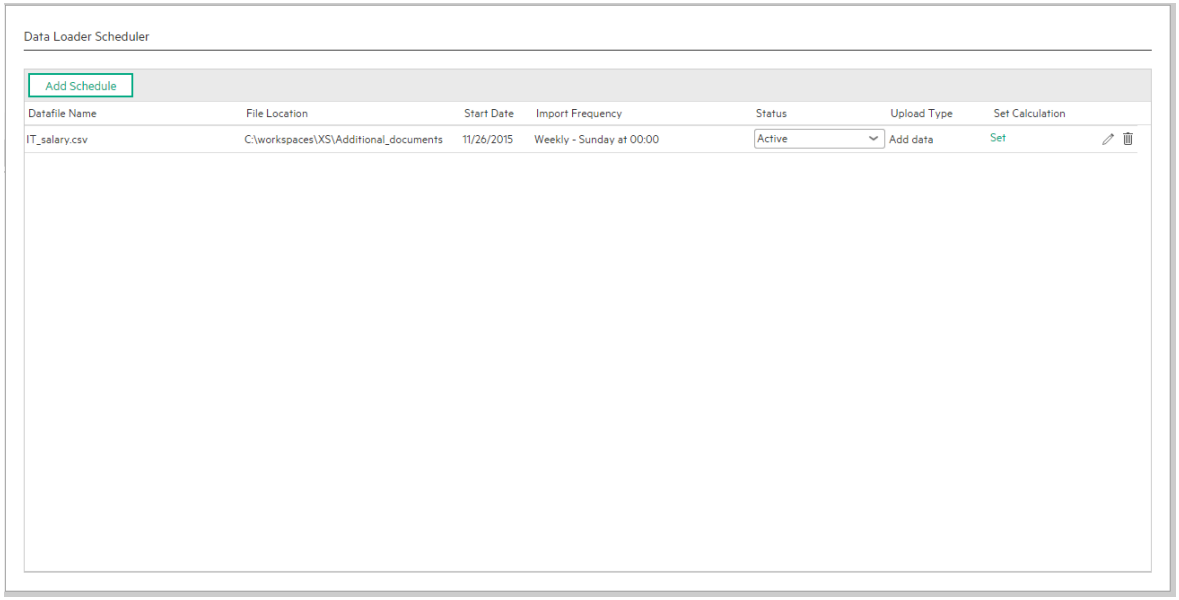
Tasks

Schedule (or edit) the automatic import of an Excel (or .CSV) file

1. Click **Admin > Semantic Layer > Data Loader Scheduler**.
2. In the Data Loader Scheduler page, click **Add Schedule** (or) .
3. In the dialog box that opens, select or enter the frequency and the time when the upload should take place, the type of upload (**Add data** or **Override data**), and the location of the file.
4. Click **OK**.

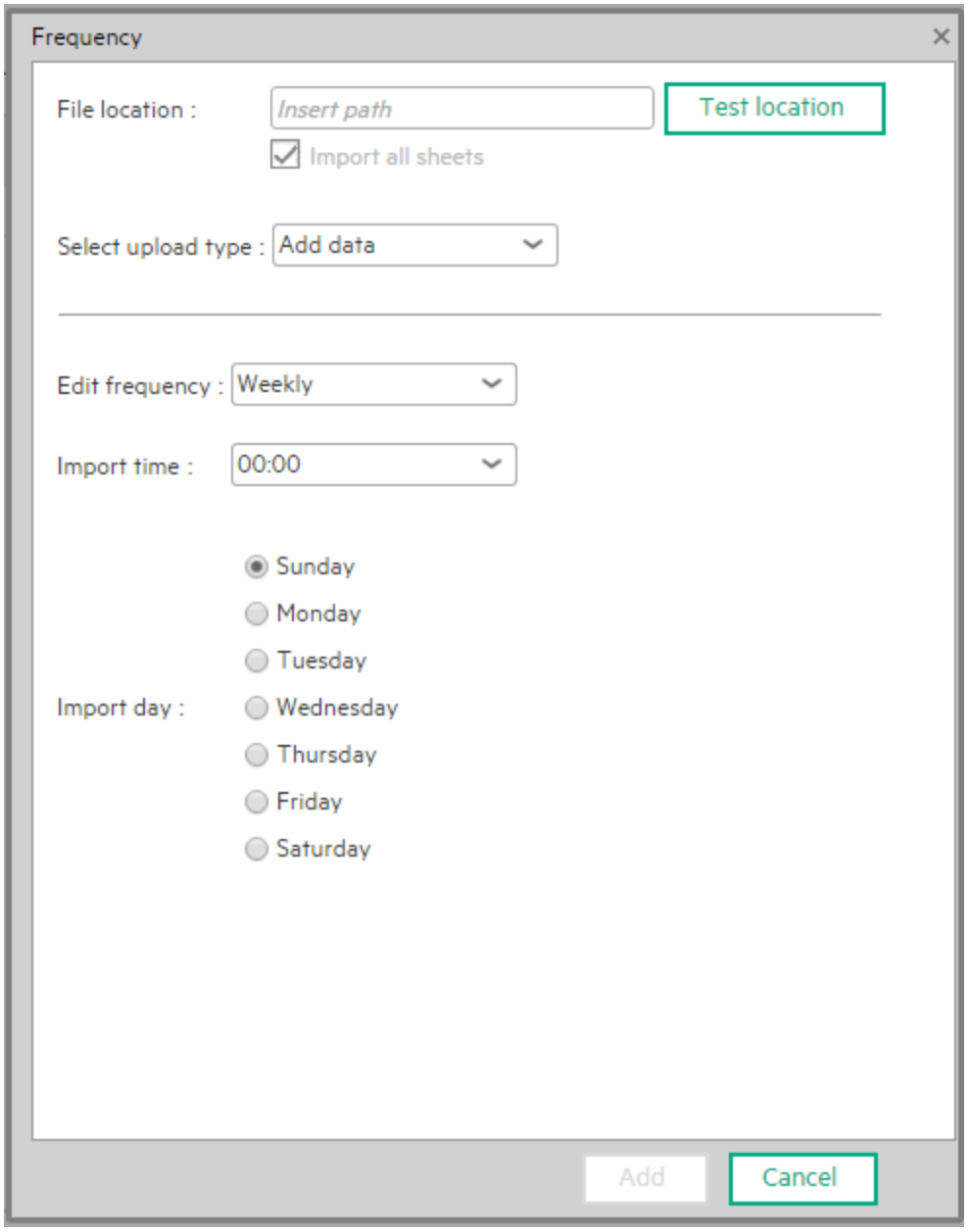
UI Description

Data Loader Scheduler Page



User interface elements are described below (when relevant, unlabeled elements are shown in angle brackets):

UI Element	Description
Add Schedule	Click to schedule the automatic upload of a .CSV or Excel file.



UI Element	Description
File location	The location of the .CSV or Excel file that you want to upload automatically. **Limitations** • **Path.** The path to the file to be imported should have shared

UI Element	Description
	access (read/write), and should not include authentication. • **.CSV Files:** ◦ **Date format.** The date format in .CSV files that you want to import using the Data Loader Scheduler must be: **DD/MM/YYYY** as it is not possible to specify the data format in the Data Loader Scheduler. ◦ **File name.** The .CSV file name should be as the same as the DB table name. **Column names.** The column names in the .CSV file should match the names of the columns in the DB table. • **Excel file.** ◦ Make sure that the sheet names in the Excel file that you import using the Data Loader Scheduler match the names of the sheets (tables) in the original Excel file you imported using the Data Loader wizard. ◦ Make sure that the column names in the Excel file that you import using the Data Loader Scheduler match the names of the columns in the original Excel file you imported using the Data Loader wizard. If the column names do not match, an error is issued: **Failed populating content for table: <table_name> <database_exception_number>**. Make sure you also check out the limitations in "Limitations for .CSV and Excel files" on page 46.
Import all sheets	The option is selected by default. When the option is selected, all the sheets of the Excel file are imported. If you deselect the option, the list of sheets is displayed. You can then select the relevant sheets.
Select upload type	• **Add data.**Select this option when you want to add the data from the new imported file at the end of the existing table. The formats of the two imported files must be the same. • **Override data.** Select this option when you want to replace the data of the existing table with the data of the file you are uploading The formats of the two files must be the same.
Test location	Click to test the location of the file you want to import.
Edit	If in **Edit frequency**, you selected:

<table>
<tr><td></td><td>
<table>
<tr><th>UI Element</th><th>Description</th></tr>
<tr><td>frequency</td><td>

Daily, you can then select the time when you want to perform the import operation in the Import time field.
Weekly, you can then select the day of the week when you want to perform the import operation in the Import day list.
Monthly, you can then select the day of the month when you want to perform the import operation in the Import day of month list.

If you chose day 31, the import occurs only on months with 31 days. If you want to schedule the import on the last day of every month, select Last day of month.

</td></tr>
<tr><td>Import time</td><td>Select the time (from 00:00 to 23:30) when you want to perform the import operation.

Tip: Do not schedule more than 15 imports during the same 5 minutes.</td></tr>
<tr><td>Import day</td><td>This field appears when you have selected Edit frequency = Weekly.

Select the day when you want to perform the import operation.</td></tr>
<tr><td>Import day of month</td><td>This field appears when you have selected Edit frequency = Monthly.

Select the day of the month when you want to import the data.

If you chose day 31, the import occurs only on months with 31 days. If you want to schedule the import on the last day of every month, select Last day of month.</td></tr>
</table>
</td></tr>
<tr><td>  </td><td>Click to edit the scheduler for the relevant file. For details, see "Add Schedule" on page 56.</td></tr>
<tr><td>Datafile name</td><td>The name of the .CSV or Excel file that you want to upload automatically.</td></tr>
<tr><td>File location</td><td>The location of the .CSV or Excel file that you want to upload automatically.</td></tr>
<tr><td>Start date</td><td>The date from when you want to start the scheduling.</td></tr>
<tr><td>Import frequency</td><td>When the upload of the file takes place. The frequency can be: Daily, Weekly, or Monthly. The scheduled time of the upload is a time frame between 00:00 and 23:00.</td></tr>
<tr><td>Status</td><td>

Active. Select this option to activate the scheduler.
Suspended. Select this option to suspend the scheduler. The upload will not take place.

</td></tr>
<tr><td>Upload</td><td>

Add data.Select this option when you want to add the data from the new

</td></tr>
</table>

type	imported file at the end of the existing table. The formats of the two imported files must be the same. • **Override data.** Select this option when you want to replace the data of the existing table with the data of the file you are uploading The formats of the two files must be the same.
	Deletes the scheduling.

SAP BusinessObjects Enterprise Contexts (Universes)

A KPI or Metric Context (universe) represents a global business facet related to the aspect of business the KPI or Metric represents. For example, the % of Assets in Maintenance KPI represents one aspect of the AssetManagement universe.

You can add a Context to the Studio and the BA engine and attach KPIs or Metrics to the new Context in the Studio.

Tasks | Reference

Tasks

This section includes:

Add a Context to Studio using Context Designer 61

Add a Context to Studio using BO 61

Universe Creation Guidelines 62

Add a Context to Studio using Context Designer

You can create new Contexts, using Context Designer. For details, see Semantic Layer - Context Designer in the *Administrator Guide*.

If you have SAP BusinessObjects Enterprise installed, you can also create Contexts (Universes) using BOE. Once you are done you must add these Contexts to the Studio.

Add a Context to Studio using BO

1. Make sure you have modeled the data structure in your database.
2. Add the universe using the BO Designer according to the Universe Creation Guidelines. For details, see "Universe Creation Guidelines" on the next page.
3. Export the universe to the BA directory in your BO CMS (Central Management Server) using the BO Designer .

4. To load the universe to the Studio library you can do one of the following:
   - Run the JMX reload metadata.
     i. Make sure you have JDK installed.
     ii. Run **jconsole** in the **Start** menu.
     iii. In the window that opens, select the **Remote Process** option, enter **<host_name>:<port_number>** and click **Connect**.
     iv. After the application completes its loading, click the **MBeans** tab.
     v. Click **com.hp.btoa.studio.jmx**.
     vi. Click **loadMetaData**.
   - Note that if you do not click **loadMetaData**, the change will be performed by an automatic update after 24 hours or 7 days depending on your configuration. You can modify the configuration using the **Meta Data reload rate (Days)** parameter in the **BA Settings** section of the ADMIN Tab. For details, see BA Settings in the *Administrator Guide*.
5. You can now design active or template entities, create the formulas and filters for the KPIs or Metrics, and more.

Reference

Universe Creation Guidelines

This section explains how you can create Universes that can be used by the IT Business Analytics Studio and the BA Engine.

Guidelines

1. Folders represent the name of the entity that is presented.
2. Classes in the directory represent the attributes of that entity.
3. Classes should be of type Date, String, or Numeric.
4. Entities (represented by directories) in the same universe must have a relationship between them.
5. Hierarchical relationships should be flattened to attributes (Level1, Level2, …). These relationships can be defined in a joined table.

Limitations

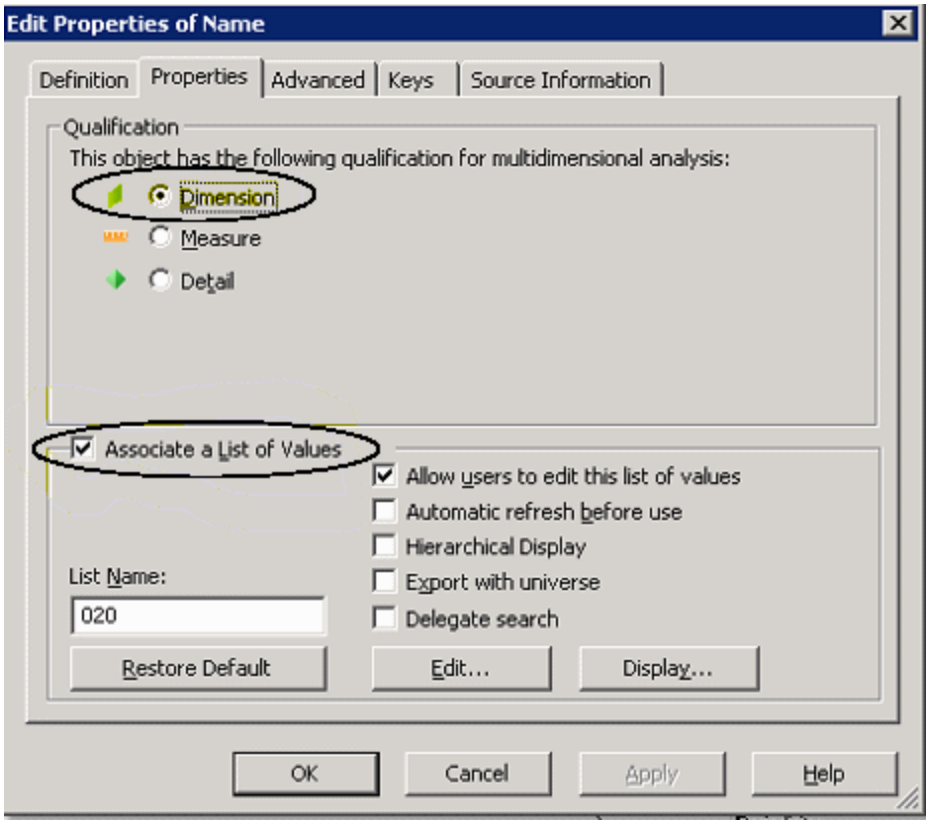
1. No current support for directories within directories or other hierarchies.

2. Ensure that there aren't multiple joins between entities represented in the Universe (This is a Universe limitation). Use aliases to copy.
3. Folder names should be unique.
4. Count, in a formula, can only be performed on Numeric and String fields.
5. Conditions on objects not supported.
6. Details on objects not supported.
7. Do not put mappings in the universe – where fields are translated from the value in the database to the value that the universe returns.

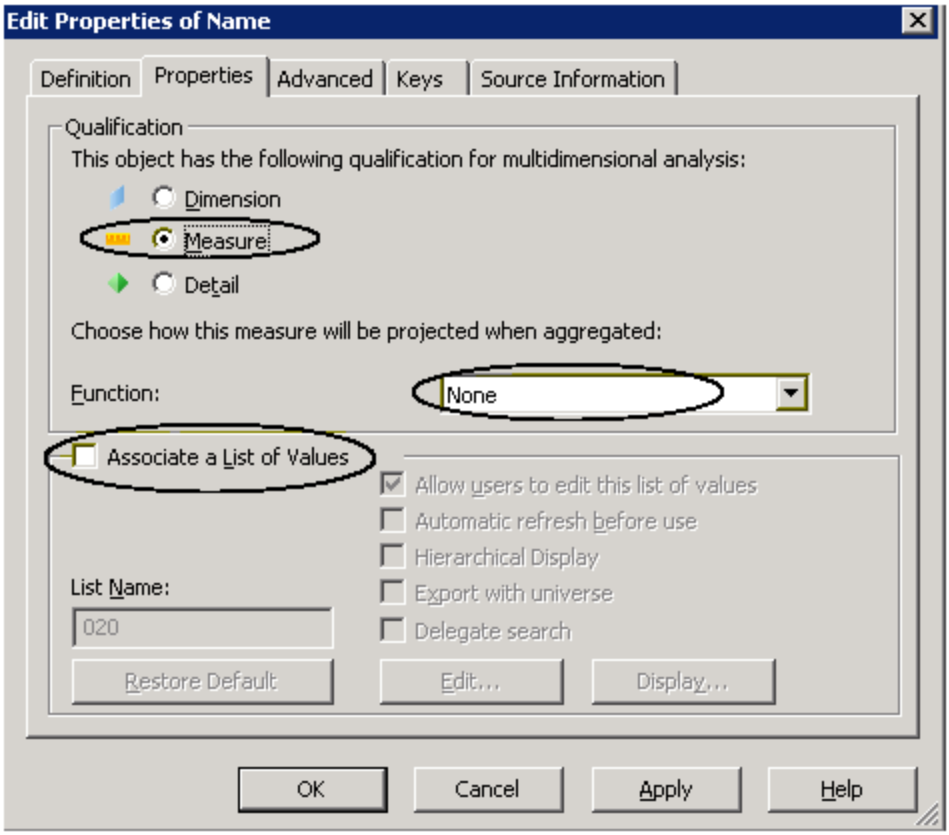
Field Types

- **Dimensions**
  - Fields that can be broken down per KPIs or Metrics should be marked as Dimensions – see the top mark in the figure below.
  - If the field can only have a limited set of values, then turn on the List of Values field below – see the second mark in the figure below. The studio will only show the first 100 values.
  - Warning - this should only be turned on for fields that have a small set of values – all the values

will be loaded into memory in the studio.



- **Measures**
  - Fields that are only used as measures in KPI or Metric formulas should be marked as Measures. Make sure to configure as in figure below.


Edit Properties of Name
Definition
Properties
Advanced
Keys
Source Information
Qualification
This object has the following qualification for multidimensional analysis:
Dimension
Measure
Detail
Choose how this measure will be projected when aggregated:
Function:
None
Associate a List of Values
Allow users to edit this list of values
Automatic refresh before use
Hierarchical Display
List Name:
Export with universe
020
Delegate search
Restore Default
Edit...
Display...
OK
Cancel
Apply
Help

Import or Export Contexts, Data, KPIs, Metrics, Trees, Pages, or Components

You can import or export complete trees (with their Scorecards, Perspectives, Objectives, and KPIs), Unassigned KPIs, Metrics from the Active KPIs pane, as well as user-defined pages or components.

The import or export flows are meant to be used when moving from staging to production and not as a way to update system configuration. If you want to use the import or export flows to update the system configuration, you must delete all the nodes in the active KPIs pane, before performing the import operation. . For details, see Migrate from Development or Test Environment to Production in the *Administrator Guide*.

The export and import flows are also meant to be used for localization purposes, when you want to work with other languages than English. For details, see Localization and Globalization in the *Administrator Guide*.

To export or import the items listed above, you can use the Content Acceleration Pack (CAP) feature. You can export or import:

- Contexts. For details, see Migrate contexts in the *Administrator Guide*.
- Data imported using .CSV files. For details, see Migrate Data Imported using .CSV files in the *Administrator Guide*.
- Trees of their Scorecards, Perspectives, Objectives, and KPIs, Unassigned KPIs, and Metrics. For details, see Migrate Trees, Metrics, and Unassigned KPIs in the *Administrator Guide*.
- User-defined pages or components. For details, see Migrate User-defined Pages or Components in the *Administrator Guide*.

Note: You can migrate Contexts, trees, KPIs, Metrics, user-defined pages, or components using one CAP per type of item or one CAP for all the items you want to export/import/migrate.

Reference: Contexts (Universes)

IT Business Analyticss includes out-of-the-box Context (universes) that correspond to specific aspects of the business.The entities in these Contexts are IT Data Model-compliant. For details about IT Data Model, see IT Data Model in the *Business Analyst Guide*.

To access:

In IT Business Analytics, click **Admin > Semantic Layer > Semantic Layer**. In the Context Management page, click **Launch Context Designer**. In the Context Designer page, click **Open an existing context**, and select the Context.

Learn More

Contexts Created using SAP BusinessObjects Enterprise

A Context (universe) represents a business universe.

A Context is a set of entities. Each entity is a set of fields. Each field can be a dimension, measure, or fact. It can be measured.

A formula calculates, for a specified time period, using the values of specific entities, a value that represents a specific aspect of the business. The value is given to a Key Performance Indicator (KPI). The KPI represents the specific aspect of the business.

Each universe includes some KPIs. The KPIs are the building blocks of the Studio and the KPI engine.

The universe entity relationship diagrams (ERDs) are logical views of the universe data models. The ERDs are interactive and contain details about the tables and classes used in the universe.

Tasks

This section includes:

Plan the integration of the relevant data sources and the activation of the corresponding Content Packs 68

Display the Context 68

Plan the integration of the relevant data sources and the activation of the corresponding Content Packs

Proceed as follows:

1. Learn about KPIs and Metrics (Key Performance Indicators (KPIs) and Metrics in the *Business Analyst Guide*).
2. Consult the list of KPIs and Metrics for each data source in the *Content Reference Guide*(or in the KPI Library in Excel format - you can sort the list according to the business context).

   This document is accessible from the Help Center page in the online Help Center (documentation library), or from the HPE Software Product Manual Site (https://softwaresupport.hpe.com/group/softwaresupport/search-result?doctype=manuals?keyword=).
3. Understand the structure of the Contexts and about the KPIs or Metrics and their relation to Contexts. For details, see Semantic Layer - Context Designer or SAP BusinessObjects Enterprise Contexts (Universes) in the *Administrator Guide*.

Display the Context

1. In IT Business Analytics, click **Admin > Semantic Layer > Semantic Layer**. The Context Management page opens.
2. The list of out-of-the-box Contexts is displayed.
3. Click **Launch Context Designer**.
4. In the Context Designer page that opens, click **Open an existing context**.
5. Select the relevant Context.

   The structure of the Context is displayed.

KPIs, Metrics, Contexts, and Data Source Integrations

The following sections provide information about the Data Sources, the Contexts linked to the data sources, and the corresponding KPIs and Metrics, and indicates if there is a need for consolidation when working with other data sources.

Learn More

Note: The Period_Universe context is not based on external data sources. It is used to manage periods internally.

Application Lifecycle Management Data Source

Data source: "Integration with ALM" on page 72

KPIs and Metrics: "ALM-Related KPIs and Metrics" on page 79

Related CAPs: ALM_Demo and ALM Content Acceleration Packs in the *Content Acceleration Packs Guide*.

Consolidation with PPM ("Integration with ALM" on page 72)

Asset Manager Data Source

Data source: "Integration with AM" on page 81

KPIs and Metrics: KPIs and Metrics in the *Content Acceleration Packs Guide*.

Related CAPs: AM_Demo and AM Content Acceleration Packs in the *Content Acceleration Packs Guide*.

Amazon Web Services Data Source

Data source: "Integration with AWS" on page 86

KPIs and Metrics: KPIs and Metrics in the *Content Acceleration Packs Guide*.

Related CAPs: CSA_Demo and CSA Content Acceleration Packs in the *Content Acceleration Packs Guide*.

Amazon Web Service CloudWatch Data Source

Data source: "Integration with AWSCW" on page 91

KPIs and Metrics: KPIs and Metrics in the *Content Acceleration Packs Guide*.

Related CAPs: CSA_Demo and CSA Content Acceleration Packs in the *Content Acceleration Packs Guide*.

Azure Data Source

Data source: "Integration with Azure" on page 96

KPIs and Metrics: KPIs and Metrics in the *Content Acceleration Packs Guide*.

Related CAPs: CSA_Demo and CSA Content Acceleration Packs in the *Content Acceleration Packs Guide*.

Cloud Service Automation Data Source

Data source: "Integration with CSA" on page 108

KPIs and Metrics: KPIs and Metrics in the *Content Acceleration Packs Guide*.

Related CAPs: CSA_Demo and CSA Content Acceleration Packs in the *Content Acceleration Packs Guide*.

Cloud Optimizer Data Source

Data source: "Integration with CO" on page 163

KPIs and Metrics: KPIs and Metrics in the *Content Acceleration Packs Guide*.

Related CAPs: CSA_Demo and CSA Content Acceleration Packs in the *Content Acceleration Packs Guide*.

Project and Portfolio Management Data Source

Data source: "Integration with PPM" on page 168

KPIs and Metrics: KPIs and Metrics in the *Content Acceleration Packs Guide*

Related CAPs: PPM_Demo and PPM Content Acceleration Packs in the *Content Acceleration Packs Guide*

Server Automation Data Source

Data sources: "Integration with SA" on page 172

KPIs and Metrics: KPIs and Metrics in the *Content Acceleration Packs Guide*.

Related CAPs: SA_Demo and SA Content Acceleration Packs in the *Content Acceleration Packs Guide*.

The Context includes the Node entity, so you can create a KPI based on that entity and then break it down by service and/or application.
Do not create a Service to Application drill down or an Application to Service drill down.

Service Manager Data Source

Data source: "Integration with SM" on page 176

KPIs and Metrics: KPIs and Metrics in the *Content Acceleration Packs Guide*.

Related CAPs: SM Content Acceleration Pack in the *Content Acceleration Packs Guide*.

Integration with ALM

HP Application Lifecycle Management (ALM) empowers IT to manage the core application life cycle, from requirements through deployment, granting application teams the crucial visibility and collaboration needed for predictable, repeatable, and adaptable delivery of modern applications. ALM supports you through all phases of the application life cycle management. By integrating the tasks involved in application management,it enables you to better align IT with your business needs.

This section describes the integration, contexts, KPIs, Metrics, and reports, if any, associated with the integration with the Application Lifecycle Management data source. The purpose of the integration of ALM as a data source is to bring quality management information into the Data Warehouse.

The data warehouse is connected to ALM through high-level integration processes. A set of database views enables the extraction of the main ALM objects.

Note: To locate ALM documentation in the HPE Manual Site, you may have to input **QC** in the search field.

Tip: The integration of ITBA with ALM is not supported while:

- ALM is using Common Access Card (CAC).
- ALM is using an external authentication access method.

To access:

Select **ADMIN > Data Management > Connect Data Source** then click **Activate** to activate the integration processes for the **ALM** data source.

Learn More

Content Packs and their functionality

To learn about Content Packs and their functionality, see Connect the Data Source in the *Administrator Guide*.

Important Information

- ALM supports multiple instances of the Content Pack.
- **DCS Integration:** An extractor using the Data Collection Service mechanism that extracts entities from the source and generates corresponding flat files. For details, see Data Collection Service (DCS) in the *Administrator Guide*.
- All fields are case-sensitive.

ALM Adapter Limitations

- To control the data extraction page size from the Data Warehouse server side, set the **alm.page.size** parameter to **1000** in **$HPBA_ HOME/ContentPacks/ALM/EXTRACTOR/extractor-alm/setting.properties**.
- The ALM Adapter transfers the relevant information from the ALM data source. In the ALM Site Administration, select the **Site Configuration** tab and make sure that the REST_API_MAX_ PAGE_SIZE configuration is at least 2000 pages. In the ALM activation page in ALM, the alm.page.size setting should be equal to or less than the REST_API_MAX_PAGE_SIZE setting.

Tasks

This section includes:

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ALM Customization 75
Consolidate Between ALM and PPM 75
Configure ALM Reopen Events 76
Configure ALM_PAGE_SIZE 76
ALM-Related KPIs and Metrics 79
Place Holder Mapping 79

Activate the Integration

1. **Prerequisites:**
   - Port 8080 / 8443 must be available.
2. Select **ADMIN > Data Management > Install Content Pack** then click the install button relevant for the data source.
3. Select **ADMIN > Data Management > Connect Data Source** then click **Add data source**.
4. The Add Data Source page opens. Select the **ALM** data source type.
5. Select or enter the configuration parameters.
6. Click **Next** to proceed to the validation page.

Connect to ALM on a Secured Connection

1. Export the ALM SSL certificate to a file. For details, see the ALM *Hardening Guide*.
2. After the installation procedure is finished, reveal the ALM certificate to Data Warehouse, you import the SSL certificate trusted by the ALM server into the JDK key store using the **keytool.exe** tool provided by the JDK by running the command :

   On the server side (glassfish): Run the **$HPBA_Home/jdk/jre/bin/keytool" -importcert -alias <alias> -file <path_to_certificate>" –keystore"<JRE>/lib/security/cacerts" -trustcacerts -storepass changeit** command.
3. Select the **Is secured** toggle-button in the activation parameters screen.
4. Change the port to a secured port (default is 8443).

Note:

- The default password for JVM keystore is **changeit**. If this password was not changed before, use the default keystore password for certificate import.
- In Connect Data Source, the specified machine name must be identical to the name of the machine for which the certificate is issued.

ALM Customization

ALM Demand Management provides system parameter fields. You can change name and data length of these parameter fields in ALM Demand Management, depending on your purpose and requirements.

To support all customers' KPIs, all ALM customized fields of Demand Management are populated to the Data Warehouse and added as place holders in the universe. You can use these fields in BA KPI formulas.

Related Dimension Tables and Views

Related Dimension Tables

- REQUIREMENT_PLHD_DIM
- PROJECT_PLHD_DIM
- DEFECT_PLHD_DIM
- TEST_PLHD_DIM
- TESTINSTANCE_PLHD_DIM
- TESTRUN_PLHD_DIM
- TESTSET_PLHD_DIM

Related Views

- REQUIREMENT_PLHD_DIM_V
- PROJECT_PLHD_DIM_V
- DEFECT_PLHD_DIM_V
- TEST_PLHD_DIM_V
- TESTINSTANCE_PLHD_DIM_V
- TESTRUN_PLHD_DIM_V
- TESTSET_PLHD_DIM_V

Consolidate Between ALM and PPM

If you are integrating ALM and PPM data sources, the consolidation process between ALM and PPM identifies ALM releases as child- projects of PPM projects.You can map which release of the ALM domain is connected to the specific PPM project. The manual mapping must be performed before

running ETL.

To configure ALM and PPM consolidation:

1. Navigate to **$HPBA_HOME/ContentPacks/ALM/EXTERNAL/**.
2. Open the **ALM_RELEASE_MAPPING.csv** file.

ALM_DOMAIN	ALM_PROJECT	ALM_ID	ALM_MD_CP_ID	PPM_ID	PPM_MD_CP_ID

3. **Note:** Do not remove the header row. In addition, if the spreadsheet has a dummy row under the header row, do not edit or delete the dummy record. This record tells the ETL process what data type to use when processing the column.
4. Save your additions and changes.

Configure ALM Reopen Events

You can configure a defect's reopen event by mapping which defect status changes can trigger a reopen event. When you configure the file, all of these status changes are marked as reopen events. This allows for a dynamic configuration of reopen events mapping.

To configure reopen event mapping:

1. Navigate to **$HPBA_HOME/ContentPacks/ALM/EXTERNAL**.
2. Open the **ALM_DEFECT_REOPEN_MAPPING.csv** file.
3. Enter the required defect status, for example, old_value = Fixed, new_value= Open. All records that match this pattern will be marked as reopen event.
4. Save your additions and changes.

Note: Configuration must be done prior to running ETL. If data is processed without this configuration, no reopen events will be calculated (besides the out-of-the-box ones).

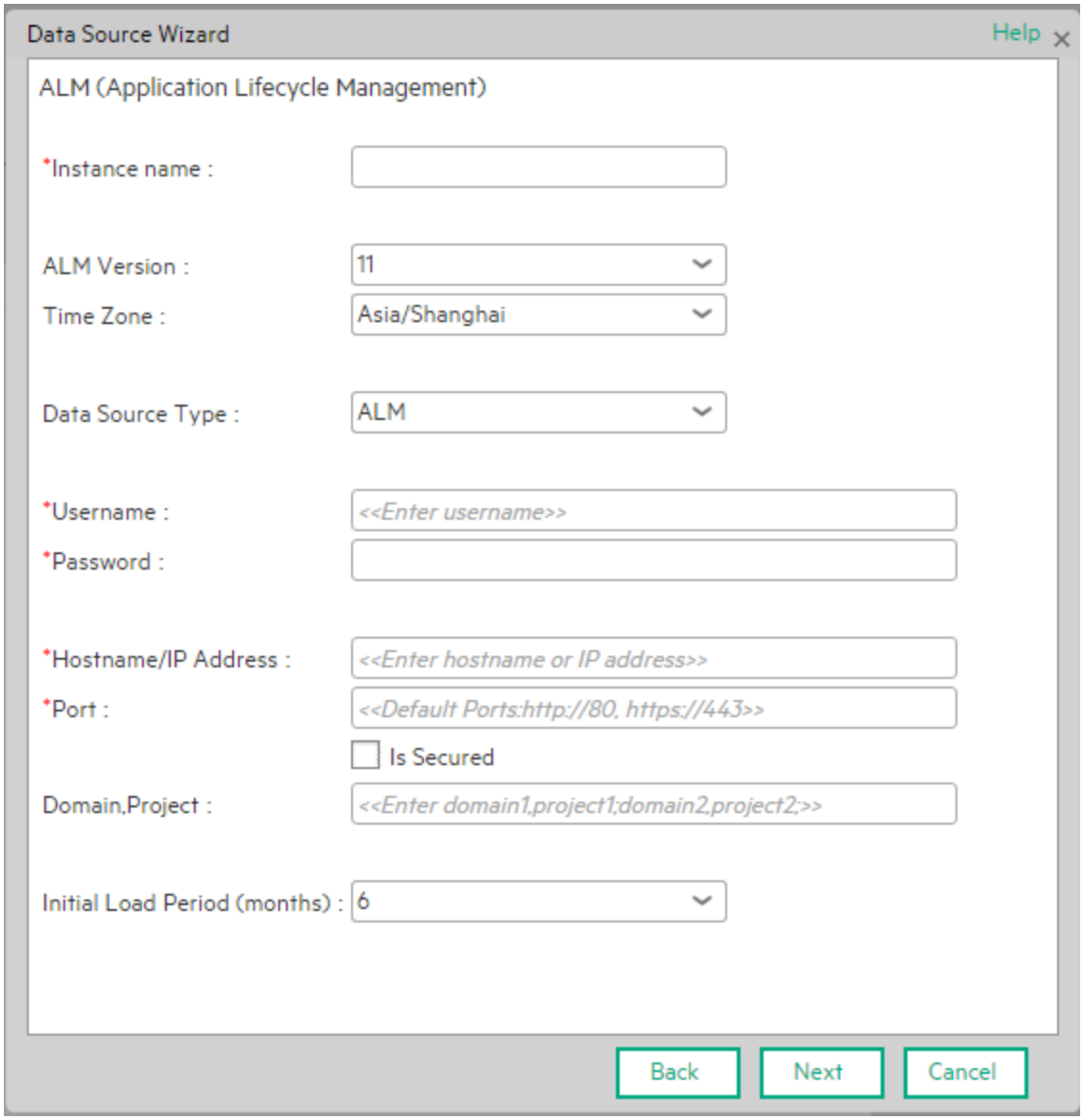
Configure ALM_PAGE_SIZE

In the ALM Site Administration, select the Site Configuration tab and make sure the REST_API_MAX_PAGE_SIZE configuration is at least 2000. I

UI Description

ALM Activation Page

The data warehouse is connected to ALM through high-level integration processes. A set of database views enables the extraction of the main ALM objects.



Mandatory fields are marked with a red asterisk.

User interface elements are described below:

UI Element	Description
Instance name	Enter a name for the data source instance you are activating.
ALM Version	Select the relevant version. For details, see the *Support Matrix*.
Time Zone	Select the time zone for the data source.
Data Source Type	Select the data source type.
Username	Enter the username used to log on to ALM.
Password	Enter the password used to log on to ALM.
Hostname/IP Address	Enter the hostname of the server on which ALM is installed. **Note:** In the case of SSL secured connection, the server hostname must be identical to the name to which the certificate was issued.
Port	Enter the server port number. Default port for http protocol: 80 Default port for https protocol: 443
Is Secured	Select the option to use the **https** protocol. Default protocol is **http**.
Domain,Project	Enter the domain and project pair, separated by a semicolon ";". **Example** domain1,project1;domain2,project2;domain3,project3. A * represents all projects. For example: **domain1,*;domain2,project2.** This means the ALM extractor extracts **all** projects under **domain1**, and only **project2** under **domain2**. **Note:** If you do not specify the domain and project pair, the ETL extracts data from all domains and projects.
Initial Load Period (months)	Select the number of months from which you want the initial data loaded.

Reference

ALM-Related KPIs and Metrics

For a list of the ALM-related KPIs and Metrics, see KPIs and Metrics in the *Content Acceleration Packs Guide*.

Place Holder Mapping

The place holder entities: DEFECT_PLHD, REQUIREMENT_PLHD, PROJECT_PLHD columns are listed below with their corresponding context columns:

DEFECT_PLHD	
DEFECT_PLHD.BG_USER_05	OpenClose
DEFECT_PLHD.BG_USER_06	SecurityImpact
DEFECT_PLHD.BG_USER_14	LastDate
DEFECT_PLHD.BG_USER_15	CloseInDate
DEFECT_PLHD.BG_USER_16	OpenInDate
DEFECT_PLHD.BG_USER_22	NewInDate
DEFECT_PLHD.BG_USER_24	FixedInDate
DEFECT_PLHD.BG_USER_27	GlobalID
DEFECT_PLHD.BG_USER_34	DevelopmentEngineer
DEFECT_PLHD.BG_USER_36	InvestigationEngineer
DEFECT_PLHD.BG_USER_41	SourceIncidentID
DEFECT_PLHD.BG_USER_43	IssueType
DEFECT_PLHD.BG_USER_44	CustomerCompany
DEFECT_PLHD.BG_USER_45	CustomerEmail
DEFECT_PLHD.BG_USER_63	ResolutionNote
DEFECT_PLHD.BG_USER_64	CustomerNote

DEFECT_PLHD.BG_USER_71	ReopenCount
DEFECT_PLHD.BG_USER_83	Regression
DEFECT_PLHD.BG_USER_84	EscalationStatus
DEFECT_PLHD.BG_USER_89	Workaround
DEFECT_PLHD.BG_USER_95	Team
PROJECT_PLHD	
PROJECT_PLHD.REL_USER_04	ReleaseState
PROJECT_PLHD.REL_USER_05	PRS_ID
PROJECT_PLHD.REL_USER_06	PRS_MR_Date
PROJECT_PLHD.REL_USER_10	ReleaseType
REQUIREMENT_PLHD	
REQUIREMENT_PLHD.RQ_USER_52	EstimatedCompletedDate
REQUIREMENT_PLHD.RQ_USER_50	ActualCompletedDate
REQUIREMENT_PLHD.RQ_USER_01	Status
REQUIREMENT_PLHD.RQ_USER_20	Team
REQUIREMENT_PLHD.RQ_USER_44	QAStatus
REQUIREMENT_PLHD.RQ_USER_47	ActualStartDate
REQUIREMENT_PLHD.RQ_USER_49	ActualEndDate
REQUIREMENT_PLHD.RQ_USER_48	ActualImpDate

Integration with AM

Asset Management helps you to manage your assets across procurement, active lifecycle, and disposals so you can optimize end-to-end asset usage for optimal value and lower costs.

The AM integration uses the SAP BusinessObjects Data Services drivers for data store connections.

This section describes the integration, contexts, KPIs, Metrics, and reports, if any, associated with the integration with the Asset Manager data source.

The Asset Manager (AM) content pack enables you to receive data information from the AM application. AM is a fully integrated suite of modules delivered as part of the Service Management Center software package. AM software manages the physical, virtual, financial, and contractual aspects of assets.

Note: Information about the ALT data source and more general content issues are detailed in the *Content Reference Guide*.

To access:

Select **ADMIN > Data Management > Connect Data Source** then click **Add data source** and select **AM** to activate the integration processes for the **AM** data source.

Learn More

Content Packs and their functionality

To learn about Content Packs and their functionality see, Connect the Data Source in the *Administrator Guide*.

Important Information

- The AM Content Pack supports multiple instances.
- **DCS Integration:** An extractor using the Data Collection Service mechanism that extracts entities from the source and generates corresponding flat files. For details, see Data Collection Service

(DCS) in the *Administrator Guide*.

- All fields are case-sensitive.

Tasks

Activate the integration

1. **Prerequisite:**

   The AM data source can have either the Oracle or the SQL Server type.

2. **Activate the AM Data Source:**

   a. Select **ADMIN > Data Management > Connect Data Source** then click **Add data source**.

   b. The Add Data Source page opens. Select the **AM** data source type.

   c. Select or enter the configuration parameters.

   d. Click **Next** to proceed to the validation page.

   Note: The system does not support changing the **Data Source Type**, therefore you must select the relevant type, SQL or Oracle, before activation.

UI Description

AM Activation Page

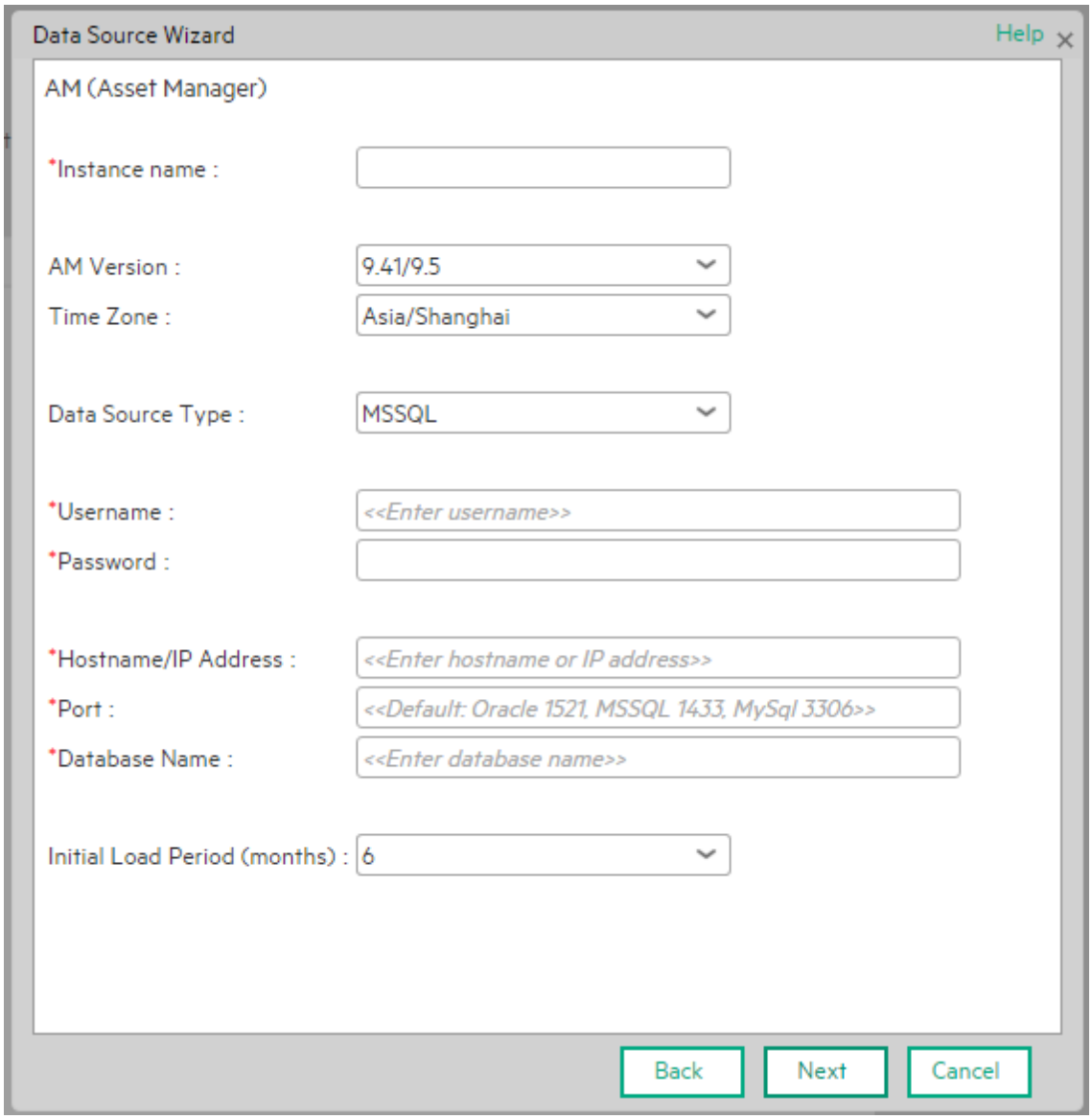
The data warehouse is connected to Asset Manager through high-level integration processes.

User interface elements are described below:

For the SQL server:

The following is an example of the AM Activation page when the database backup of Asset Manager is restored on an SQL Server.

Mandatory fields are marked with a red asterisk.



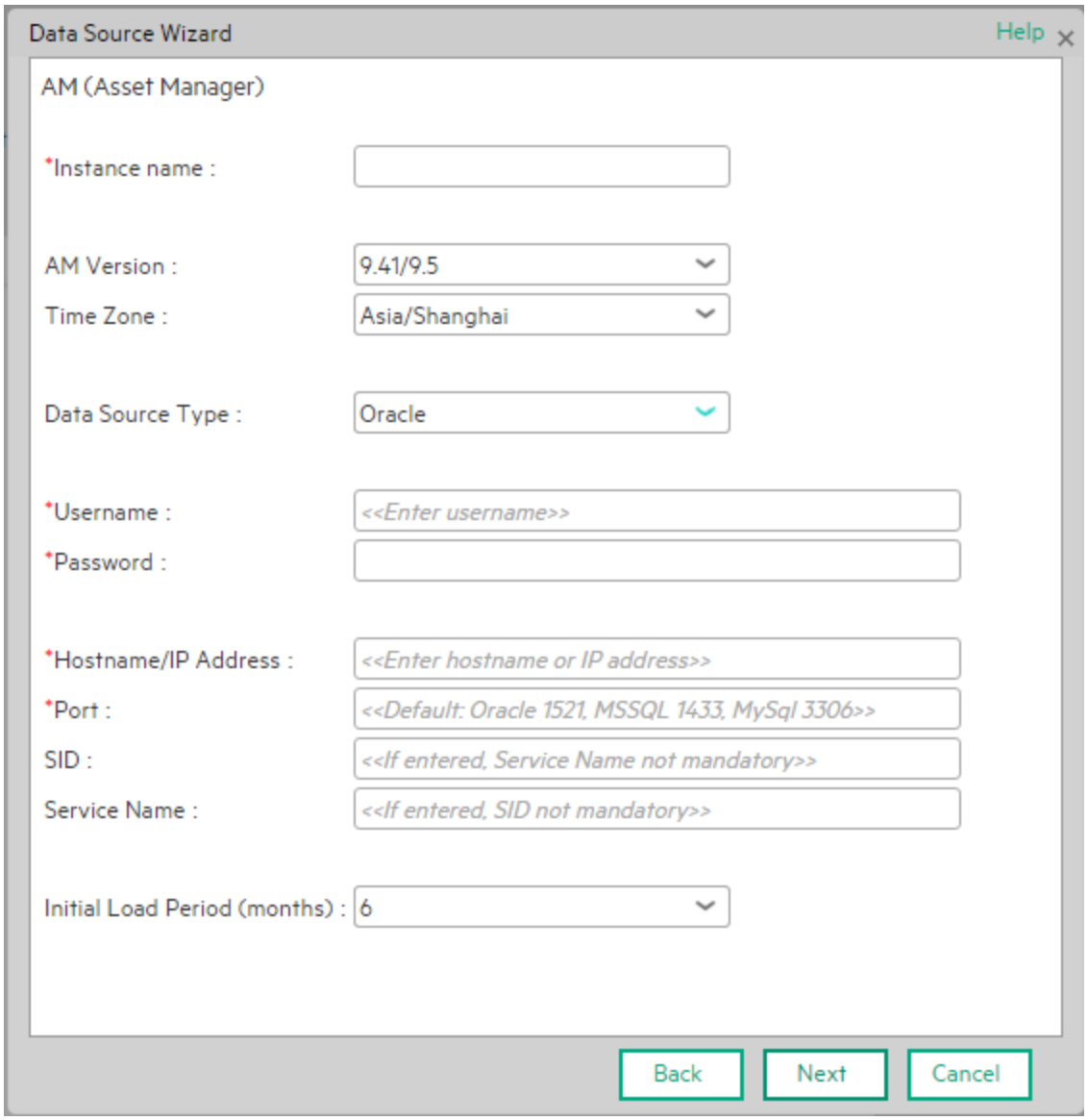
UI Element	Description
Instance name	Enter a name for the data source instance you are activating.
AM Version	Select the relevant AM version. For details, see the *Support Matrix*.
Time Zone	Select the time zone for the data source.

UI Element	Description
Data Source Type	AM should be configured to run on an SQL Server.
Username	Enter the username used to log on to the AM database.
Password	Enter the password used to log on to the AM database.
Hostname/IP Address	Enter the SQL server database hostname or IP address.
Port	Enter the server port number.
Database Name	Enter the database name used by AM.
Initial Load Period (months)	Select the number of months from which you want the initial data loaded.

For the Oracle Server:

The following is an example of the AM Activation page when the database backup of Asset Manager is restored on an Oracle Server.

Mandatory fields are marked with a red asterisk.



Note: The Oracle database can have both Server ID (SID) and Service Name properties, but the user should specify only one. If you define the SID, then the SID is used, and if you define Service Name, then Service Name is used. If you define both in the UI, only SID is used.

UI Element	Description
Instance name	Enter a name for the data source instance you are activating.
AM Version	Select the relevant AM version. For details, see the *Support Matrix*.
Time Zone	Select the time zone for the data source.
Data Source Type	AM should be configured to run on an Oracle server.
Username	Enter your username used to log on to the AM database.
Password	Enter your password used to log on to the AM database.
Hostname/IP Address	Enter the Oracle server hostname or IP address.
Port	Enter the server port number.
SID	Enter the unique name of the database.
Service Name	Enter the alias used when connecting.
Initial Load Period (months)	Select the number of months from which you want the initial data loaded.

Reference

AM-Related KPIs and Metrics

For a list of the AM-related KPIs and Metrics, see KPIs and Metrics in the *Content Acceleration Packs Guide*.

Integration with AWS

This section describes the integration, contexts, KPIs, Metrics, and reports, if any, associated with the integration with the Amazon Web Services data source.

Amazon Web Services (AWS) offers a complete set of infrastructure and application services that enable you to run virtually everything in the cloud: from enterprise applications and big data projects to social games and mobile apps. One of the key benefits of cloud computing is the opportunity to replace up-front capital infrastructure expenses with low variable costs that scale with your business.

The purpose of the integration of AWS as a data source is to bring AWS information into the Data Warehouse.

To access:

Select **ADMIN > Data Management > Connect Data Source** then click **Add data source** and select **AWS** to activate the integration processes for the **AWS** data source.

Learn More

Cloud Optimization Offering

The Cloud Optimization offering includes integrations with:

- **Amazon Web Services** (AWS). For details see Integration with AWS in the *Content Reference Guide*.
- **Amazon Web Service CloudWatch**(AWSCW). For details see Integration with AWSCW in the *Content Reference Guide*.
- **Cloud Service Automation** (CSA). For details see Integration with CSA in the *Content Reference Guide*.

Content Packs and their functionality

To learn about Content Packs and their functionality, see Connect the Data Source in the *Administrator Guide*.

Important Information

- The AWS Content Pack supports multiple instances.
- **DCS Integration:** An extractor using the Data Collection Service mechanism that extracts entities from the source and generates corresponding flat files. For details, see Data Collection Service (DCS) in the *Administrator Guide*.
- All fields are case-sensitive.
- The AWS DCS extraction of the csv file from the S3 bucket uses a properties file along with the datasource.xml file. It is available once the AWS content pack is deployed under: **%HPBA_**

Home%/ContentPacks/AWS/conf.

The properties file defines fixed csv properties, such as the csv file name, suffix, time format, filters in csv file, delayDay, and can be modified.

- AWS proxy parameters are optional in a public network.
- For details, see CSA_Demo and CSA Content Acceleration Packs in the *Content Acceleration Packs Guide*.

Tasks

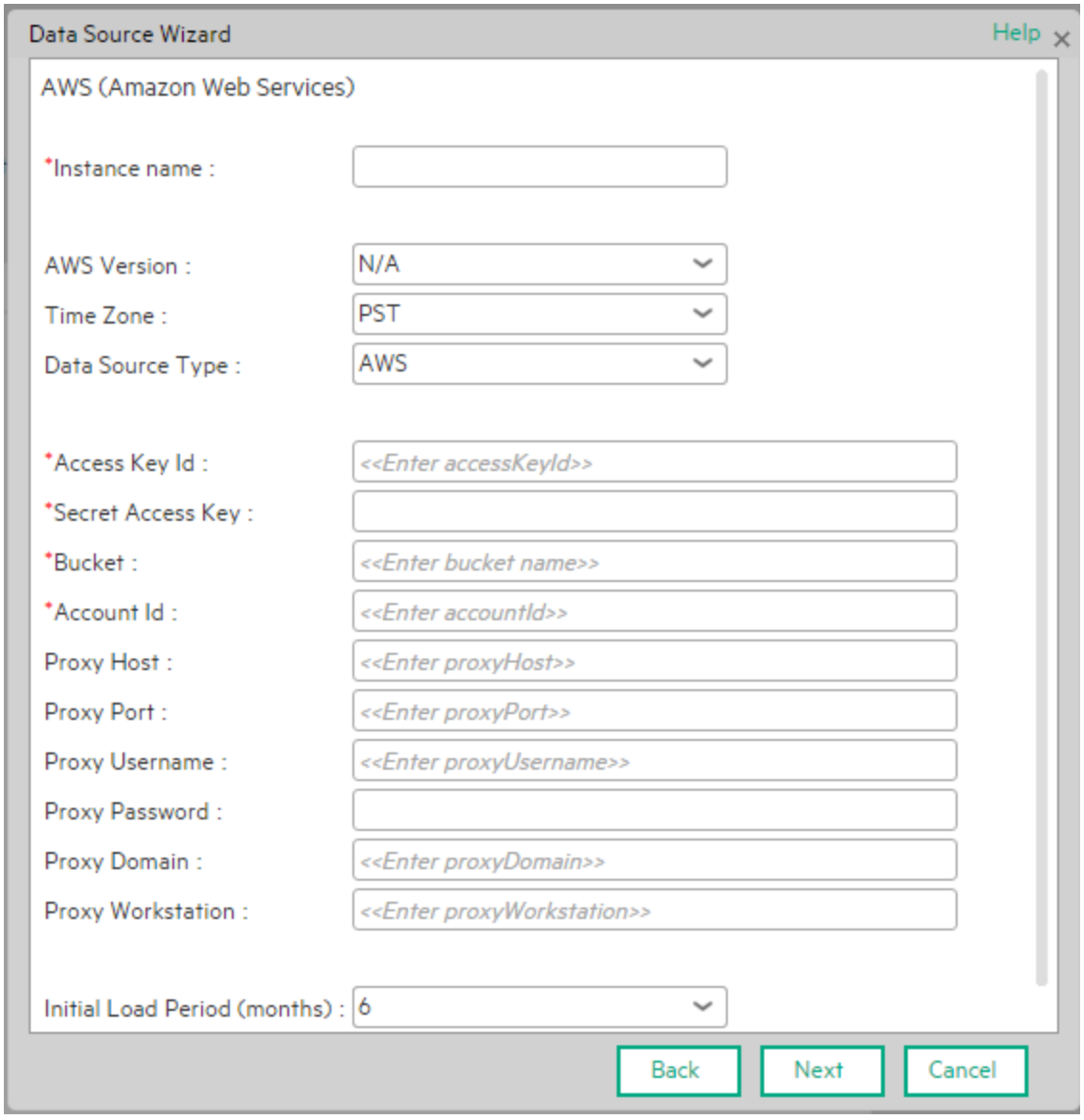
Activate the Integration

1. Select **ADMIN > Data Management > Install Content Pack** then click the install button relevant for the data source.
2. Select **ADMIN > Data Management > Connect Data Source** then click **Add data source**.
3. The Add Data Source page opens. Select the **AWS** data source type.
4. Select or enter the configuration parameters.
5. Click **Next** to proceed to the validation page.

UI Description

AWS Activation Page

The following is an example of the AWS Activation page.



User interface elements are described below:

Note: If the AWS configuration is for a named instance connection, make sure to enter the named instance port.

UI Element	Description
Instance name	Enter a name for the data source instance you are activating.
AWS Version	This parameter is Not Applicable.
Time Zone	PST only
Data Source Type	AWS. This parameter is read only.
Access Key Id	Enter the AWS access key ID.
Secret Access Key	Enter the AWS secret access key.
Bucket	Enter the AWS S3 bucket name which was specified when you set up the Programmatic Billing Access.
Account Id	Enter the AWS account ID.
Proxy Host	Enter the proxy host name.
Proxy Port	Enter the proxy port number.
Proxy Username	Enter the proxy username used to log on to the network.
Proxy Password	Enter the proxy password used to log on to the network.
Proxy Domain	Enter the proxy domain.
Proxy Workstation	Enter the proxy workstation.
Initial Load Period (months)	Select the number of months from which you want the initial data loaded.

Reference

AWS-Related KPIs and Metrics

The KPIs and Metrics related to the Amazon Web Services data source are provided in the CSA and CSA_Demo CAPs. For details, see CSA_Demo and CSA Content Acceleration Packs in the *Content Acceleration Packs Guide*.

Integration with AWSCW

This section describes the integration, contexts, KPIs, Metrics, and reports associated with the integration with the Amazon Web Service CloudWatch data source.

Amazon CloudWatch (AWSCW) monitors your Amazon Web Services resources and the applications you run on AWS in real-time. You can use CloudWatch to collect and track metrics, which are the variables you want to measure for your resources and applications. CloudWatch alarms send notifications or automatically make changes to the resources you are monitoring based on rules that you define. For example, you can monitor the CPU usage and disk reads and writes of your Amazon Elastic Compute Cloud (Amazon EC2) instances and then use this data to determine whether you should launch additional instances to handle increased load. You can also use this data to stop under-used instances to save money. In addition to monitoring the built-in metrics that come with AWS, you can monitor your own custom metrics. With CloudWatch, you gain system-wide visibility into resource utilization, application performance, and operational health.

The purpose of the integration of AWSCW as a data source is to bring this information into the Data Warehouse.

To access:

Select **ADMIN > Data Management > Connect Data Source** then click **Add data source** and select **AWSCW** to activate the integration processes for the **AWSCW** data source.

Learn More

Cloud Optimization Offering

The Cloud Optimization offering includes integrations with:

- **Amazon Web Services** (AWS). For details see Integration with AWS in the *Content Reference Guide*.
- **Amazon Web Service CloudWatch**(AWSCW). For details see Integration with AWSCW in the *Content Reference Guide*.

- **Cloud Service Automation** (CSA). For details see Integration with CSA in the *Content Reference Guide*.

Content Packs and their functionality

To learn about Content Packs and their functionality, see Connect the Data Source in the *Administrator Guide*.

Important Information

- The AWSCW Content Pack supports multiple instances.
- **DCS Integration:** An extractor using the Data Collection Service mechanism that extracts entities from the source and generates corresponding flat files. For details, see Data Collection Service (DCS) in the *Administrator Guide*.
- All fields are case-sensitive.
- The AWSCW DCS extracts the metric data from Amazon Web Service CloudWatch and uses it as a properties file along with the CloudWatch.properties file. It is available once the AWSCW content pack is deployed under: **$HPBA_Home/ContentPacks/AWSCW/conf**.

  The properties file defines the rule to extract the metrics data, such as **criteriaTimeFormat**, **dimensionDelimiter**, **valueDelimiter**, **period**, and **minimumScope**. Generally, the value of the period is changed to define the frequency of metrics data.
- AWSCW proxy parameters are optional in a public network.
- For details, see CSA_Demo and CSA Content Acceleration Packs in the *Content Acceleration Packs Guide*.

Tasks

Activate the Integration

1. Select **ADMIN > Data Management > Install Content Pack** then click the install button

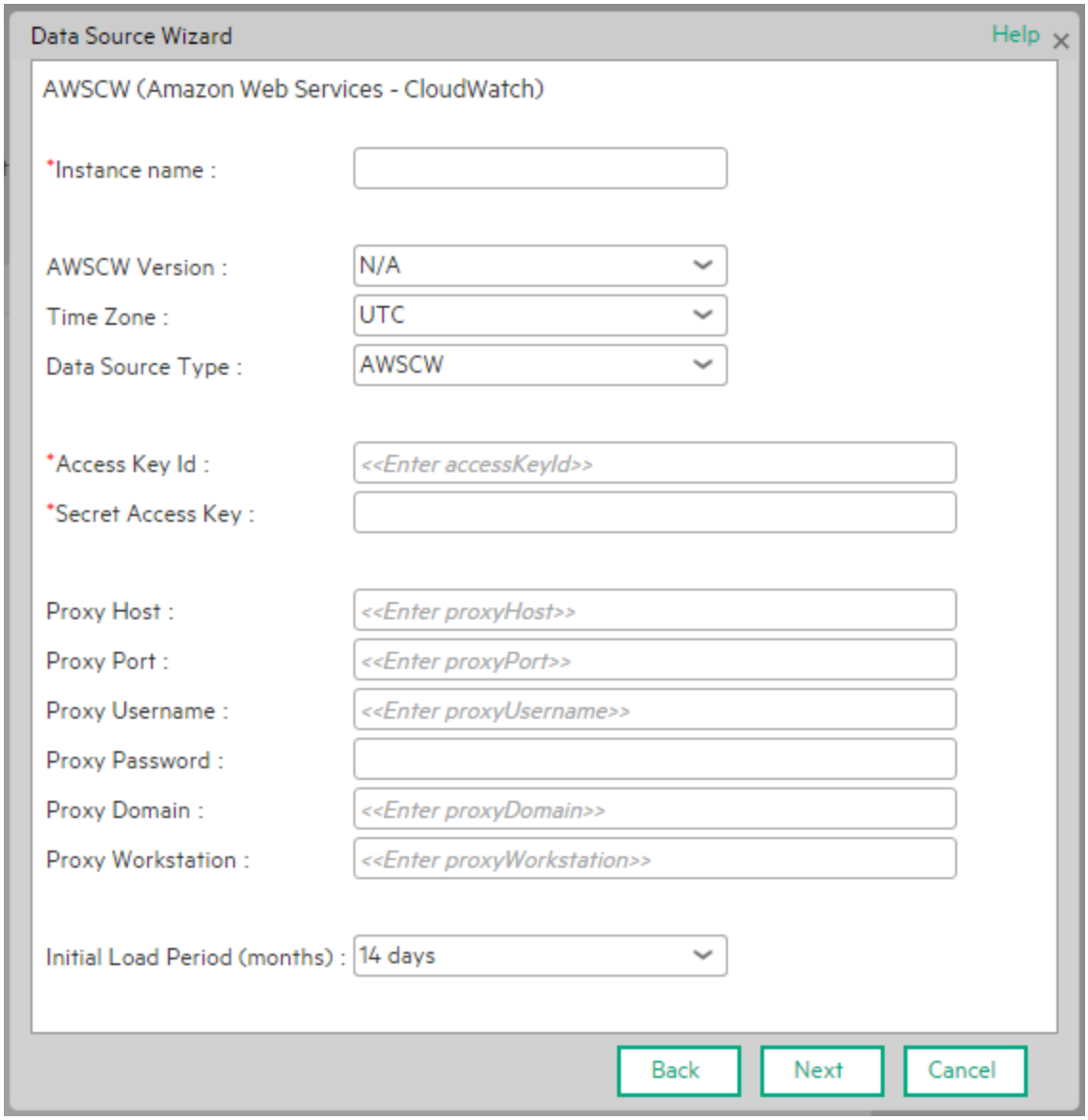
relevant for the data source.

2. Select **ADMIN > Data Management > Connect Data Source** then click **Add data source**.
3. The Add Data Source page opens. Select the **AWSCW** data source type.
4. Select or enter the configuration parameters.
5. Click **Next** to proceed to the validation page.

UI Description

AWSCW Activation Page

The following is an example of the AWSCW Activation page.



User interface elements are described below:

UI Element	Description
Instance name	Enter a name for the data source instance you are activating. **Note:** If the AWSCW configuration is for a named instance connection, make sure to enter the named instance port.
AWSCW Version	This parameter is Not Applicable.
Time Zone	UTC only.
Data Source Type	AWSCW. This parameter is read only.
Access Key Id	Enter the AWS access key ID.
Secret Access Key	Enter the AWS secret access key.
Proxy Host	Enter the proxy host name.
Proxy Port	Enter the proxy port number.
Proxy Username	Enter the proxy username used to log on to the network.
Proxy Password	Enter the proxy password used to log on to the network.
Proxy Domain	Enter the proxy domain.
Proxy Workstation	Enter the proxy workstation.
Initial Load Period (months)	14 days. AWS CloudWatch stores only 14 days data.

Reference

AWSCW-Related KPIs and Metrics

The KPIs and Metrics related to the Amazon Web Service CloudWatch data source are provided in the CSA and CSA_Demo CAPs. For details, see CSA_Demo and CSA Content Acceleration Packs in the *Content Acceleration Packs Guide*.

Integration with Azure

Azure is Microsoft cloud computing platform, a growing collection of integrated services like analytics, computing, database, mobile, networking, storage, and web, for moving faster, achieving more, and saving money.

The purpose of the integration of Azure as a data source is to bring Azure information into the Data Warehouse.

The integration with Azure provides a general idea on how much money is spent on each Virtual Machine daily by different usage types. In addition, if the diagnostics function is enabled, you can also view the CPU utilization and Memory.

The data extracted from Azure is correlated to the data available in the KPIs and reports available in the CSA CAP. For details, see CSA_Demo and CSA Content Acceleration Packs in the *Content Acceleration Packs Guide*.

To access:

Select **ADMIN > Data Management > Connect Data Source** then click **Add data source** and select **Azure** to activate the integration processes for the Azure data source.

Learn More

Content Packs and their functionality

To learn about Content Packs and their functionality, see Connect the Data Source in the *Administrator Guide*.

Important Information

- The Azure Content Pack supports multiple instances.
- **DCS Integration:** An extractor using the Data Collection Service mechanism that extracts entities

from the source and generates corresponding flat files. For details, see Data Collection Service (DCS) in the *Administrator Guide*.

- All fields are case-sensitive.
- Azure must be activated with the CSA data source. If you activate Azure alone, only the cost fact information is displayed, without the ability to drill down further.

Azure Usage Data.

For performance reasons, the ETL job extracts only, at most, 1 month of data for the initial and delta loads.

Utilization Data.

For performance reasons, the ETL job extracts only, at most, 1 week of data for the initial and delta loads.

Azure utilization data is based on the latest Microsoft Azure preview portal function. Make sure you switch on Diagnostic for the Microsoft Azure Cloud VM instances, to have utilization data returned by the Microsoft Azure Cloud Service API.

Limitation:

- You can create Virtual Machines, storage, web apps, and a lot of other components with one subscription ID under a global account of Azure. If the Virtual Machine type is Windows, BA can obtain the name of the Cloud Services and provide its utilization data. If the Virtual Machine type is Linux, BA cannot obtain the name of the Cloud Services and provide its utilization data. The impact is on the SERVICE_PROVIDER_UTILIZATION_FACT entity.
- In Azure, you can enter your VM name when creating the VMs, and it is possible to use the same VM name for different Cloud Services. Due to the above limitation, the deployment ID is not displayed in the storage table, making it impossible to know the VM from which the metric data originates. So it is recommended **not** to create VMs with the same name.
- When using CSA with Azure Content Pack version: 14.12, and the OOTB design : **CSL_BP_MICROSOFT_AZURE_COMPUTE_3.20_CP3.0**, Azure usage related data is displayed in the **CSA-Resource Usage and Utilization for Consumer** and **CSA_Resource Usage and Utilization for Resource Supplier Manager** reports, but Azure CPU utilization data is not available and is not displayed in these reports.

Tasks

This section includes:

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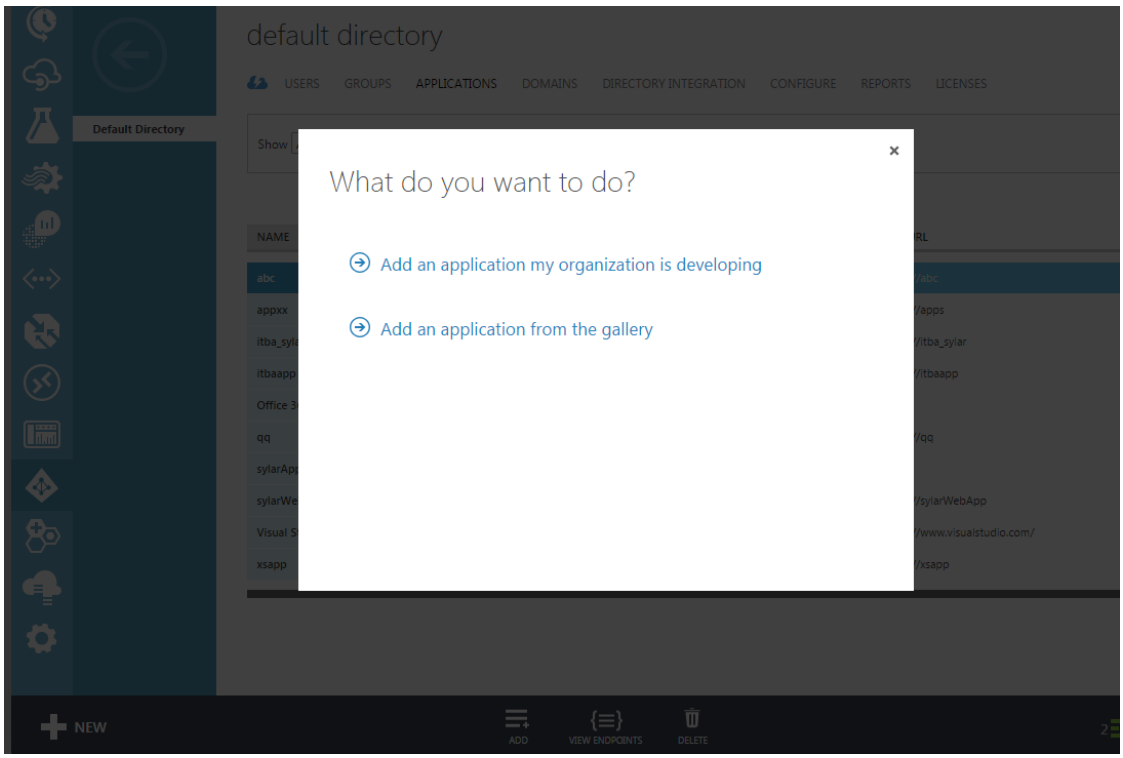
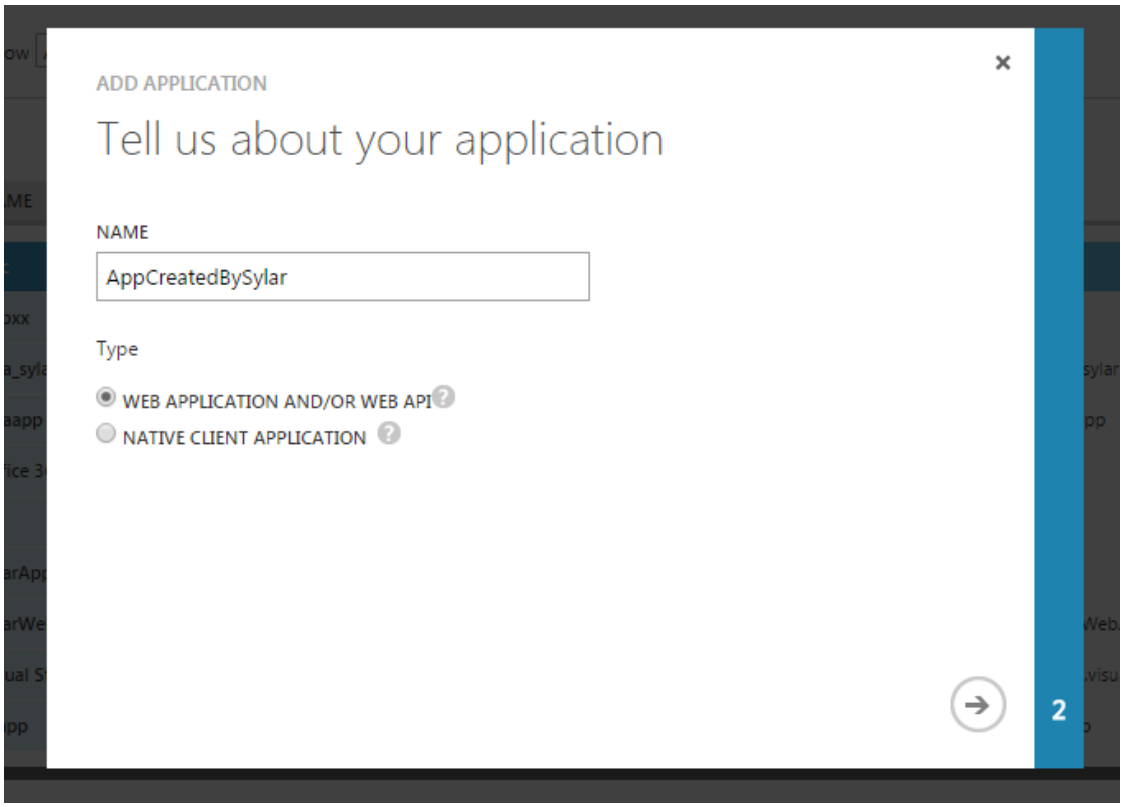
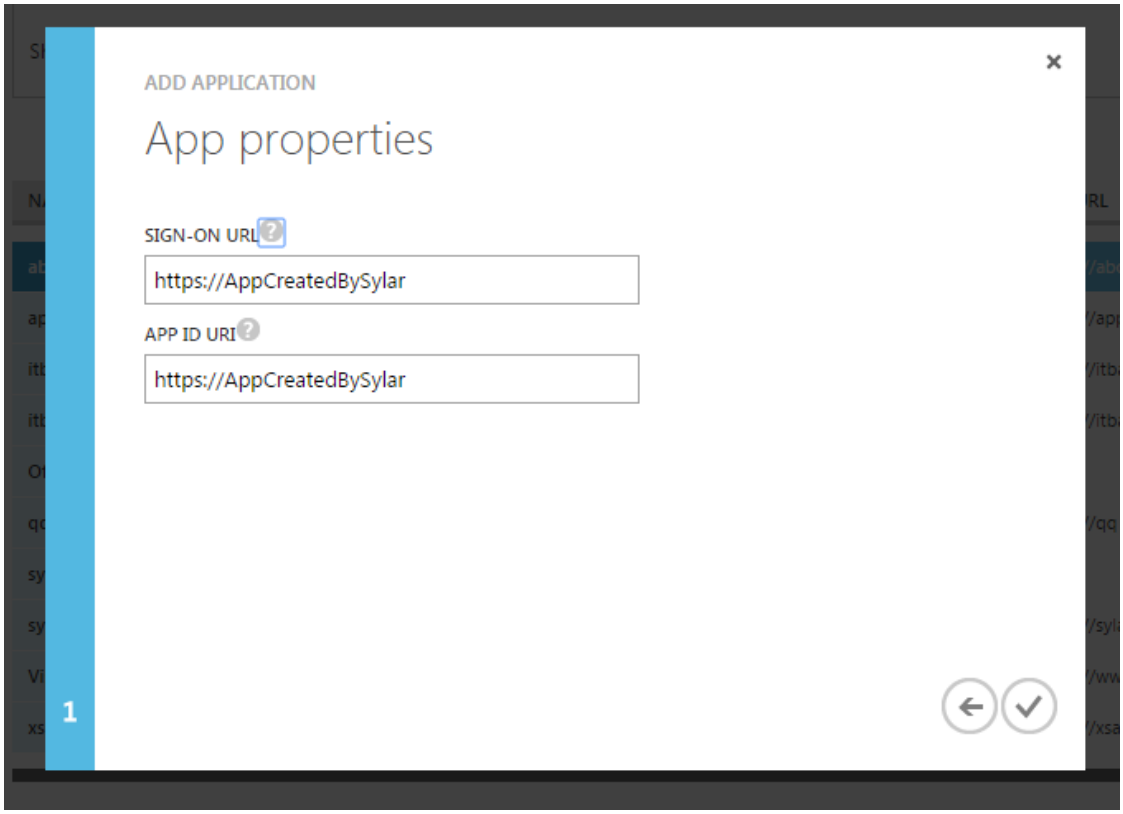
Create an application in Azure portal

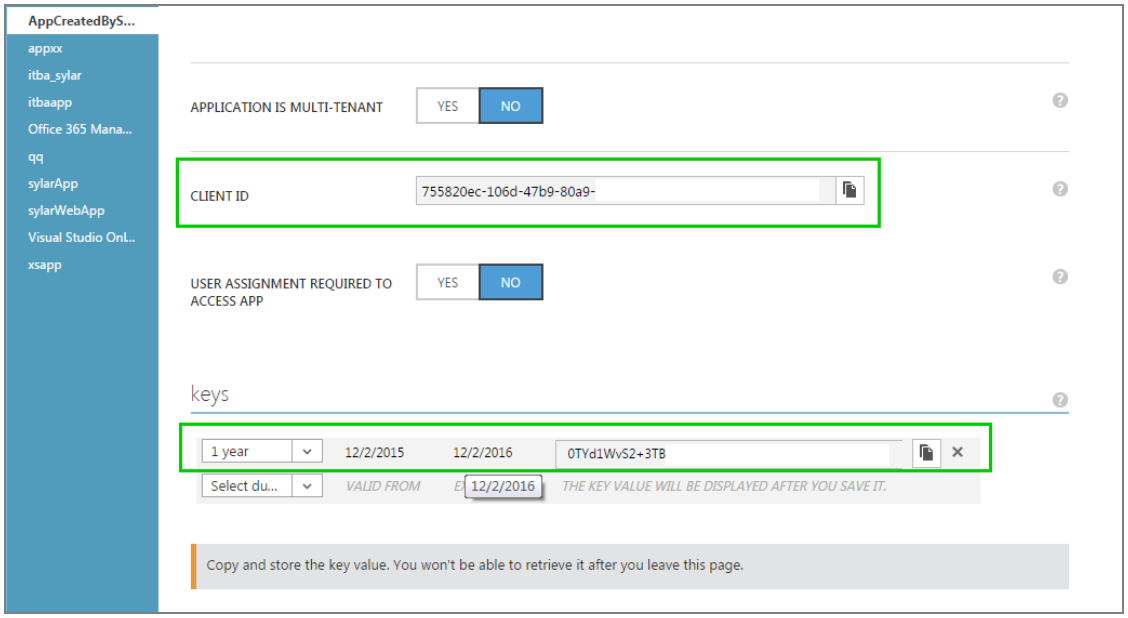
1. To create an application in the Azure portal, open: https://manage.windowsazure.com/ and click **ACTIVE DIRECTORY > Default Directory > APPLICATIONS > ADD > Add an application my organization is developing**.




ADD APPLICATION
Tell us about your application
NAME
AppCreatedBySylar
Type
WEB APPLICATION AND/OR WEB API
NATIVE CLIENT APPLICATION
2

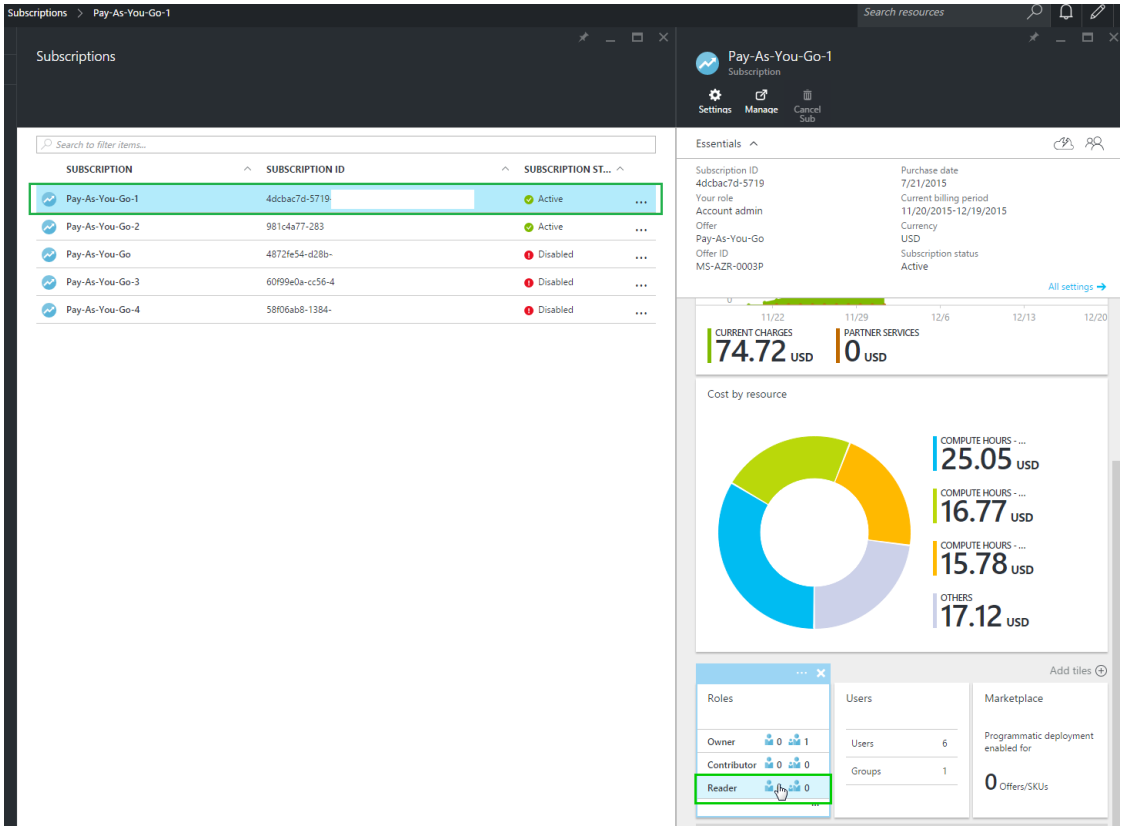


2. Click **<Application_just_created> > CONFIGURE > keys > Select Duration > Save** to get the key as **App password**; and the CLIENT ID as **App id**. They are used when configuring the data source in ITBA.

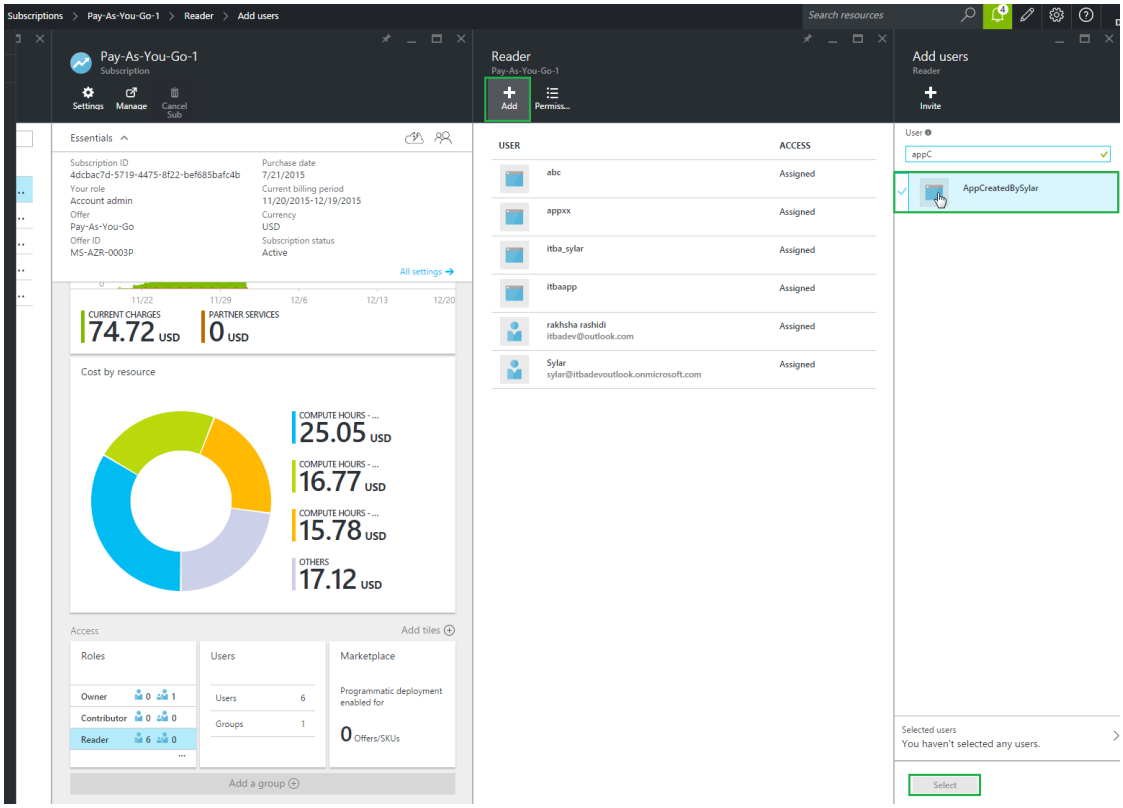


Assign permission to subscriptions in the Azure portal

1. To assign permissions to subscriptions in the Azure portal, open: https://portal.azure.com/ and click **Subscriptions** , select the relevant subscription for which the customer wants to view data in ITBA, click **Access (Roles) > Reader** .



2. Click **Add** and select the application that the customer created for ITBA and click **Select**.



Note: If, in ITBA, you want to view data from multiple subscriptions you must assign the permissions to each subscription separately using the above procedure.

Create the certificate and bind all subscriptions

1. Generate a self-signed certificate using the JDK keytool:

   a. After ITBA is installed, log on to the ITBA Linux server and use the following command in the command line to generate the certificate:

   cd $HPBA_HOME/jdk/bin

   keytool -genkey -keyalg RSA -keystore <certificatename>.jks -keysize 2048

   where **<certificatename>** is the name of the certificate you want to create.

b. Enter the keystore password and the requested information.

```
[hpba@qm bin]$ ./keytool -genkey -keyalg RSA -keystore Azure_certification.jks -keysize 2048
Enter keystore password:
Re-enter new password:
What is your first and last name?
  [Unknown]:  name
What is the name of your organizational unit?
  [Unknown]:  HPE
What is the name of your organization?
  [Unknown]:  HPE
What is the name of your City or Locality?
  [Unknown]:  SH
What is the name of your State or Province?
  [Unknown]:  SH
What is the two-letter country code for this unit?
  [Unknown]:  CN
Is CN=name, OU=HPE, O=HPE, L=SH, ST=SH, C=CN correct?
  [no]:  yes

Enter key password for <mykey>
        (RETURN if same as keystore password):
```

c. Convert **<certificatename>.jks** to **<certificatename>.cer** and **<certificatename>.pfx**. using the following command:

keytool -importkeystore -srckeystore <certificatename>.jks -srcstoretype JKS -

destkeystore <certificatename>.pfx -deststoretype PKCS12

d. Enter destination keystore password. Remember this password which will be used in the Connect to Data Source page.

Use the same password for destination keystore and source keystore.

```
[hpba@qm bin]$ ./keytool -importkeystore -srckeystore Azure_certification.jks -srcstoretype JKS -destkeystore Azure_certification.pfx -deststoretype PKCS12
Enter destination keystore password:
Re-enter new password:
Enter source keystore password:
Entry for alias mykey successfully imported.
Import command completed:  1 entries successfully imported, 0 entries failed or cancelled
```

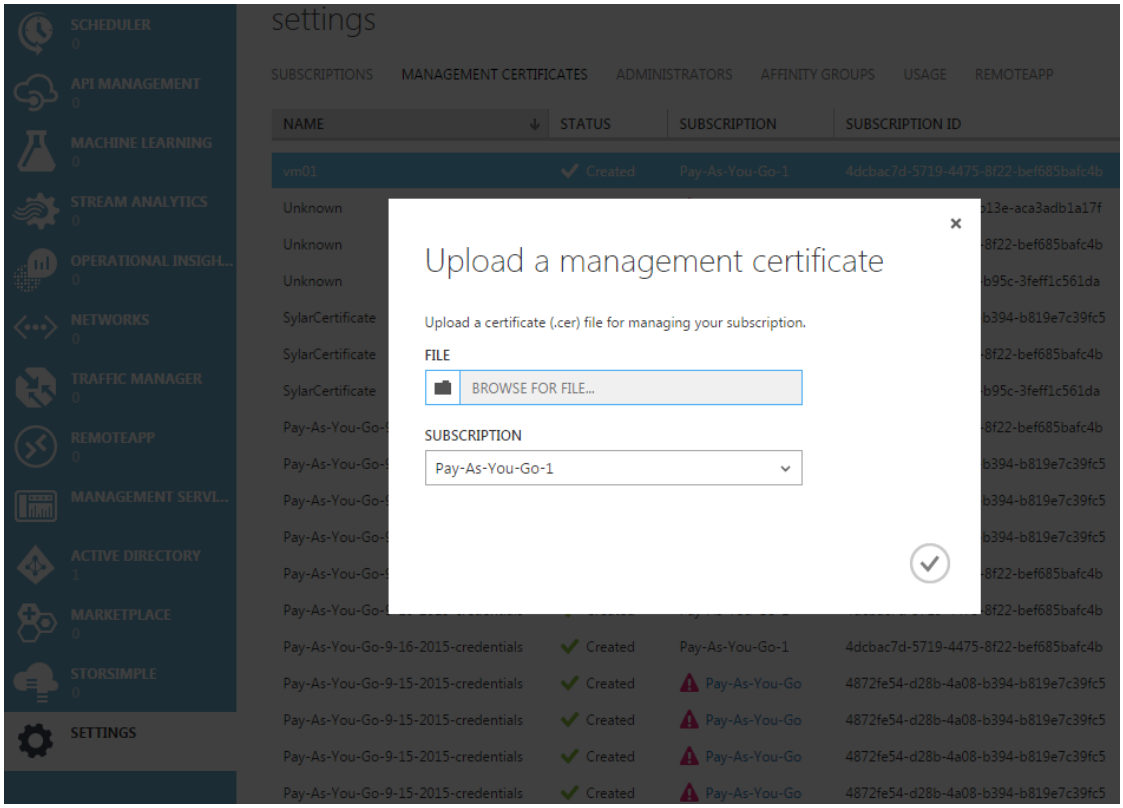
e. Enter the following command:

keytool -export -file <certificatename>.cer -keystore <certificatename>.jks

Enter the keystore password.

```
[hpba@qm bin]$ ./keytool -export -file Azure_certification.cer -keystore Azure_certification.jks
Enter keystore password:
Certificate stored in file <Azure certification.cer>
```

2. In the Azure Management Portal accessed via **https://manage.windowsazure.com/**, select **SETTINGS > MANAGEMENT CERTIFICATES > UPLOAD**.



3. Upload **<certificatename>.cer** for each subscriptions.

Activate the Integration

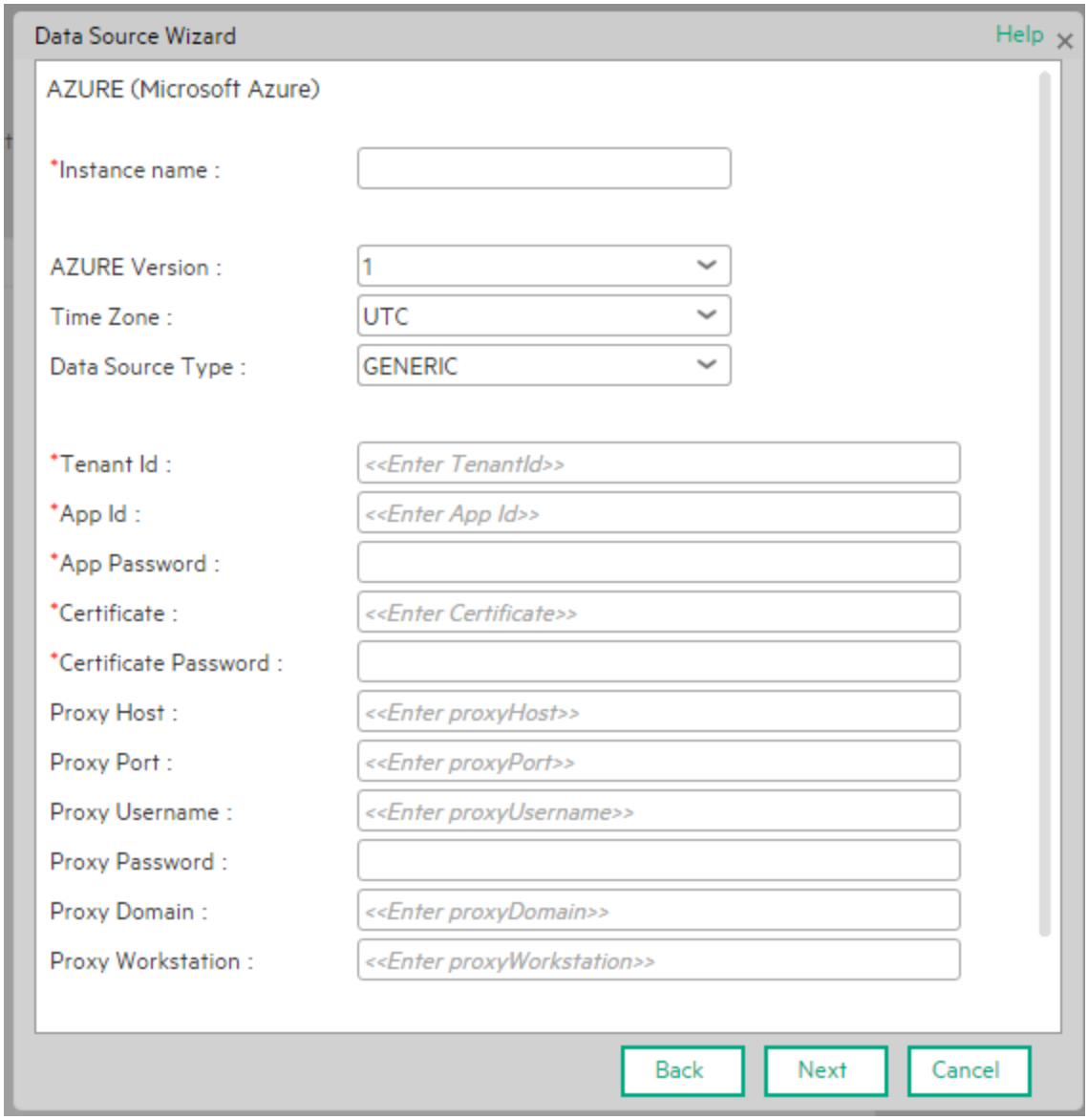
1. Select **ADMIN > Data Management > Connect Data Source** then click **Add data source**.
2. The Add Data Source page opens. Select the Azure data source type.
3. Select or enter the configuration parameters.
4. Click **Next** to proceed to the validation page.

Note: If you want to display Azure utilization data returned by the Microsoft Azure Cloud Service API, make sure you switch on Diagnostic for the Microsoft Azure Cloud VM instances.

UI Description

Azure Activation Page

The following is an example of the Azure Activation page.



User interface elements are described below:

UI Element	Description
Instance name	Enter a name for the data source instance you are activating.
Azure Version	Select the relevant Azure version. For details, see the *Support Matrix*.
Time Zone	Time zone must be UTC.
Data Source Type	**GENERIC.** This parameter is read only.
Tenant ID	The unique ID of the organization in Azure AD that has granted access for your app.
APP ID	The unique identifier for your application. You must use this if your application accesses data in another application, such as the Microsoft Azure AD Graph API. Input the CLIENT ID that you obtain after creating the relevant application in the Azure portal. **Note:** In Azure, one Global ID can have multiple subscriptions. To get consumption data for an Azure subscription, APP ID is required. If you want to get consumption data for all subscriptions under the Global ID, all subscriptions are required to be authorized for the same APP ID, which will be added to the DCS page.
APP Password	If your app reads or writes data from/to Microsoft Azure AD, such as data that is made available through the Graph API, your app need a key. The APP Password is the key that you obtain after creating the relevant application in the Azure portal.
Certificate	Once you have created a management certificate, (a .cer file with only the public key) you can upload it into the portal. When the certificate is available in the portal, anyone with a matching certificate (private key) can connect through the Management API and access the resources for the associated subscription. The absolute path to the .pfx certification file on the ITBA Linux server. For example, **/home/ITBA/Azure_certification.pfx**.
Certificate Password	The keystore password of the .pfx certification.
Proxy Host	The proxy host.
Proxy Port	The proxy port.
Proxy Username	The Proxy user name.

UI Element	Description
Proxy Password	The Proxy password.
Proxy Domain	The Proxy domain.
Proxy Workstation	The Proxy workstation.
Initial Load Period (month)	Select the number of months from which you want the initial data loaded. The Initial load period is 1 month for usage and 1 week for utilization.

Reference

Azure-Related KPIs and Metrics

The KPIs and Metrics related to the Azure data source are provided in the CSA and CSA_Demo CAPs. For details, see CSA_Demo and CSA Content Acceleration Packs in the *Content Acceleration Packs Guide*.

Integration with CSA

Cloud Service Automation (CSA) is a platform that orchestrates the deployment of computation and infrastructure resources and of complex multi-tier application architectures. HP CSA integrates and leverages the strengths of a hybrid cloud environment, providing the ability to design and deploy enterprise-ready cloud services tailored to the business needs of your organization. It works through a catalog-based subscription process. Subscribers request and modify cloud service offerings with pre-defined pricing and other customer-specific features. Once the request is approved, through a policy-driven process, HP CSA deploys the cloud service offering using a structured lifecycle with pre-defined integration mechanisms for invoking external processes.

The integration with CSA as new content pack provides reporting analysis based on CSA data model.

The purpose of the integration of CSA as a data source is to bring this information into the Data Warehouse.

This section describes the integration, contexts, KPIs, Metrics, and reports, if any, associated with the integration with specific data sources.

To access:

Select **ADMIN> Data Management > Connect Data Source** then click **Add data source** and select **CSA** to activate the integration processes for the **CSA** data source.

Other Data Sources

The data from the below data sources is integrated with the data from CSA and displayed in the CSA CAP pages, KPIs, and Metrcs. For details, see CSA_Demo and CSA Content Acceleration Packs in the *Content Acceleration Packs Guide*.

- Amazon Web Services (AWS) offers a complete set of infrastructure and application services that enable you to run virtually everything in the cloud: from enterprise applications and big data projects to social games and mobile apps. One of the key benefits of cloud computing is the opportunity to replace up-front capital infrastructure expenses with low variable costs that scale with your business.

  The integration with AWS provides cost and usage reports based on the cost allocation report provided by AWS account.

- Amazon CloudWatch (AWSCW) monitors your Amazon Web Services resources and the applications you run on AWS in real-time. You can use CloudWatch to collect and track metrics, which are the variables you want to measure for your resources and applications. CloudWatch alarms send notifications or automatically make changes to the resources you are monitoring based on rules that you define. For example, you can monitor the CPU usage and disk reads and writes of your Amazon Elastic Compute Cloud (Amazon EC2) instances and then use this data to determine whether you should launch additional instances to handle increased load. You can also use this data to stop under-used instances to save money. In addition to monitoring the built-in metrics that come with AWS, you can monitor your own custom metrics. With CloudWatch, you gain system-wide visibility into resource utilization, application performance, and operational health.
- Azure is Microsoft cloud computing platform, a growing collection of integrated services like analytics, computing, database, mobile, networking, storage, and web, for moving faster, achieving more, and saving money.
- Virtual Performance Viewer (vPV) is a web-based analysis and visualization tool that analyzes performance trends of elements in virtualized environments. vPV gives you at-a-glance visibility across your virtual environment for real-time insights into performance, capacity, and health. This helps you to optimize your infrastructure and quickly solve virtualization and cloud performance issues. It enables virtualization monitoring by providing an overview of the environment, near-real-time and historical data analysis and triaging using an interactive dashboard. It also enables monitoring for cloud and hypervisor environments. HPE vPV provides performance monitoring, graphing, and reporting in a single interface.

Important Information

- To learn about Content Packs and their functionality, see Connect the Data Source in the *Administrator Guide*.
- The CSA Content Pack supports multiple instances.
- All fields are case-sensitive.
- The CSA ETL job aggregates the CSA Subscription Price with a daily granularity in the target database. This means that the ETL job gets the price from CSA, converts it into the actual cost according to the ETL running date, generates a cost record for that day, and stores it in the target database. For example, if the current date is April 22nd, for the month of April, after the ETL run has completed, you see a total of the 22 aggregated records of the CSA subscription Price in the target database.

- **Example of a CSA subscription price calculation:** If, for example, the price of one daily subscription is $10, you have just used the subscription for 12 hours, and the ETL starts to run at this moment, the total you have to pay is 10*12/24=$5. The CSA subscription price is calculated for the real usage accurate to the second. Though some customers would prefer to see $10 on the report even if the usage is not yet 24 hours, BA displays $5 after the ETL load because it represents the real usage.

- **DCS Integration:** An extractor using the Data Collection Service mechanism that extracts entities from the source and generates corresponding flat files. For details, see Data Collection Service (DCS) in the *Administrator Guide*.

- **Tip:** If you integrate with both CSA and AWS/AWSCW, you must run the AWS/AWSCW ETL before the CSA ETL. If you do not run the ETL as recommended, you must wait for the end of the CSA ETL run to view the correct data.

- The CSA and CSA_Demo CAPs are associated with the CSA data source, its context, KPIs, and Metrics. For details, see the CSA_Demo and CSA Content Acceleration Packs in the *Content Acceleration Packs Guide*.
- When using CSA with Azure Content Pack version: 14.12, and the OOTB design : **CSL_BP_MICROSOFT_AZURE_COMPUTE_3.20_CP3.0**, Azure usage related data is displayed in the **CSA-Resource Usage and Utilization for Consumer** and **CSA_Resource Usage and Utilization for Resource Supplier Manager** reports, but Azure CPU utilization data is not available and is not displayed in these reports.

Tasks

This section includes:

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Activate the CSA data source 112
Execute the ETL process 116
Activate the relevant CSA CAP 117
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CSA-Related KPIs and Metrics 150
Customize CSA Service Designer for Amazon Web Service Resource Provider 151

Change the default exchange rate of each currency

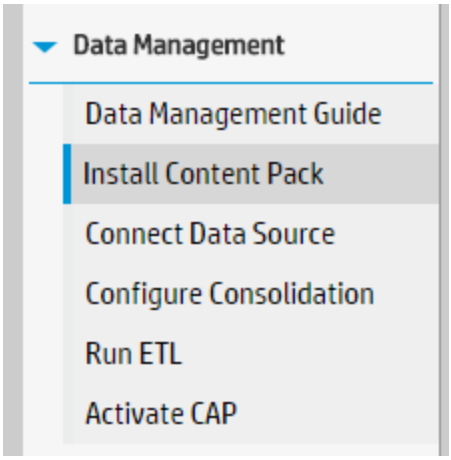
To help you convert the billing amount to different currencies, ITBA has pre-configured their default exchange rates.

If you want to change the default exchange rate of each currency, open the **$HPBA_HOME/ContentPacks/CSA/EXTERNAL/EXCHANGE.csv** file and change the rates.

	A	B	C	D	E	F
1	SOURCE_CURRENCY	TARGET_CURRENCY	START_DATE	END_DATE	EXCHANGE_RATE	IS_CURRENT
2	JPY	CNY	2009/1/1	2009/1/11	0.0741	Y
3	JPY	EUR	2009/1/1	2009/1/11	0.008	Y
4	JPY	GBP	2009/1/1	2009/1/11	0.0073	Y
5	JPY	USD	2009/1/1	2009/1/11	0.0109	Y

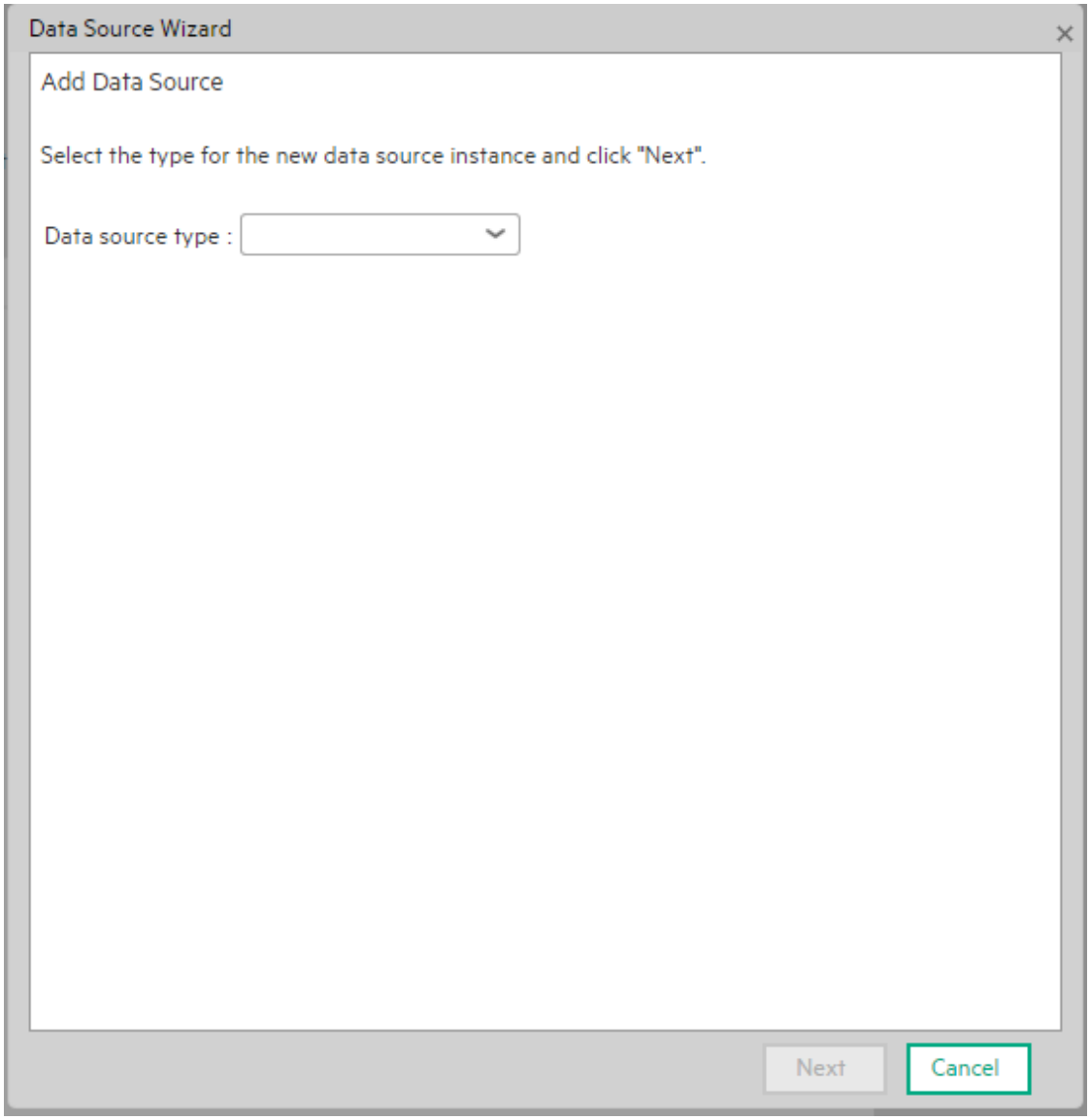
Install the Content Pack

1. Log on to the BA application.
2. Click **ADMIN > Data Management**, click **Install Content Pack** to install the CSA Content Pack. For details, see Install Content Pack.

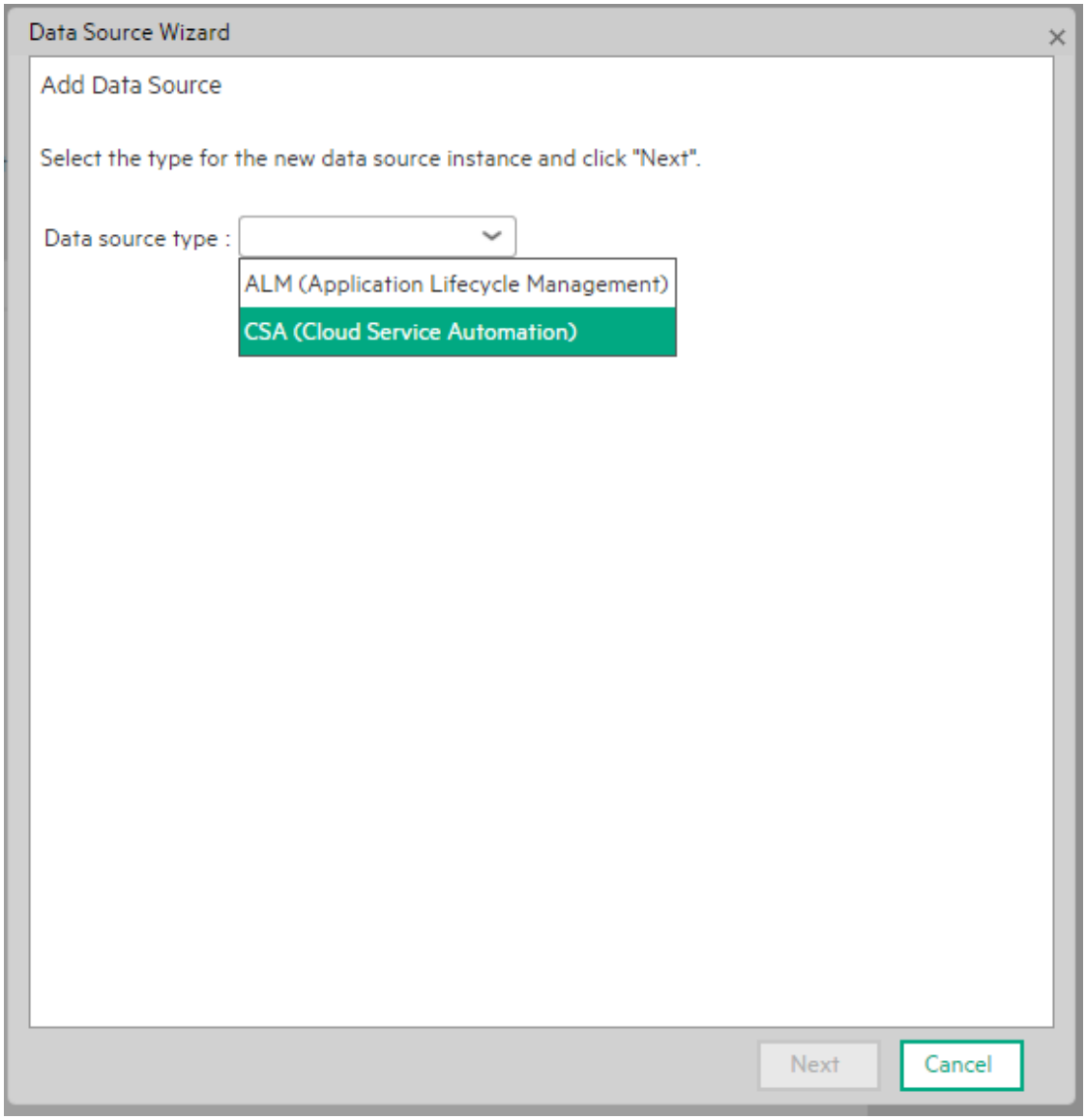


Activate the CSA data source

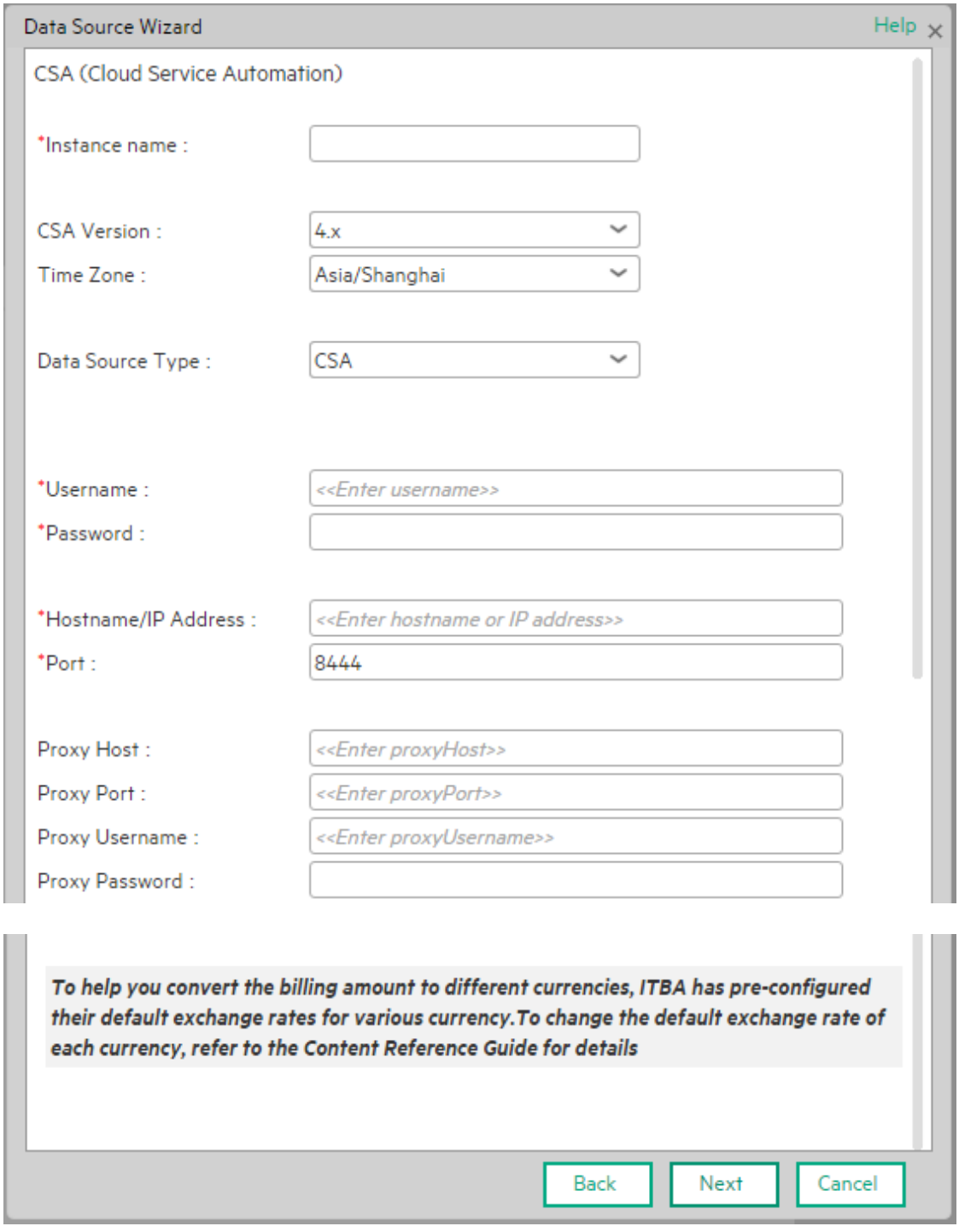
1. Log on to the BA application.
2. Make sure you have installed the Content Pack (see above).
3. Click **ADMIN > Data Management** and the click **Connect Data Source** .
4. Click **Add data source**.



5. Select the CSA data source type and press **Next**.



If the **Next** button does not appear in the Wizard dialog box, click the edge of the Data Source Wizard and when the black cross appear, move the window upwards until you see the **Next** button.

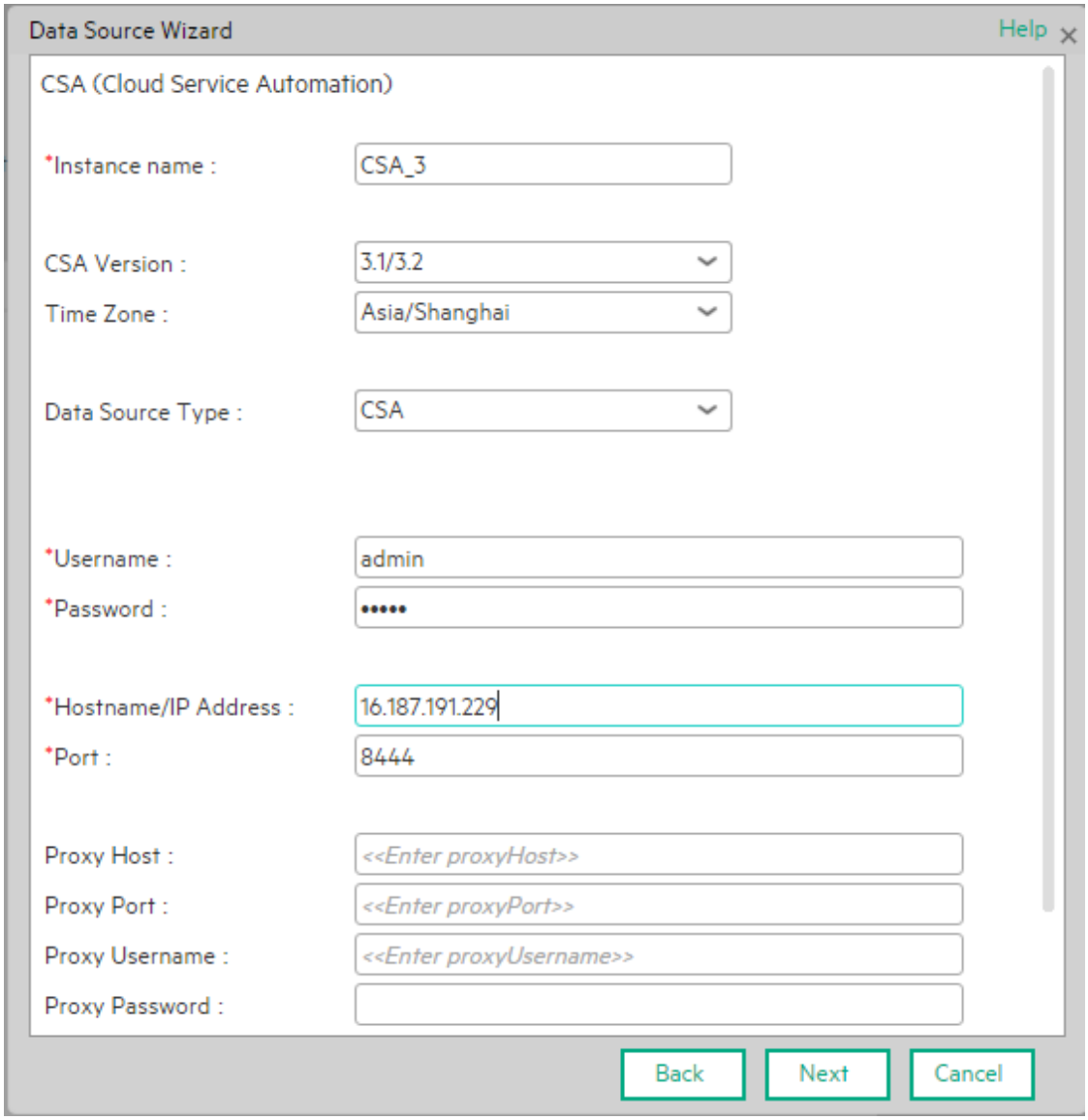


User interface elements are described below:

Note: If the CSA configuration is for a named instance connection, make sure to enter the named instance port.

UI Element	Description
Instance name	Enter a name for the data source instance you are activating.
CSA Version	Select the relevant version. . For details, see the *Support Matrix*.
Time Zone	Select the time zone for the data source.
Data Source Type	CSA This parameter is read only.
Username	Enter your admin username used to log on to CSA. The default username is **admin**.
Password	Enter your admin password used to log on to CSA. The default admin password is **cloud**.
Hostname/IP Address	Enter the CSA server hostname or IP address.
Port	Port for REST API (default value is 8444).
Initial Load Period (months)	Select the number of months from which you want the initial data loaded.

6. Enter the CSA configuration parameters and click **Next** to validate the parameters.

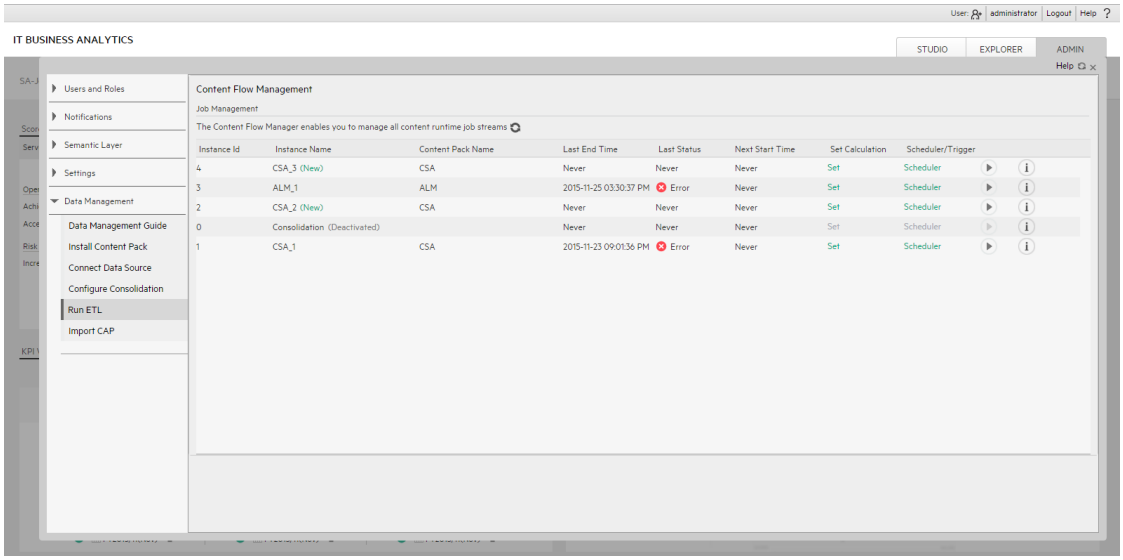


Execute the ETL process

After adding the CSA data source, you need to run the ETL to pull data from CSA source.

You can schedule the running of the ETL process. For details, see Run ETL - Content Flow Managementin the *Administrator Guide*.

1. Log on to the BA application.
2. Make sure you have installed the Content Pack (see above).
3. Make sure you have activated the data source (see above).
4. Click **ADMIN > Data Management > Run ETL**.
5. Click **Add Scheduler** to schedule the ETL run or click >. This loads the data from the CSA data source.



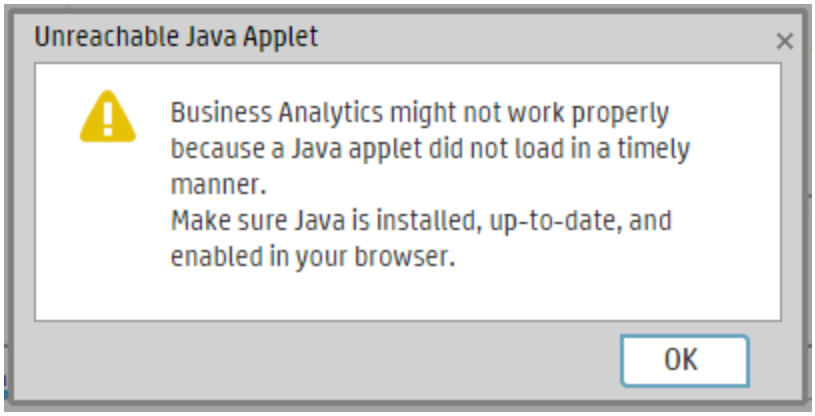
Note: The ETL run might last some time depending on the volume of data it has to load.

Activate the relevant CSA CAP

Activate the CSA_Demo CAP for demo purposes or activate the CSA CAP for live data into BA.

1. Log on to the BA application.

2. Ignore the **Unreachable Java Applet**. Click **OK**.

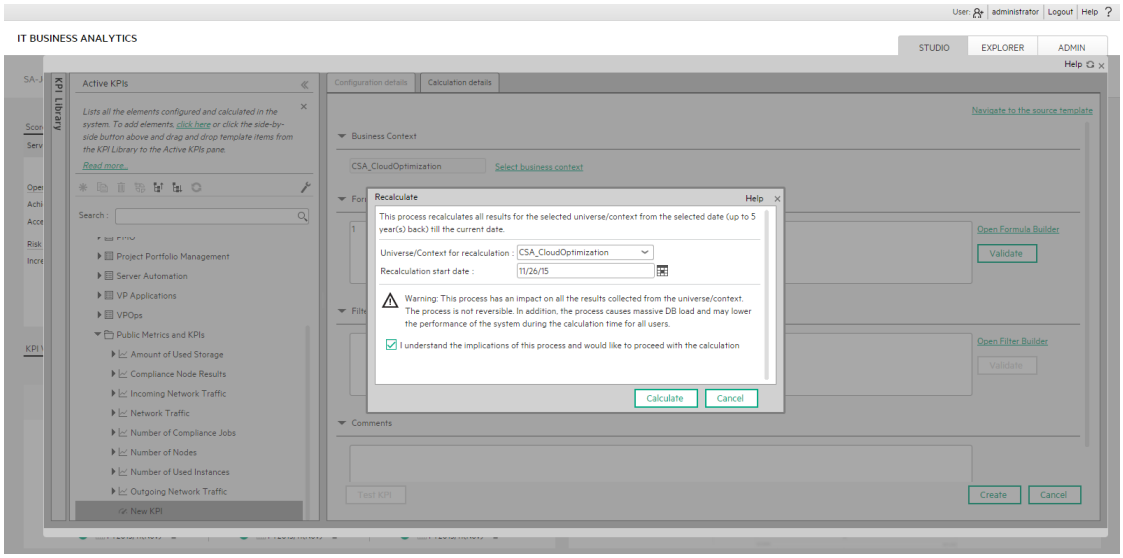


3. Log on to the BA application.
4. Make sure you have installed the Content Pack (see above).
5. If you plan to activate the CSA_Demo proceed to the next step. If you plan to activate the CSA, make sure you have executed the ETL (see "Execute the ETL process" on page 116).
6. Click **ADMIN > Data Management** and click **Activate CAP**.
7. Select the **CSA** or the **CSA_Demo** in the list of CPs, and click **Activate** to activate the CAP.
   Click **Yes** to begin the activation process.
   Then wait until the CAP activation is successful.
8. Close the **ADMIN** tab.

Calculate the KPI

1. Log on to the BA application.

2. Click the **STUDIO** tab and click the calculation tool and select **Recalculate**.



   a. Select the **CSA_CloudOptimization** in the **Universe/Context for recalculation** list.

   b. Select the recalculation start date.

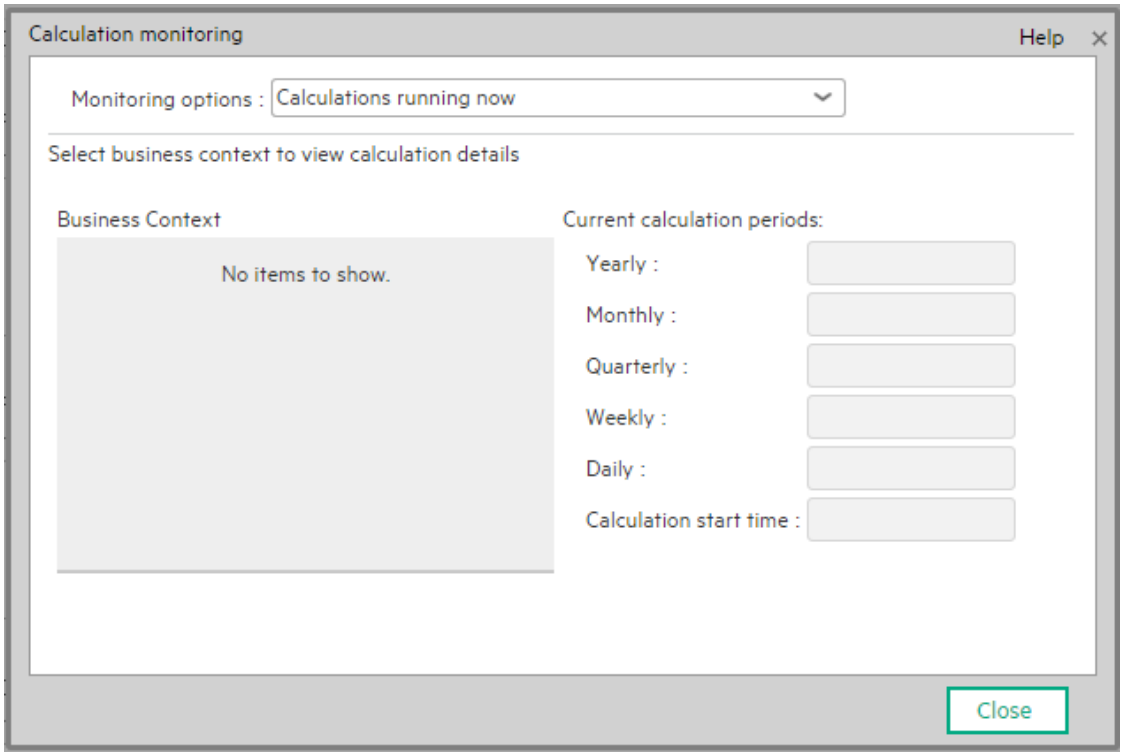
   c. Check the check box.

   d. Click **Calculate**.

      The calculation may take a few minutes.

3. To check the KPI calculation status, click the calculation tool and select **Calculation monitoring**.

4. Select **Calculations running now** in the Monitoring options.



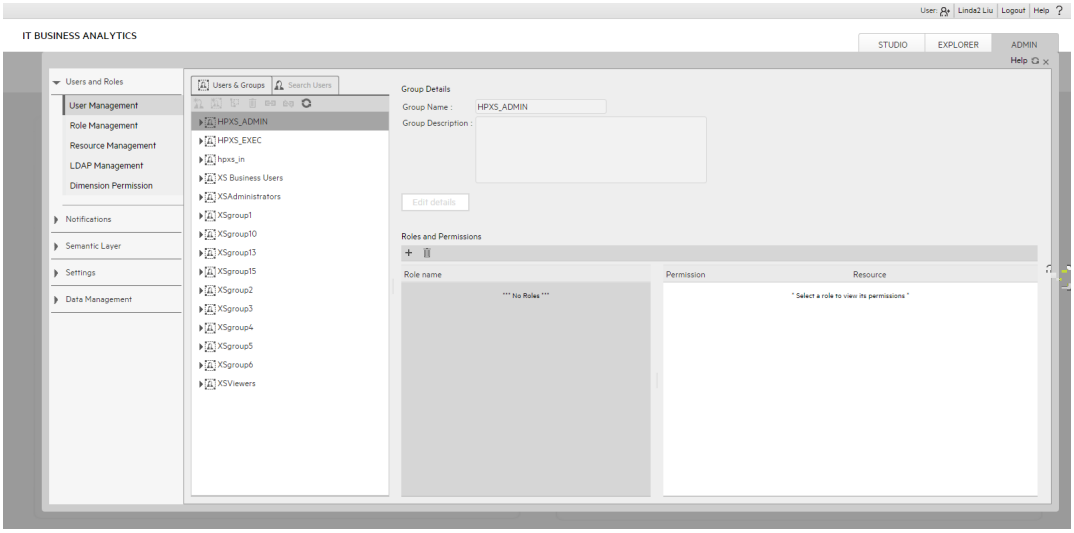
If **No items to show** is displayed, the KPI calculation is finished.

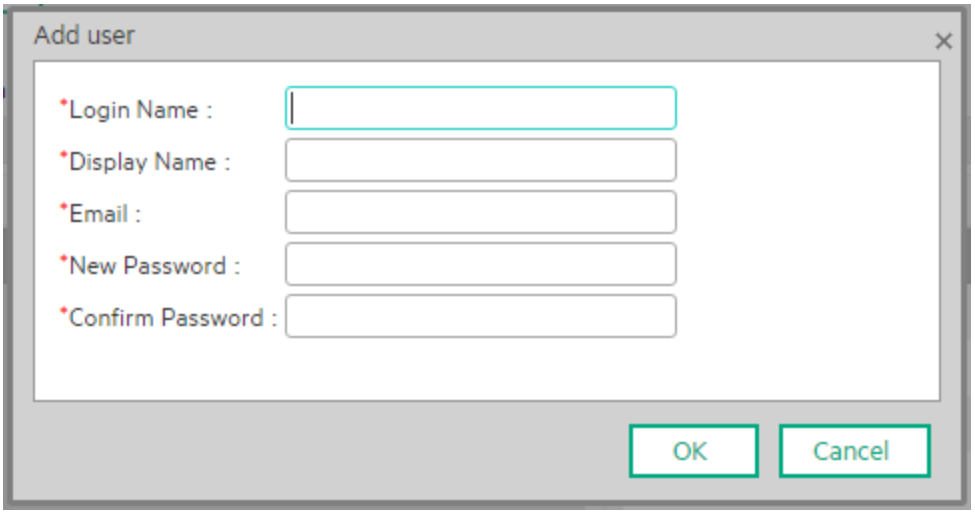
Now you can view the CSA dashboard pages with live data.

You can schedule the Scheduled calculation of the KPI. For details, see Calculation Scheduling in the *Business Analyst Guide*.

Configure the Cloud Analytic Tiles in the Provider Portal

1. Create a user in ITBA with the same login name as in CSA.
   a. From the ITBA ADMIN tab, create an ITBA user account with same login name as CSA (admin). The password does not need to be the same. The password needs to be complex.





b. Log out from ITBA, and log on again in as the administrator.

c. Select the pages relevant to CSA and make sure you can see the pages with live data.

2. **Configure single sign-on:**

a. Enable SSO between the CSA Cloud Service Management Console (SMC) and BA. For details, see "Enabling the Cloud Analytics Secondary Tiles" in the *HP Cloud Service Automation Configuration Guide*.

Enable SSO between the Marketplace Portal (MPP) and BA. For details, see "Configure the Showback Report Tile" in the *HP Cloud Service Automation Configuration Guide*.

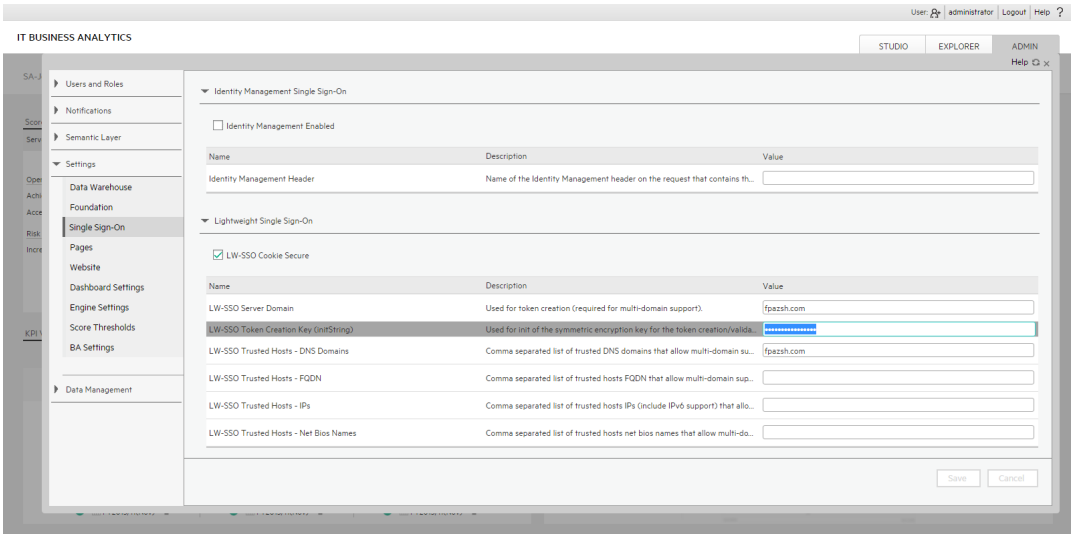
b. In CSA, initString is configured in the crypto element in the **%CSA_HOME%\jboss-as-7.1.1.Final\standalone\deployments\csa.war\WEB-**

INF\hpssoConfiguration.xml file.

The initString value represents a secret key and should be treated as such in your environment.

Navigate to the <crypto> tag and enter the relevant value in the initString parameter.

c. In BA, click **ADMIN > Settings > Single Sign-on** and set the LW-SSO Token Creation key (initString) with the key above (without the double-quote and without the string “initString”). Change the domain name to the BA server domain (CSA server should have the same domain name). Click **Save**.

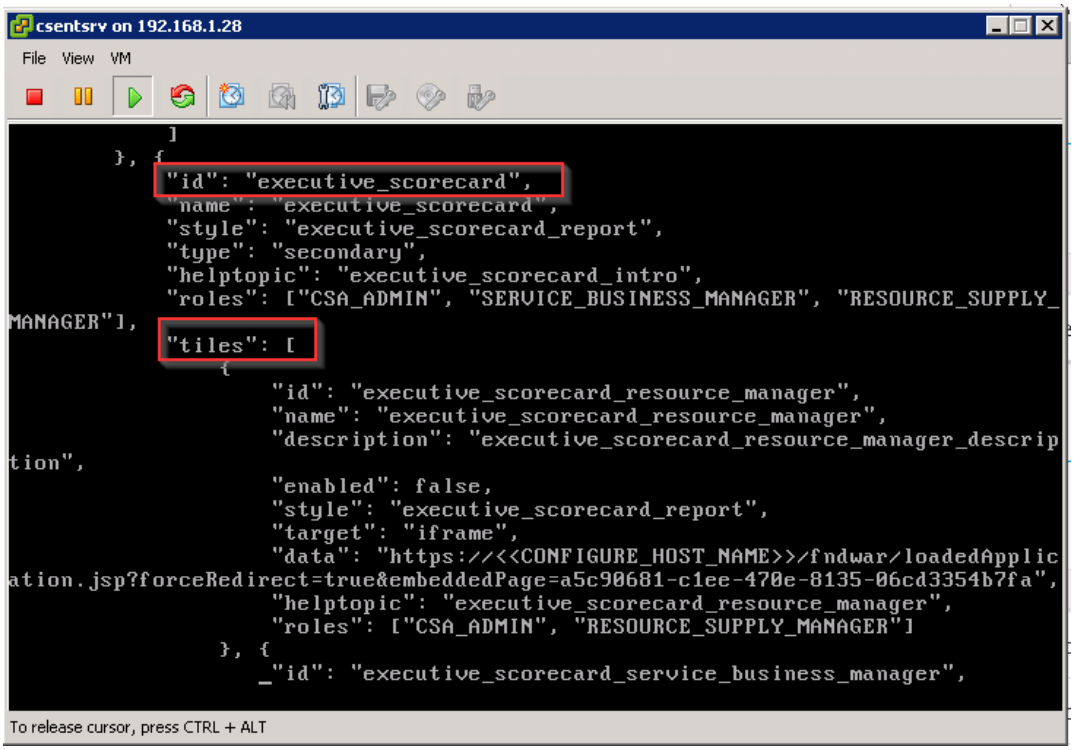


3. Configure the embedded page URL:

   a. In CSA server, backup the **%CSA_HOME%/jboss-as-7.1.1.Final/standalone/deployments/csa.war/dashboard/config.json** file (where %CSA_HOME% is the directory in which Cloud Service Automation is installed).

   b. Edit the **config.json** file.

c. Search for the **id: executive_scorecard** tile (beware there are two such tiles), start from the second (type = secondary) as shown below:



d. Under the **tiles** node, change **"enabled": false** to **"enabled": true**, for the following ids:

   i. **Executive_scorecard_resource_manager**

   ii. **Executive_scorecard_service_business_manager**

   iii. **Executive_scorecard_showback_report**

e. Do not change it in the id: **executive_scorecard_standalone**.

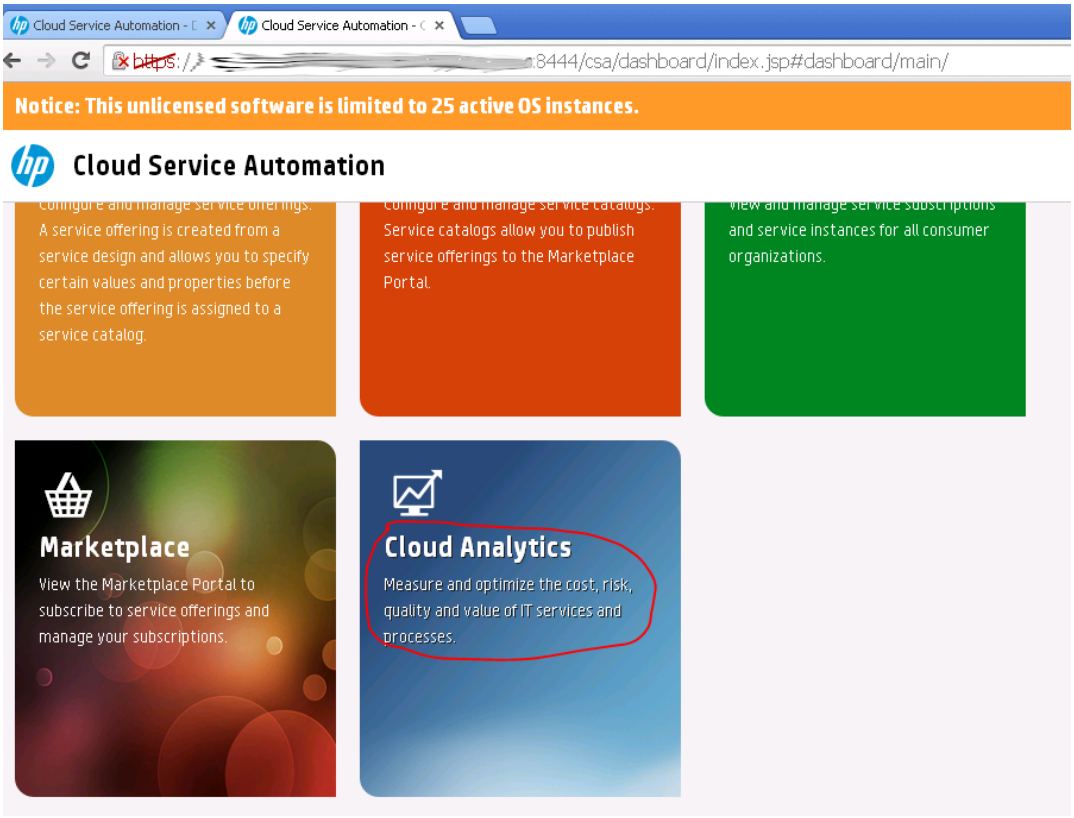
f. Change **"enabled": true** to **"enabled": false**in the id: **assistance_executive_scorecard**.

g. For all tiles that are under the id: **executive_scorecard**, in the data section, change **<CONFIGURE_HOST_NAME>** to match the hostname of your Business Analytics installation. For example **xs.example.com**.

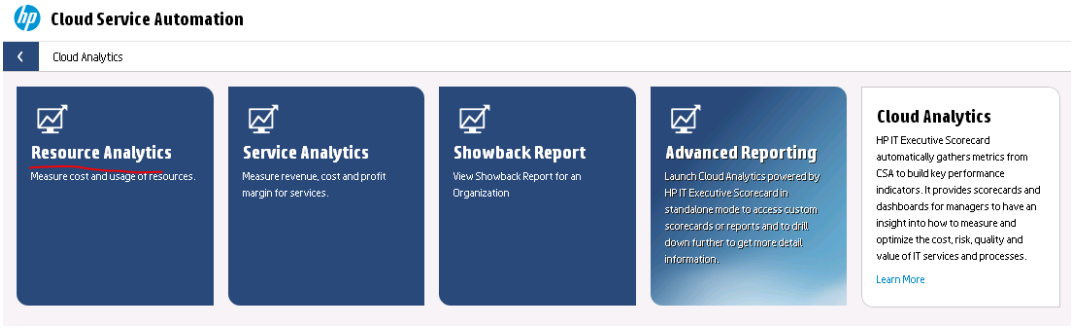
```
"helptopic": "executive_scorecard_intro",
"roles": ["CSA_ADMIN", "SERVICE_BUSINESS_MANAGER", "RESOURCE_SUPPLY_MANAGER"],
"tiles": [
    {
        "id": "executive_scorecard_resource_manager",
        "name": "executive_scorecard_resource_manager",
        "description": "executive_scorecard_resource_manager_description",
        "enabled": true,
        "style": "executive_scorecard_report",
        "target": "iframe",
        "data": "https://rhelxs10ba.cdl.local:8443/fndwar/loadedApplication.jsp?forceRedirect=true&embeddedPage=a5c90681-c1ee-470e-8135-06cd3354b7fa",
        "helptopic": "executive_scorecard_resource_manager",
        "roles": ["CSA_ADMIN", "RESOURCE_SUPPLY_MANAGER"]
    }, {
        "id": "executive_scorecard_service_business_manager",
        "name": "executive_scorecard_service_business_manager",
        "description": "executive_scorecard_service_business_manager_description",
        "enabled": true,
        "style": "executive_scorecard_report",
        "target": "iframe",
        "data": "https://rhelxs10ba.cdl.local:8443/fndwar/loadedApplication.jsp?forceRedirect=true&embeddedPage=636665b5-30cc-45c8-a44d-32ab33bc3249",
        "helptopic": "executive_scorecard_service_business_manager",
        "roles": ["CSA_ADMIN", "SERVICE_BUSINESS_MANAGER"]
    }, {
        "id": "executive_scorecard_showback_report",
        "name": "executive_scorecard_showback_report",
        "description": "executive_scorecard_showback_report_description",
        "enabled": true,
        "style": "executive_scorecard_report",
        "target": "iframe",
        "data": "https://rhelxs10ba.cdl.local:8443/fndwar/loadedApplication.jsp?forceRedirect=true&embeddedPage=5096cb94-7dc5-43a4-a786-c84227639abe",
        "helptopic": "executive_scorecard_showback_report",
        "roles": ["CSA_ADMIN", "SERVICE_BUSINESS_MANAGER"]
    }, {
        "id": "executive_scorecard_standalone",
        "name": "executive_scorecard_standalone",
        "description": "executive_scorecard_standalone_description",
        "enabled": true,
        "style": "executive_scorecard",
        "target": "new",
        "data": "https://rhelxs10ba.cdl.local:8443/ba",
        "helptopic": "executive_scorecard_intro",
        "roles": ["CSA_ADMIN", "SERVICE_BUSINESS_MANAGER", "RESOURCE_SUPPLY_MANAGER"]
    }, {
        "id": "assistance_executive_scorecard",
        "name": "assistance_executive_scorecard",
        "description": "assistance_executive_scorecard_description",
        "enabled": true,
        "style": "assistance",
        "target": "assistance",
        "data": "/csa-provider-help/q/executive_scorecard_intro",
        "helptopic": "executive_scorecard_intro",
        "roles": ["CSA_ADMIN", "SERVICE_BUSINESS_MANAGER", "RESOURCE_SUPPLY_MANAGER"]
    }
```

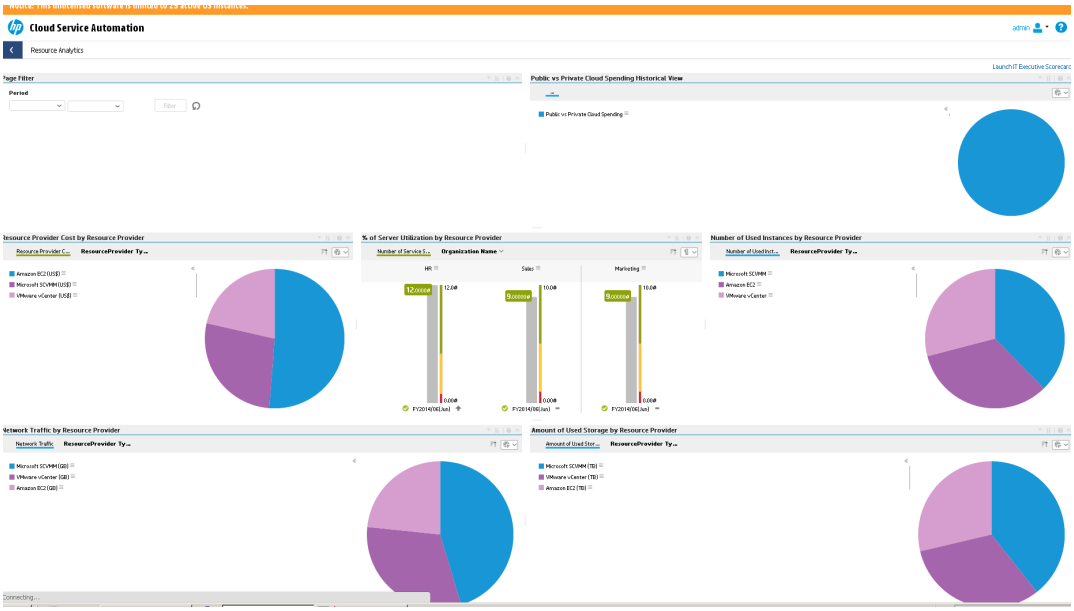
4. Access BA pages in the CSA system:

a. Log on to CSA using the full qualifier domain name (FQDN) URL.



b. Open the embedded BA pages in the CSA system.





Support CSA Multiple Currency for Service Offering

1. Edit **EXCHANGE.csv**.
2. Upload **EXCHANGE.csv** to **$HPBA_Home/ContentPacks/CSA/EXTERNAL** in the BA server.
3. Run the ETL to import exchange data. For details, see Run ETL - Content Flow Managementin the *Administrator Guide*.

Configure the Showback report for the Consumer Organization Administrator

In this section, we simulate the CSA Consumer Organization administrator use case that leverages two existing groups in the LDAP server. Each group can only see its own group's data. CSAEngineers group can only see the engineering group data and the CSAHR group can only see the HR group data. For details, see also Setting access restrictions on a universe in the *Universe Designer for BusinessObjects XI 3.1*.

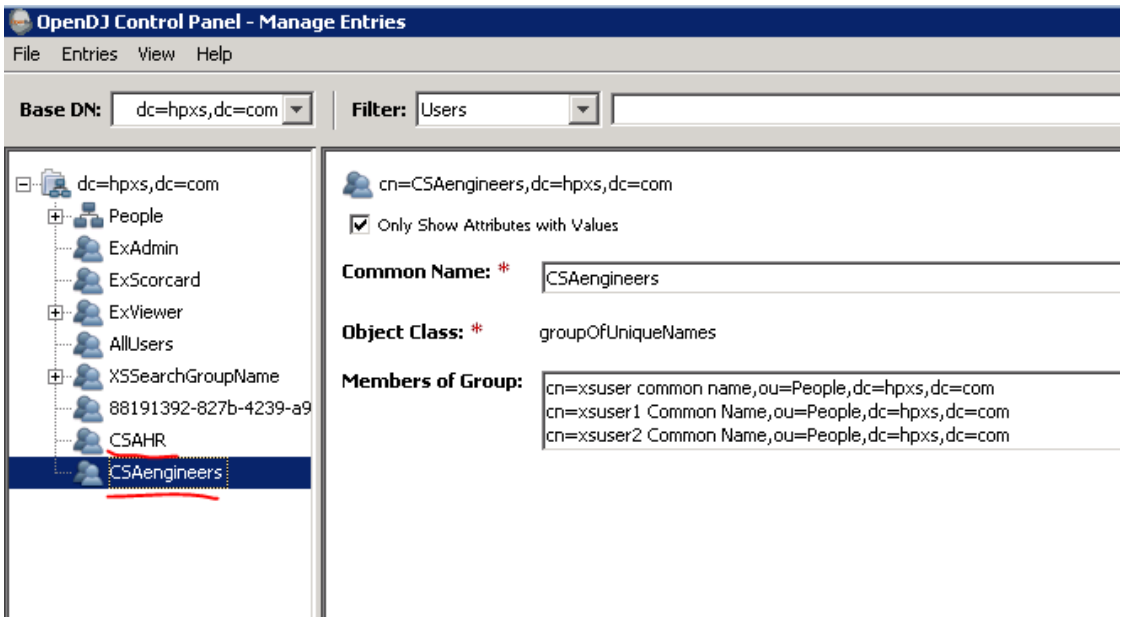
"Step 1 - Configure resource, user and permission" on the next page

"Step 2 - Configure the restriction of Cloud Billing universe" on page 135

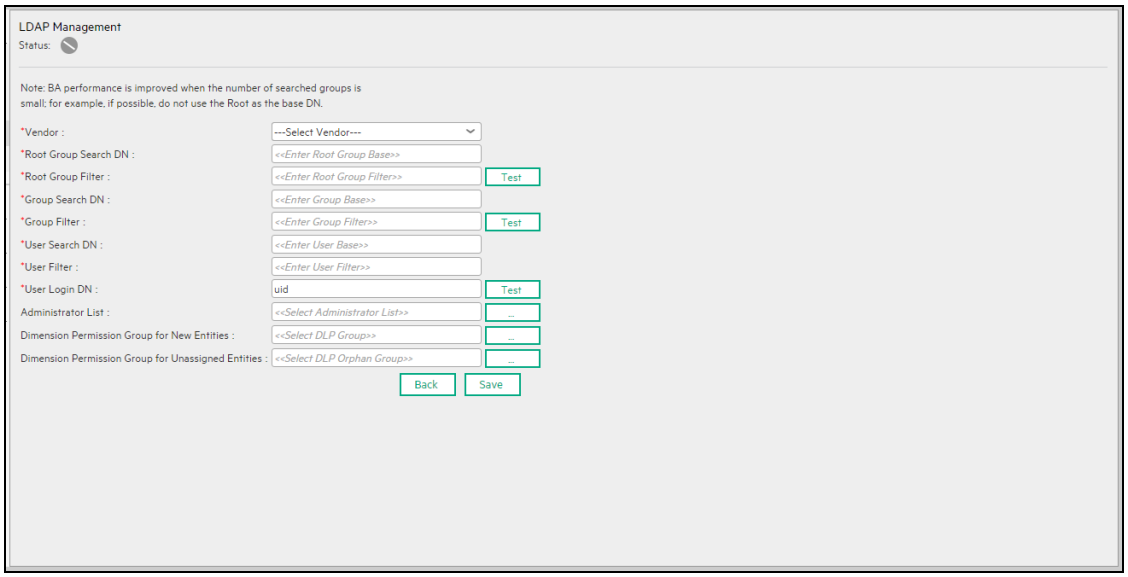
"Step 3 - Configure the Business Analytics tile in the CSA Market Place Portal" on page 147

Step 1 - Configure resource, user and permission

1. In the CSA integrated LDAP server, select 2 groups: CSAHR and CSAEngineers.



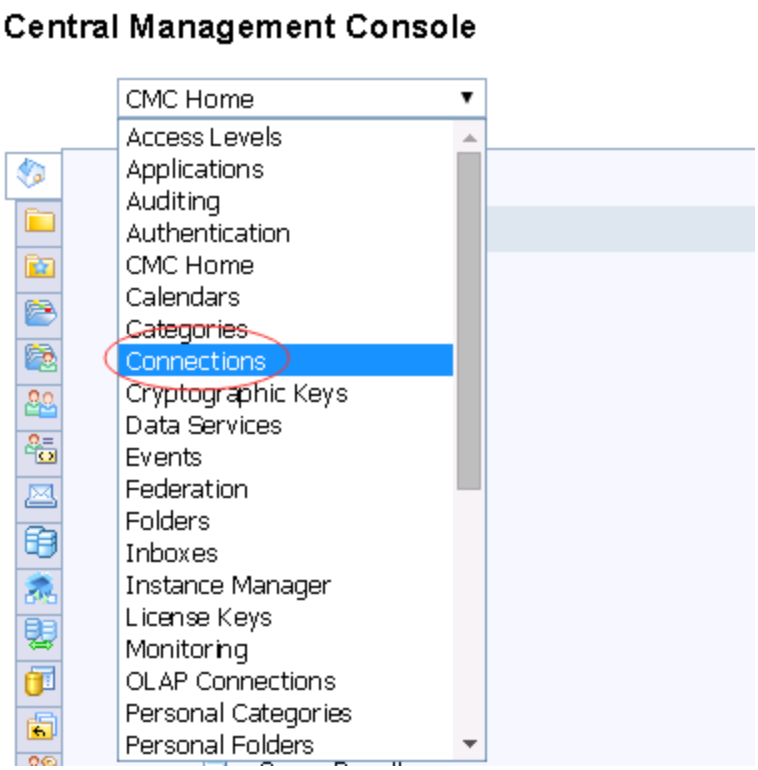
2. In the ITBA application, configure LDAP. For details, see LDAP Management in the *Administrator Guide*.



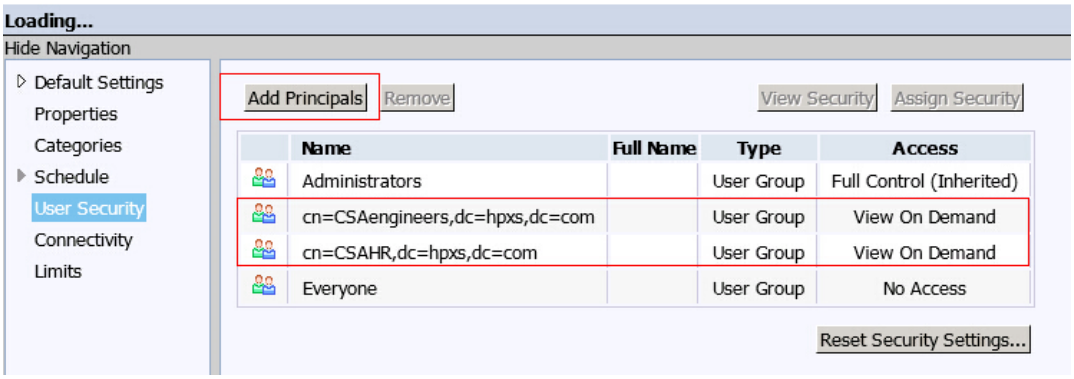
   Create the CSAengineers and CSAHR groups and assign them users.

3. Create the resource for the CSA-Showback for Consumer Organization Admin page.

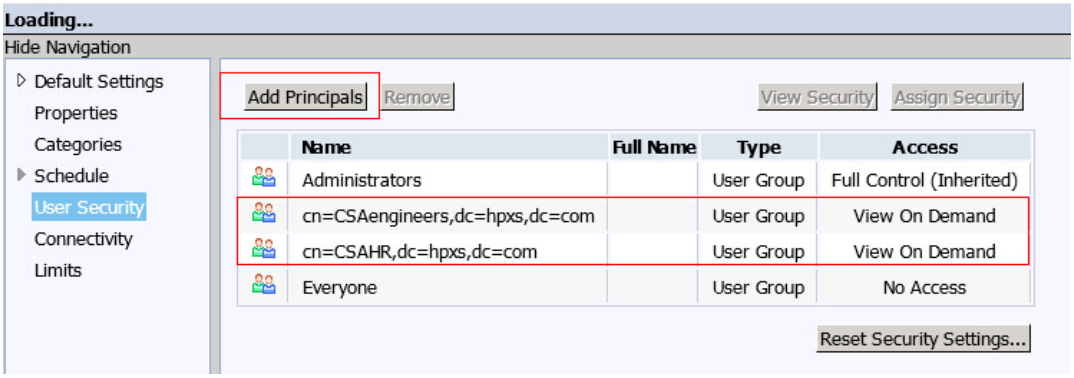
4. Create the CSAreportviewer role.
5. Assign the role CSAreportviewer to two groups.
6. Configure LDAP with BOE. For details, see LDAP in BusinessObjects in the *Administrator Guide*.
7. Configure the group permission in the BOE server:
   a. Log on to BusinessObjects Central Management Console (http:// <local BOE server name>:8080/BOE/CMC) using the administrator name and password and configure LDAP with BOE. For details, see LDAP in BusinessObjects in the *Administrator Guide*.
   b. Open the Connections:



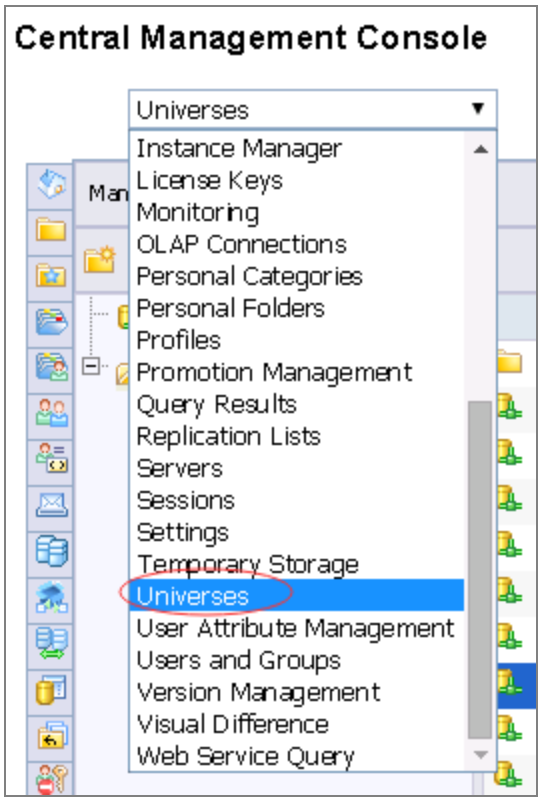
   c. Select the XS_DWH_JDBC connection that your report uses and click **User Security**.



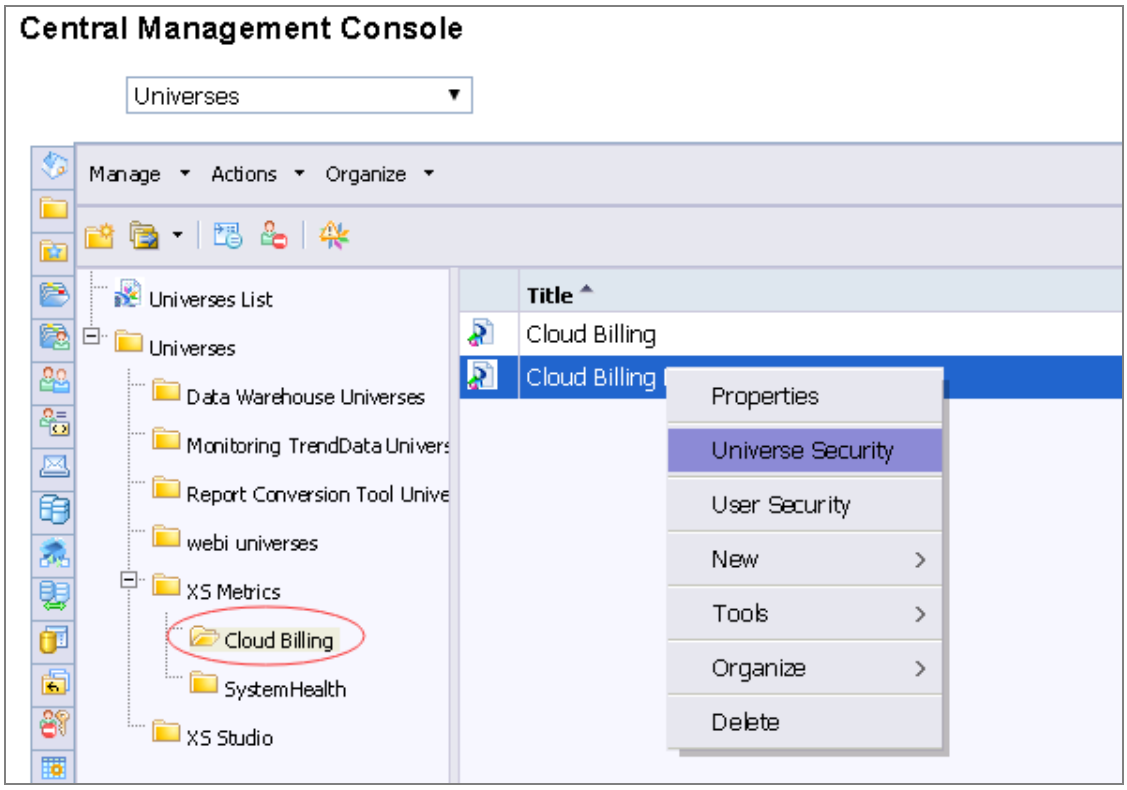
d. Grant the **View On Demand** permission to the two groups.



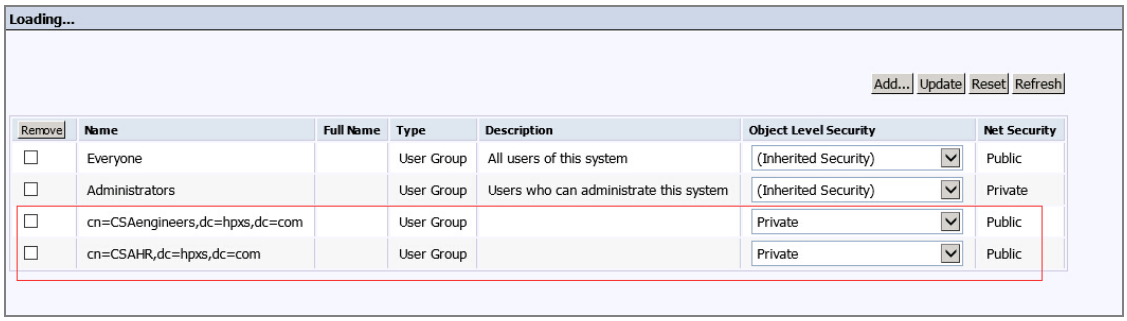
8. Open the Universes.



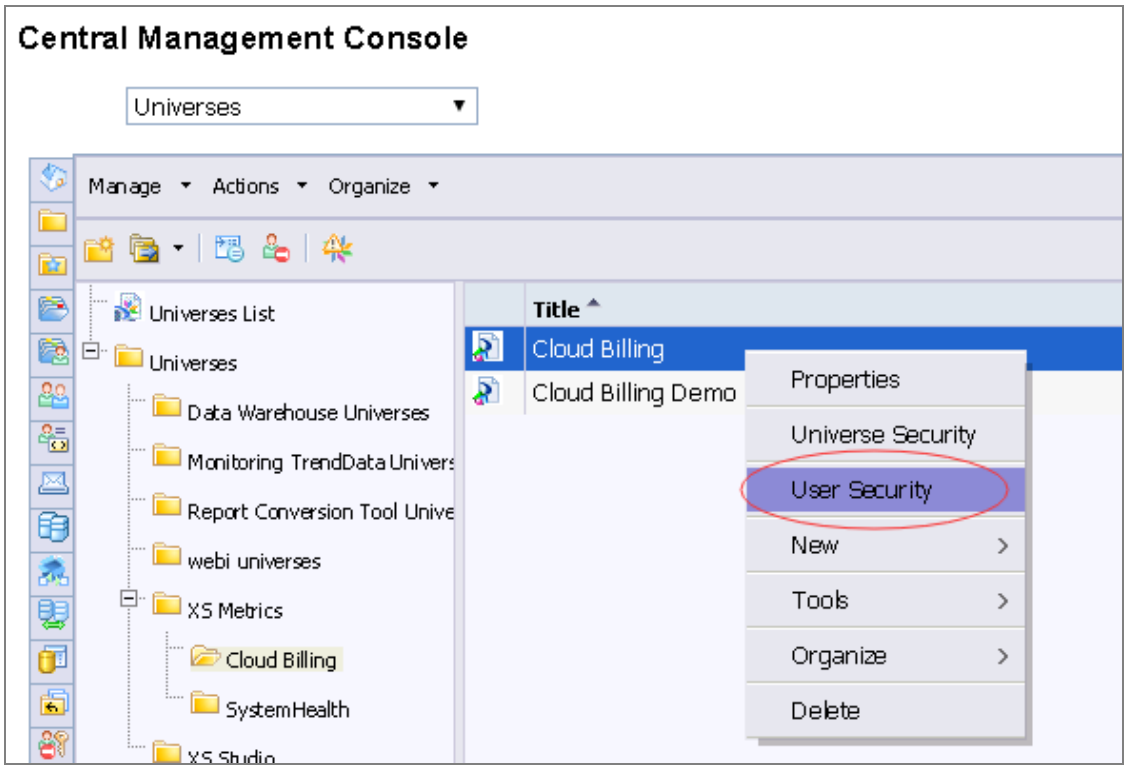
9. Select the **CloudBilling** universe that your report uses and click **Universe Security**.

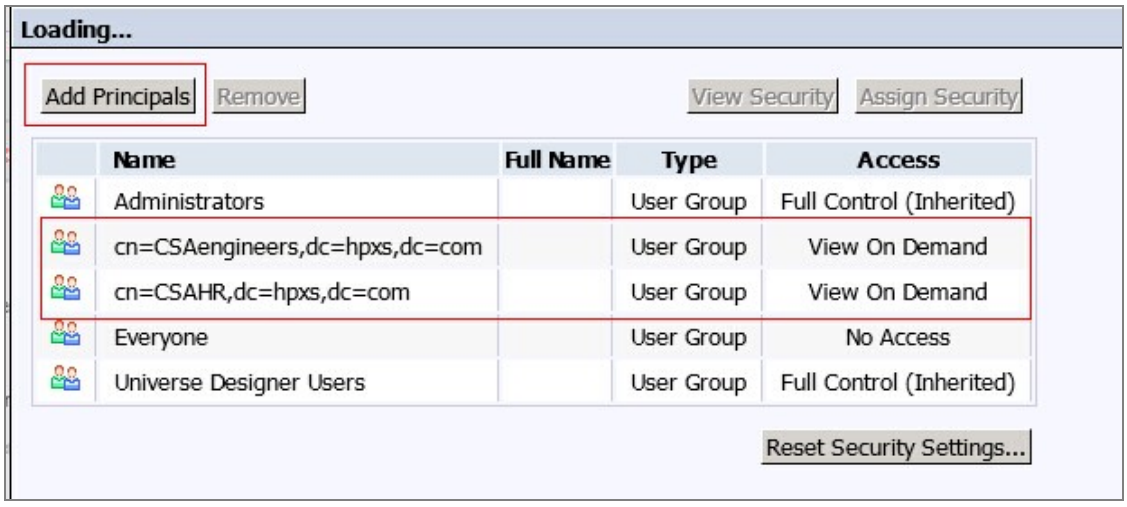


10. Add the **Private** security to the two groups.

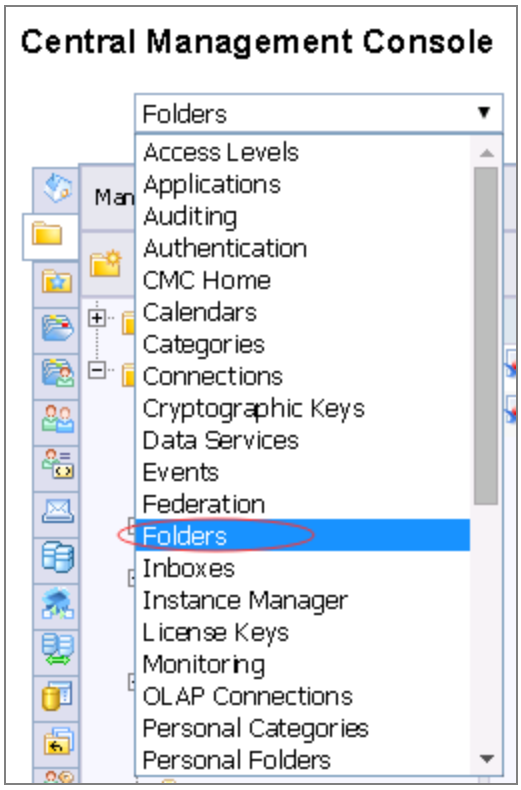


11. Grant the **View on Demand** permission to the 2 groups in **User Security**.

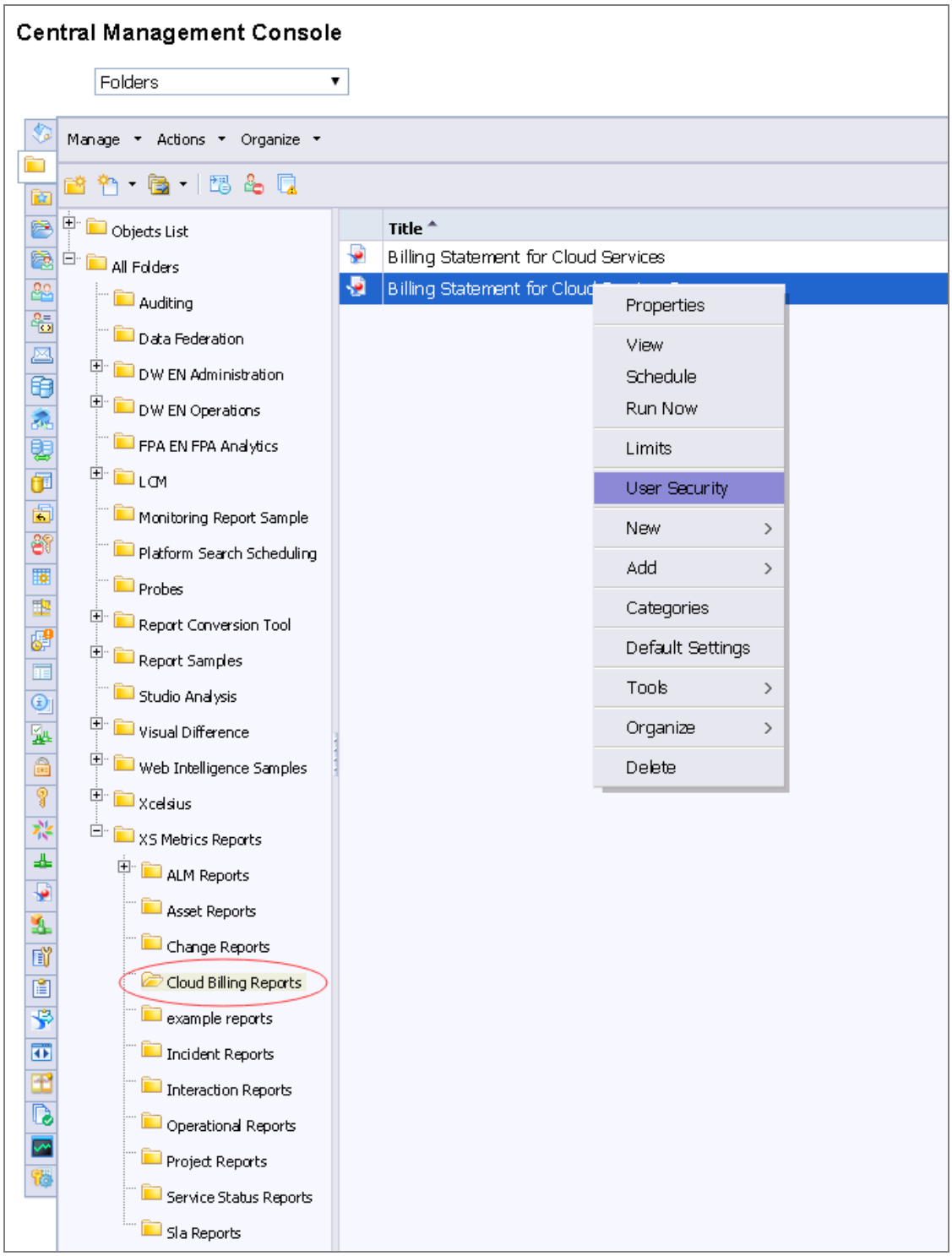




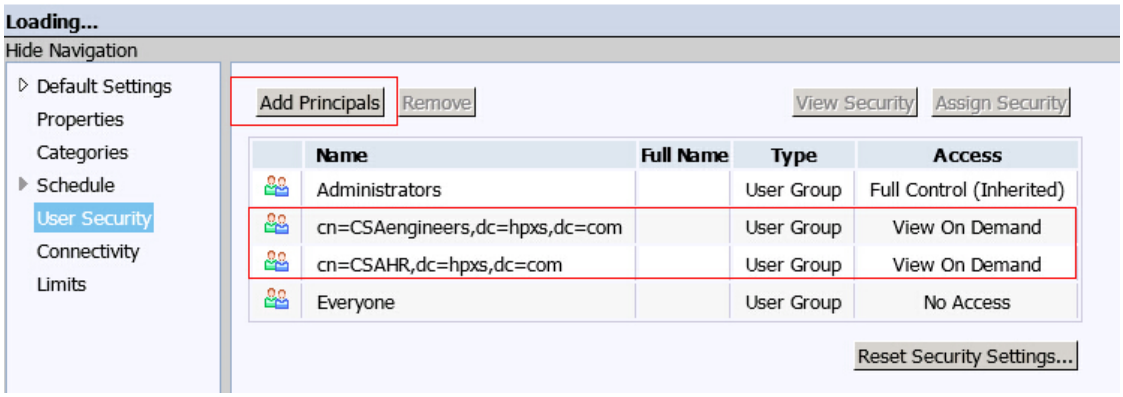
12. Select **Folders**.



13. Select the **Showback for Consumer Organization Admin** report and click **User Security**.



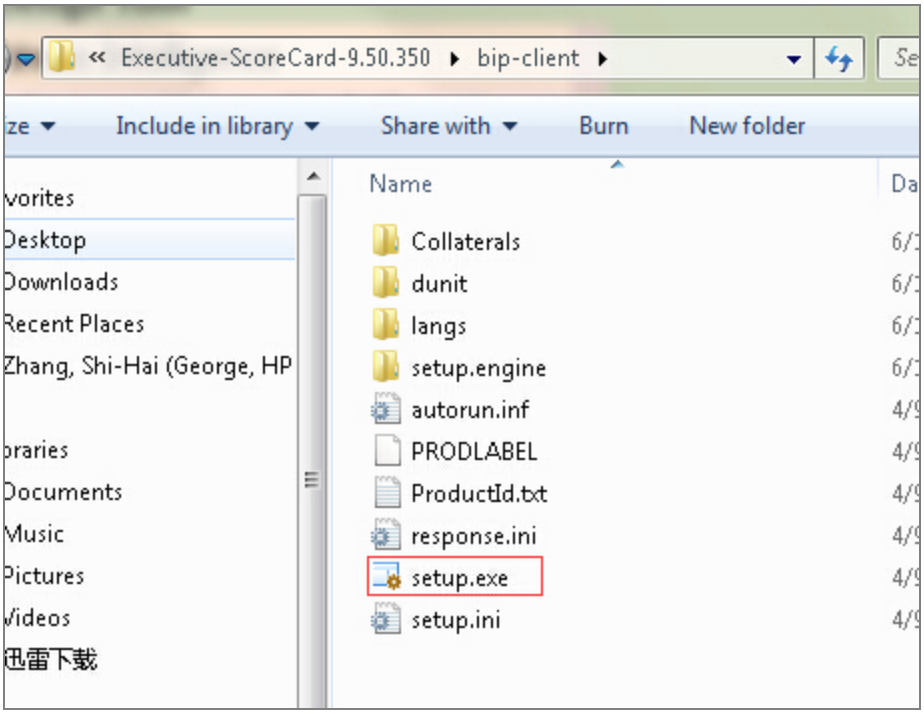
14. Grant the **View On Demand** to the 2 groups.



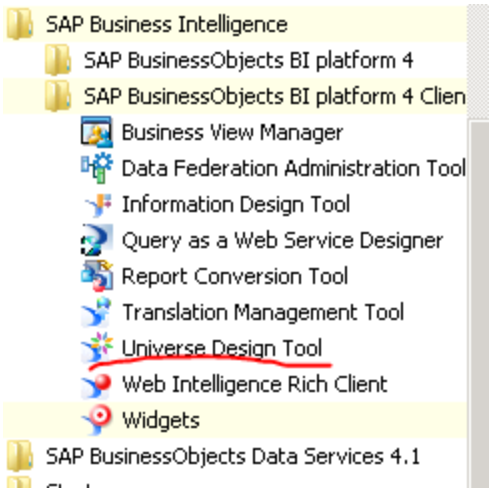
Step 2 - Configure the restriction of Cloud Billing universe

1. Configure the restrictions of the Cloud Billing universe:

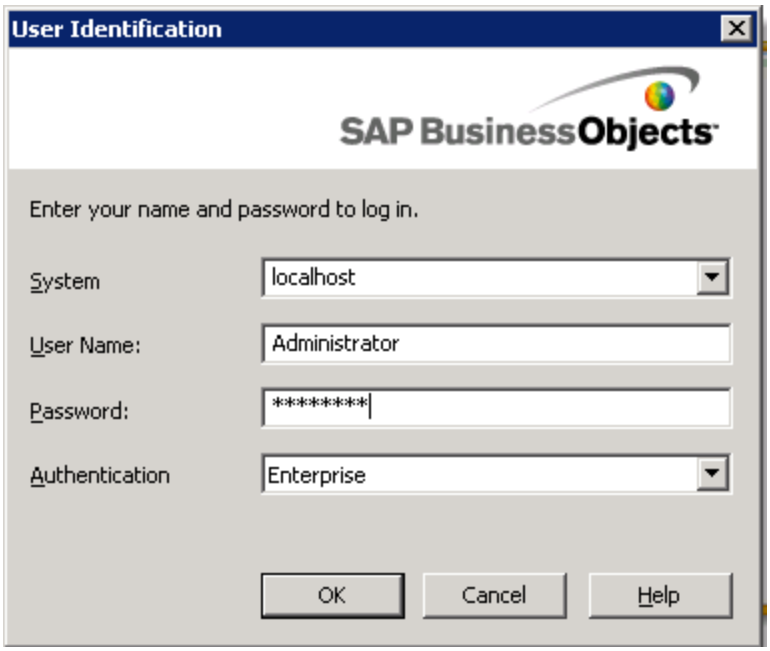
   a. On the BOE server, install SAP BusinessObjects BI platform 4 Client Tools. Unzip the **bip-client.ZIP** file from installation file and click **setup.exe** to install it.



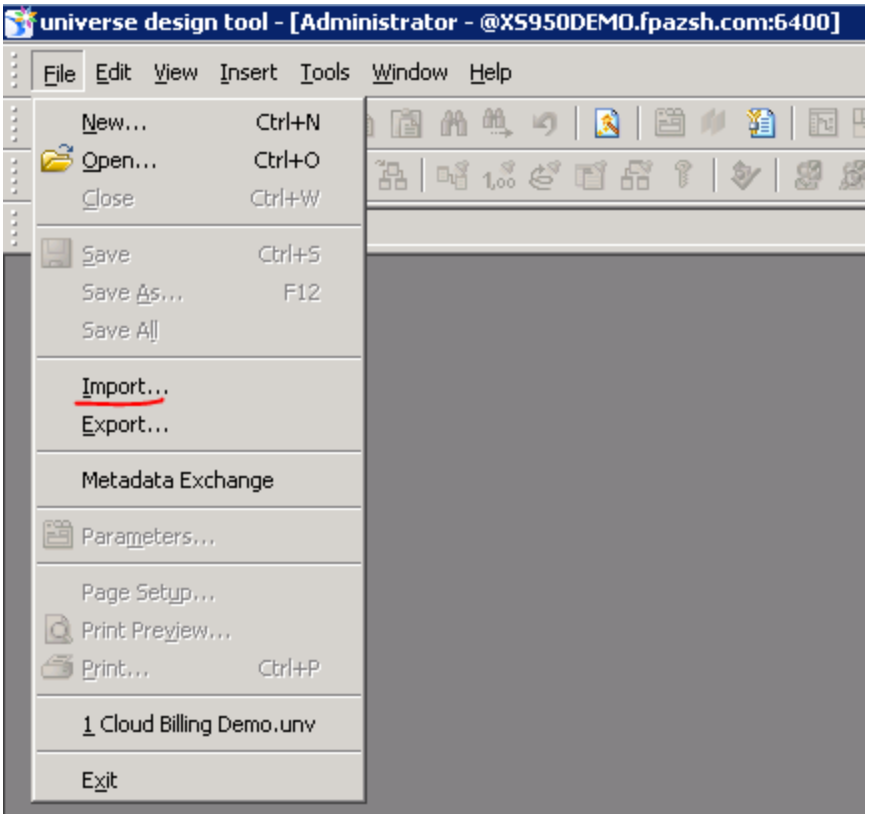
b. Open the Universe Design Tool.



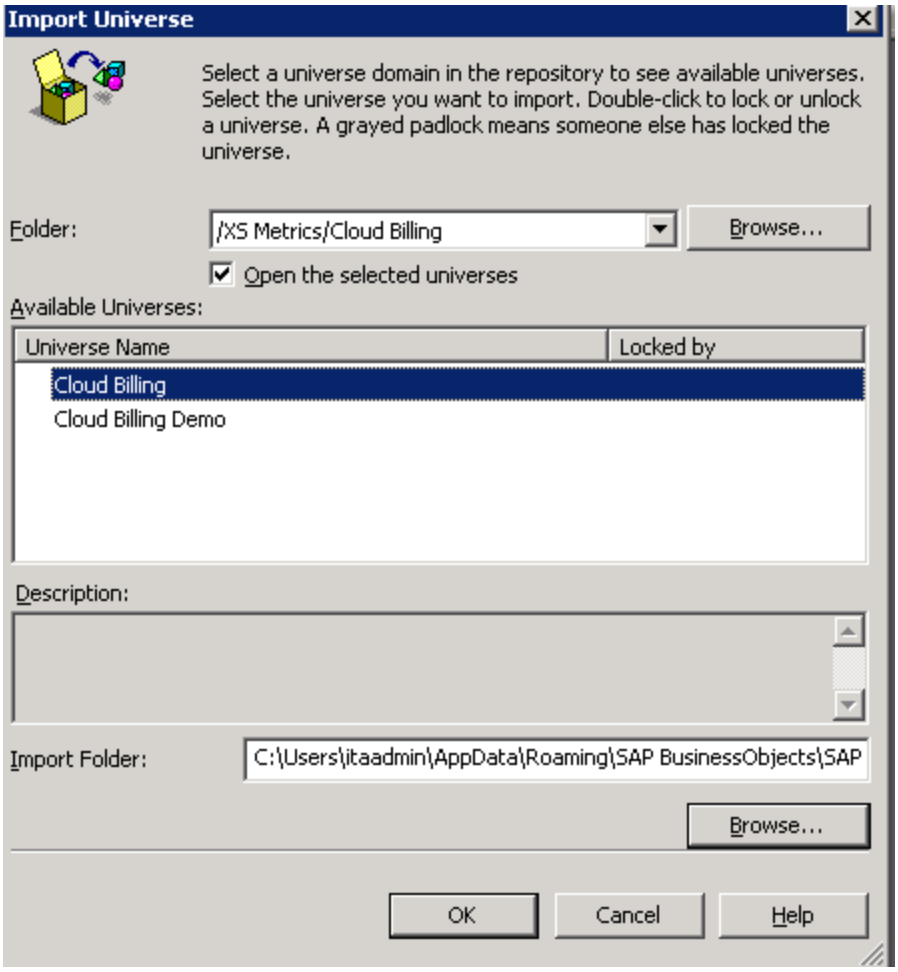
c. Log on to the Universe Design using the BOE administrator.

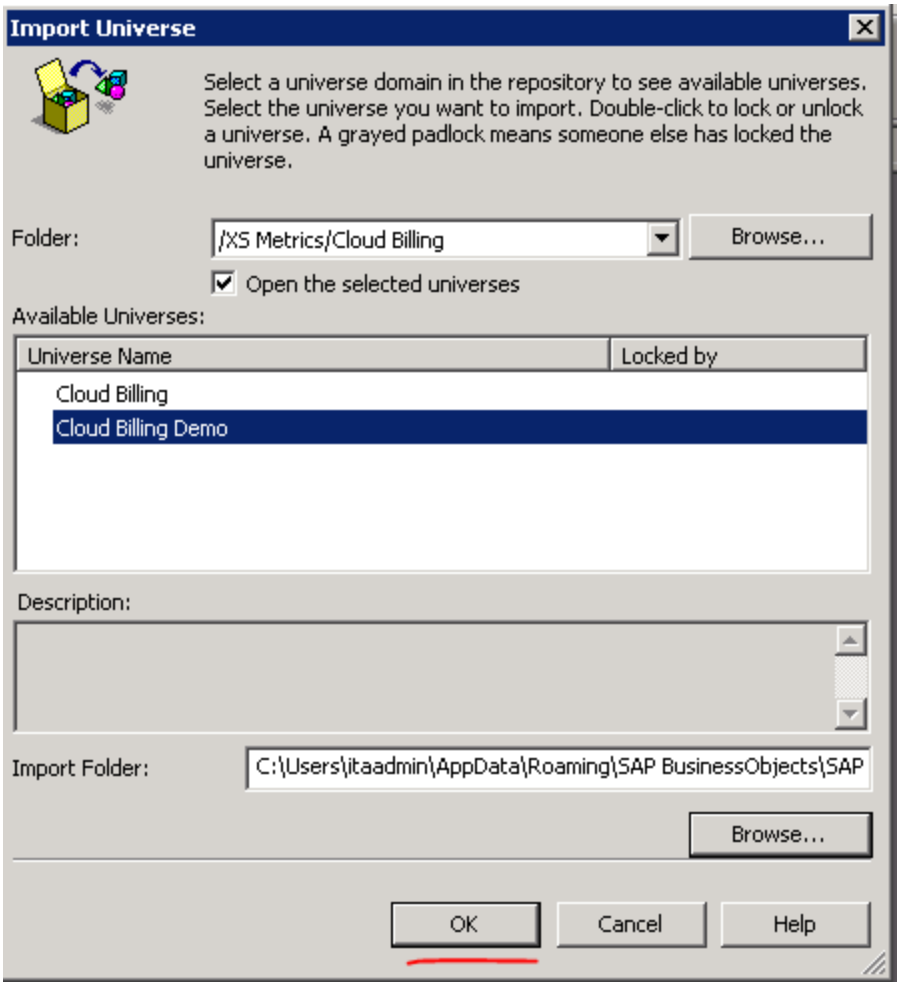


d. Click the **Import** button.



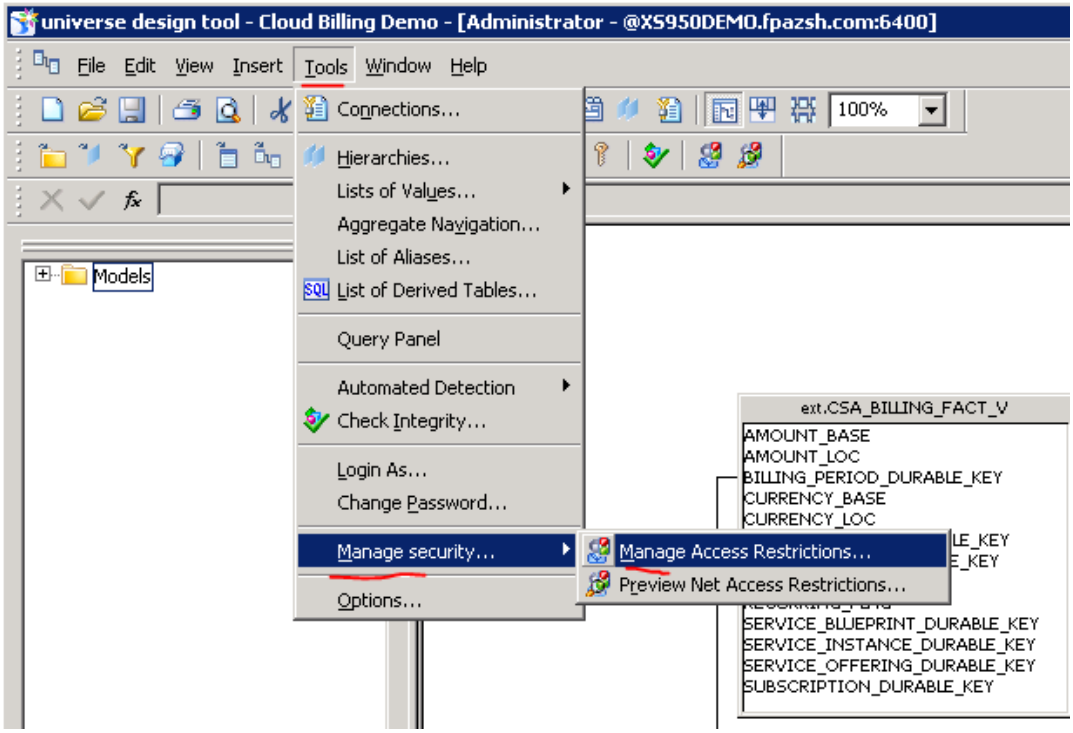
e. Open the Cloud Billing universe.


Import Universe
Select a universe domain in the repository to see available universes. Select the universe you want to import. Double-click to lock or unlock a universe. A grayed padlock means someone else has locked the universe.
Folder:
/XS Metrics/Cloud Billing
Browse...
Open the selected universes
Available Universes:
Universe Name
Locked by
Cloud Billing
Cloud Billing Demo
Description:
Import Folder:
C:\Users\itaadmin\AppData\Roaming\SAP BusinessObjects\SAP
Browse...
OK
Cancel
Help



f. Add the relevant restrictions in the Manage Access Restrictions wizard:

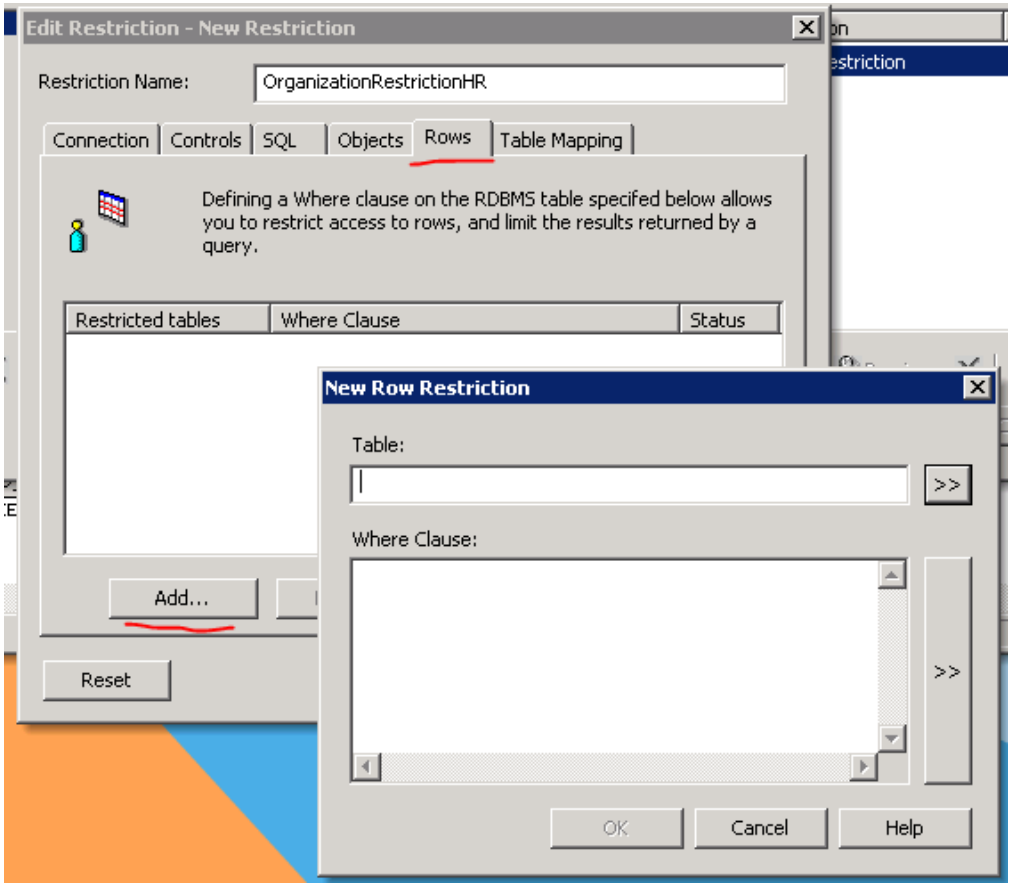
- Engineer_restriction is set for CSAengineers which is configured to see only the engineering group's data.
- HR_restriction is set for CSAHR which is configured to see only the HR group's data.



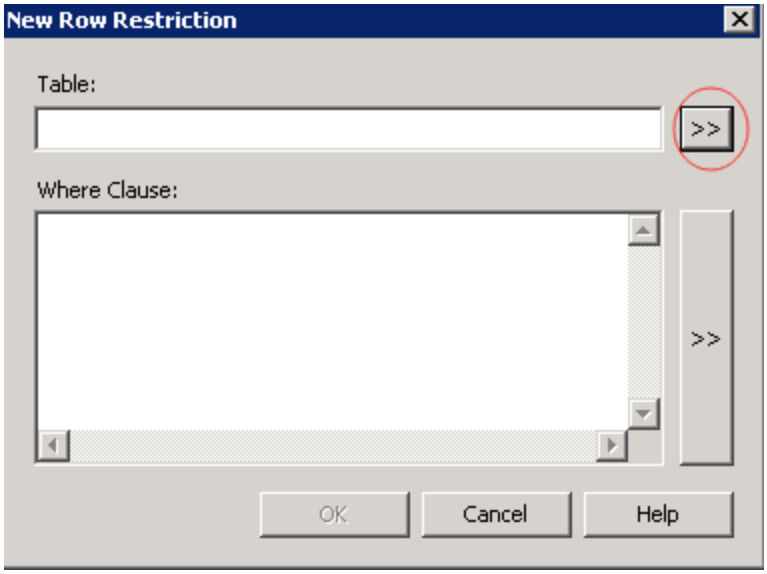
g. **Create the restriction.**

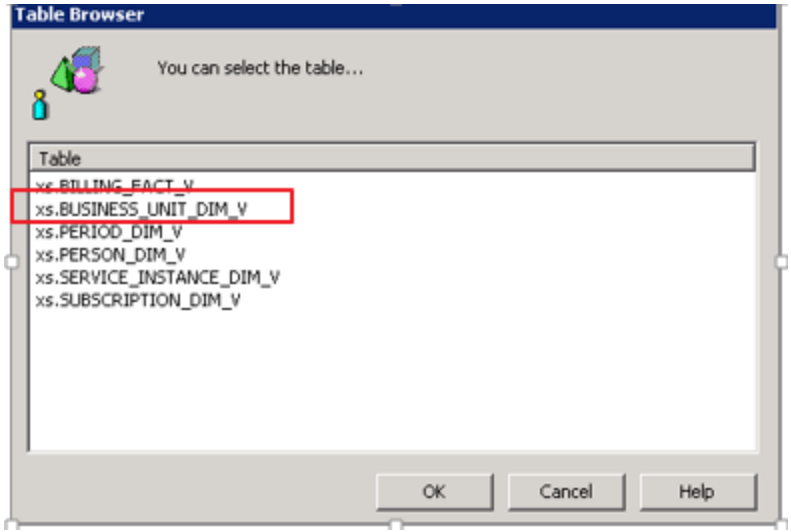
i. Click **New** in the wizard.

ii. Click the **Rows** tab and click **Add...**.



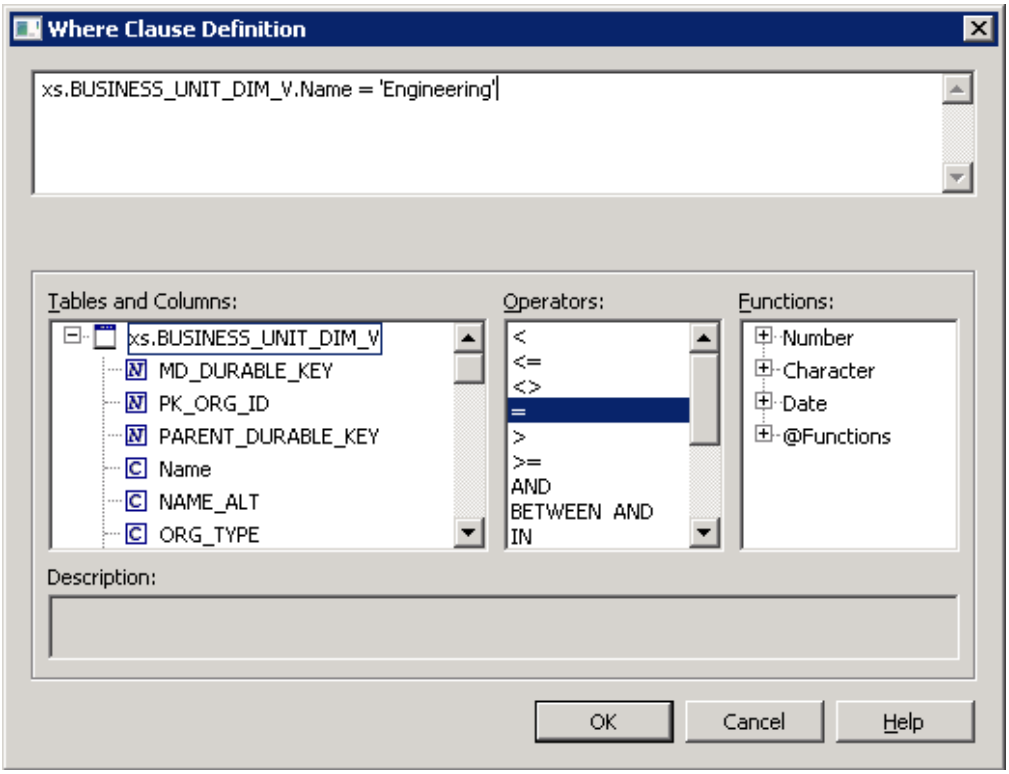
iii. Select the **XS_BUSINESS_UNIT_DIM_V** table in the **Table** list, and set the SQL query in as follows:





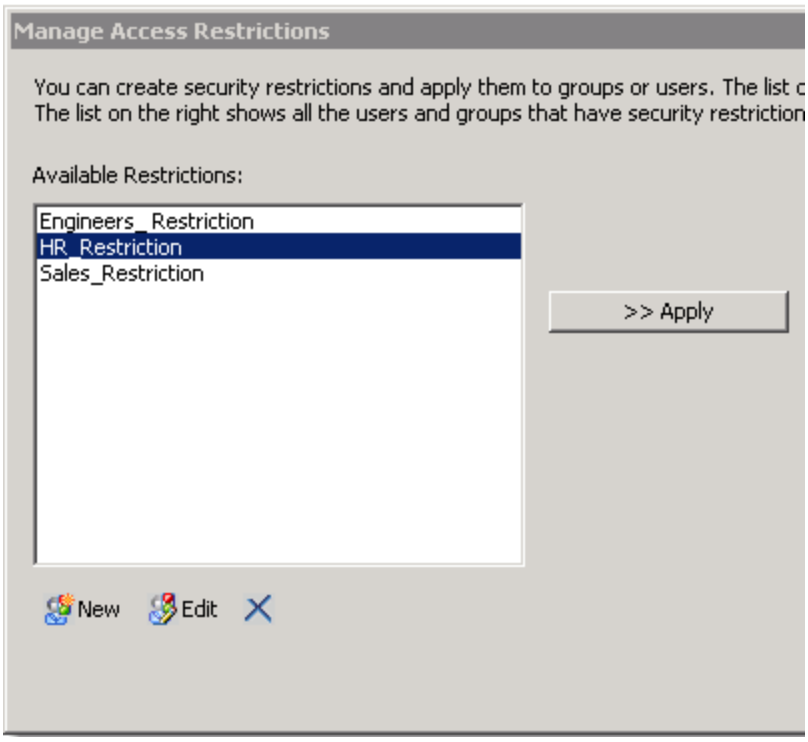
iv. Click **OK**.

v. Add restrictions1 as XS.BUSINESS_UNIT_DIM_V.Name = ‘Engineering’.

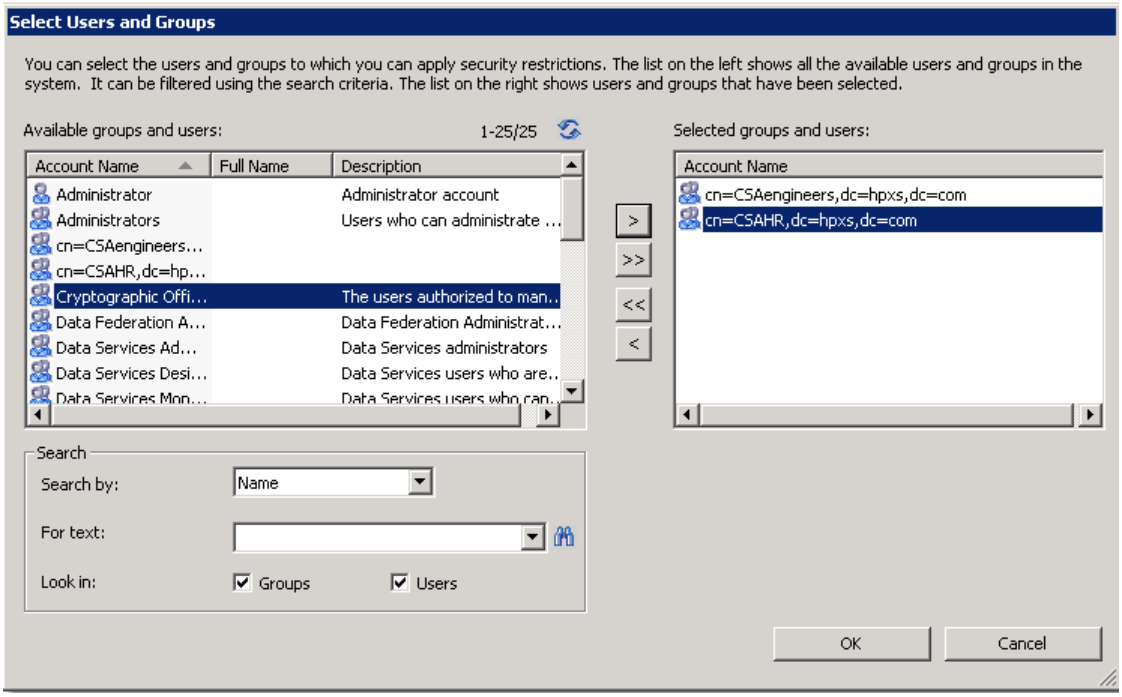


vi. Click **OK**.

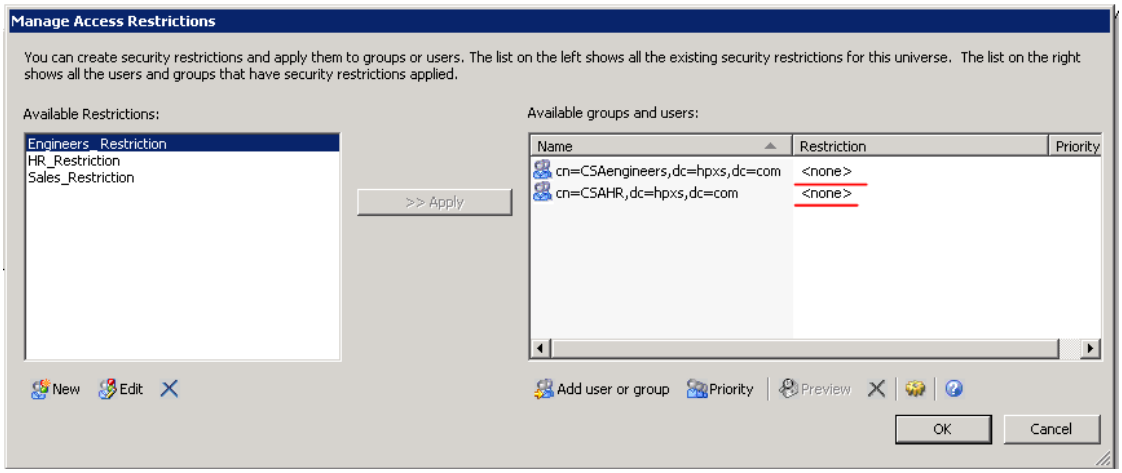
h. Repeat the steps from "Create the restriction. " on page 140 to create the second restriction.



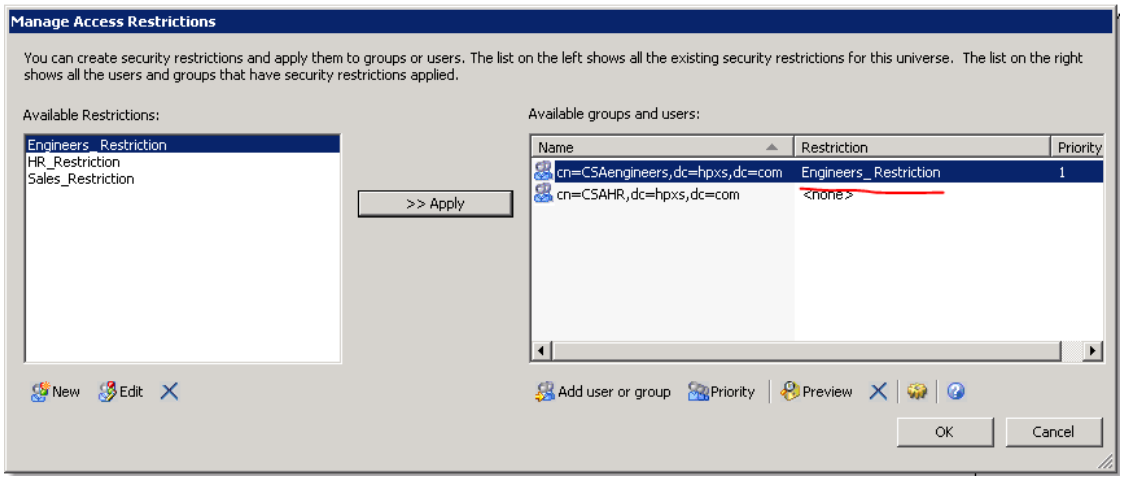
2. Click the **Add user** or **Add group** button, select the user and click the > button.



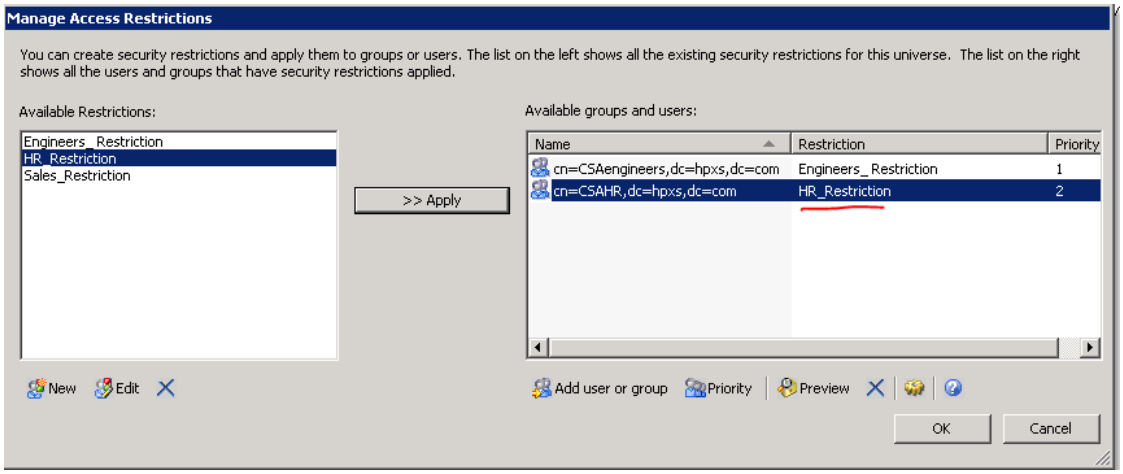
3. Click **OK**.



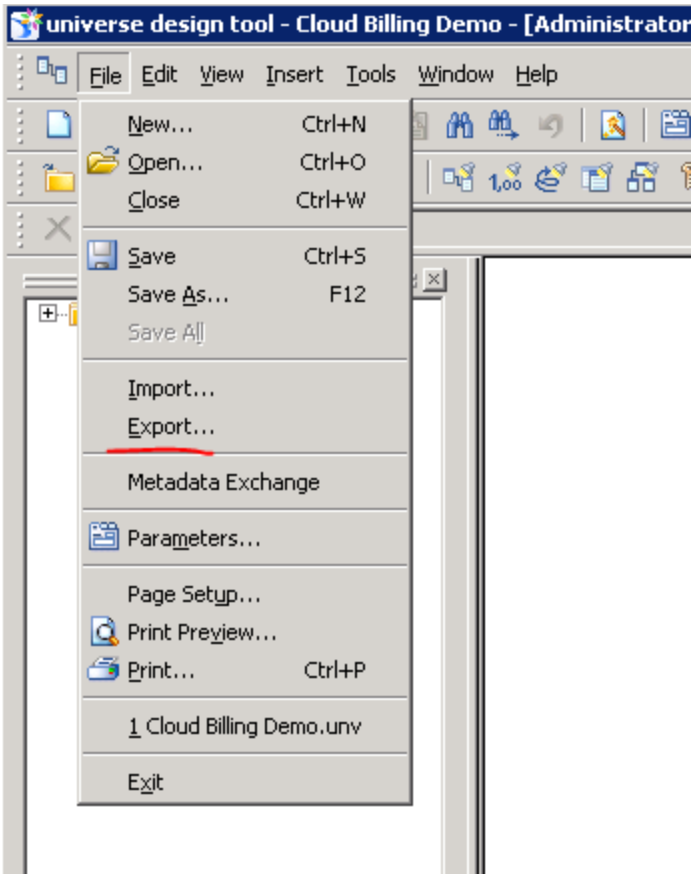
4. Select **Engineers_Restriction** in **Available Restrictions** area, select the **CSAengineers** group in the **Available groups and users** area, and then click the **>>Apply** button.



5. Repeat the previous step for the **HR_Restriction** and the HR group.

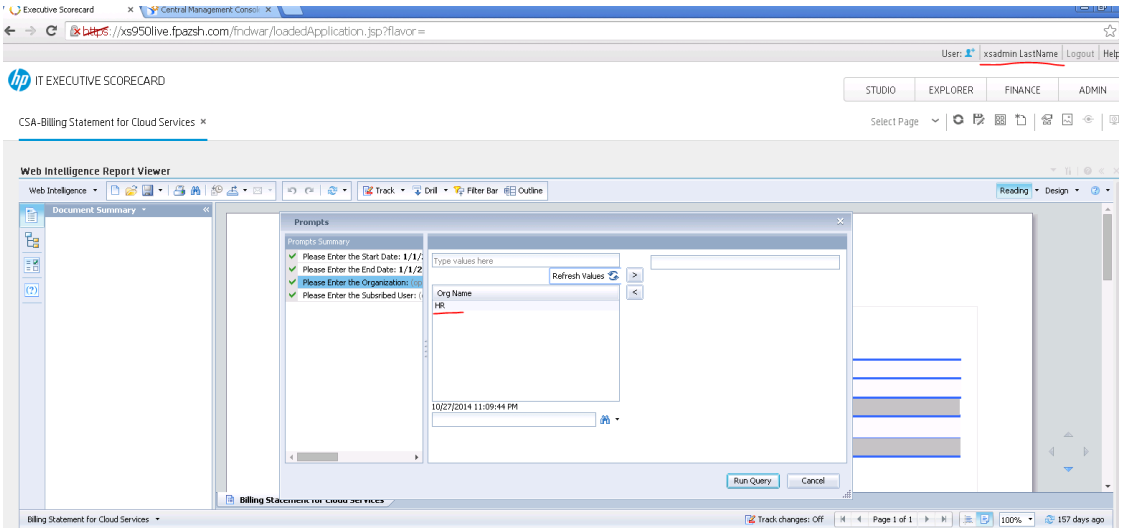


6. Click **Export...**



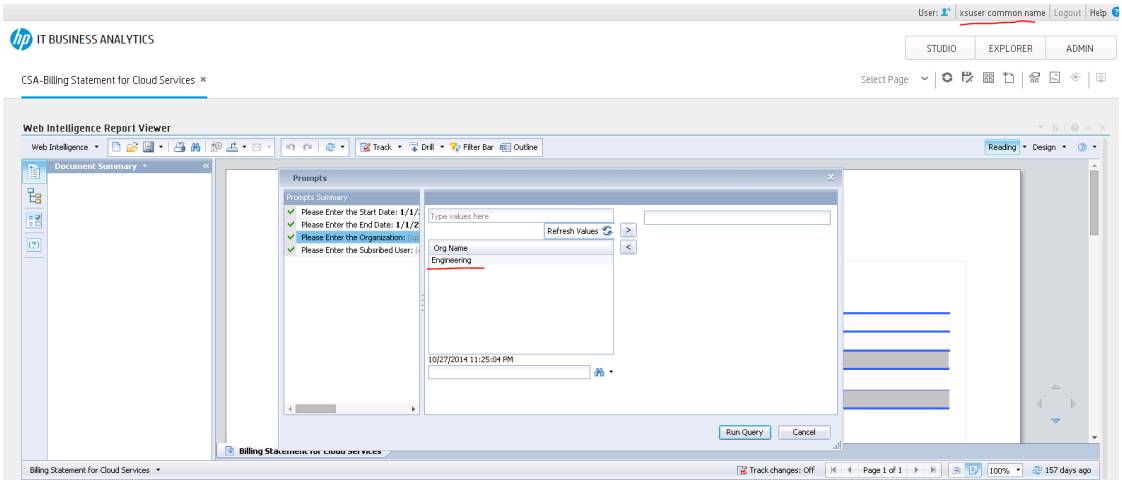
7. Click **OK**.
8. Log on to BA as the HR group one user and open the CSA billing report in the Dashboard.

9. Click the **Refresh** button to display the following value for Org Name.



10. Log on BA as the Engineers group one user and open the CSA billing report in the Dashboard.

11. Click the **Refresh** button to display the following value for Org Name.



Step 3 - Configure the Business Analytics tile in the CSA Market Place Portal

To enable and configure the Showback report on the CSA Market Place Portal for the Consumer Organization Administrator persona:

1. Locate the **%CSA_HOME%\portal\conf\dashboard.json** file.
2. In the file, locate the section below and in the highlighted url replace the <CONFIGURE_HOST_NAME> placeholder with the host name of the BA instance.

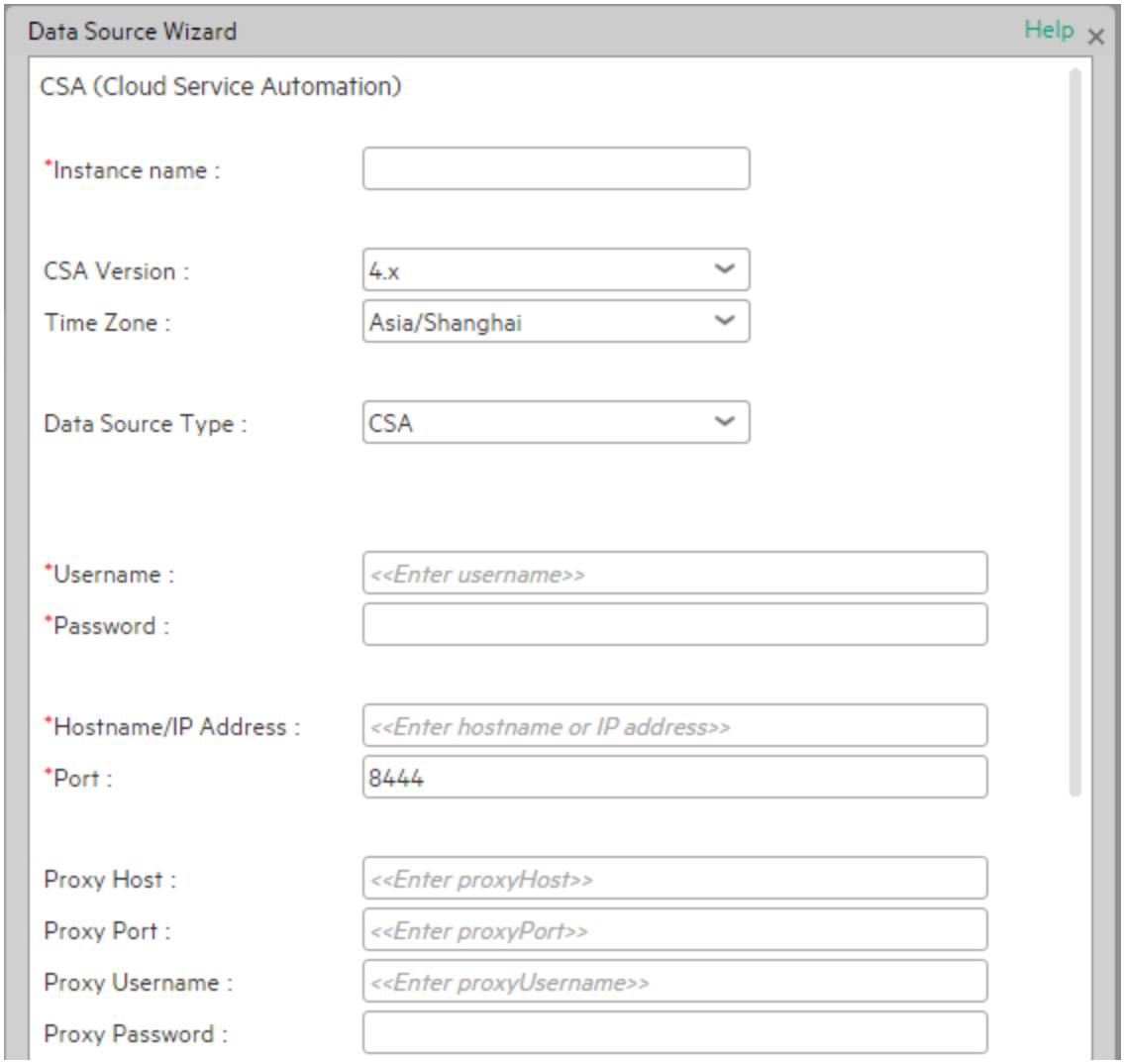
```
{
    "label": "common.section.ADMINISTRATION.label",
    "role": ["CONSUMER_ORGANIZATION_ADMINISTRATOR"],
    "tiles": {
      "default": {
        "className": "light-gray"
      },
      "items": [{
        "label": "common.items.MANAGE_USER_SUBSCRIPTIONS",
        "icon": {
          "className": "icon-manage-subscriptions"
        },
        "link": "#/user/manage"
      }, {
        "label": "common.items.SCORECARD",
        "icon": {
          "className": "icon-status"
        },
        "link": {
          "url":"https://<CONFIGURE_HOST_
NAME>/fndwar/loadEmbeddedPage.jsp?com.hp.bsm.uim.pageUID=ef63ab7f-b86b-43c8-
b8d8-bb81869b73dc",
          "target": "_blank"
        }
      }]
    }
  }
```

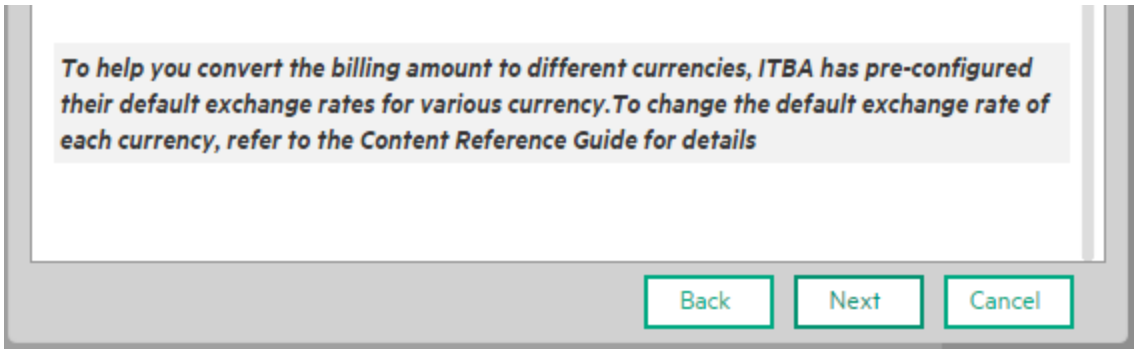
3. Save.

UI Description

CSA Activation Page

The following is an example of the CSA Activation page.





User interface elements are described below:

Note: If the CSA configuration is for a named instance connection, make sure to enter the named instance port.

UI Element	Description
Instance name	Enter a name for the data source instance you are activating.
CSA Version	Select the relevant version. . For details, see the *Support Matrix*.
Time Zone	Select the time zone for the data source.
Data Source Type	CSA This parameter is read only.
Username	Enter your admin username used to log on to CSA. The default username is **admin**.
Password	Enter your admin password used to log on to CSA. The default admin password is **cloud**.
Hostname/IP Address	Enter the CSA server hostname or IP address.
Port	Port for REST API (default value is 8444).
Initial Load Period (months)	Select the number of months from which you want the initial data loaded.

Reference

CSA-Related KPIs and Metrics

For a list of the KPIs and Metrics related to the Cloud Service Automation data source, see KPIs and

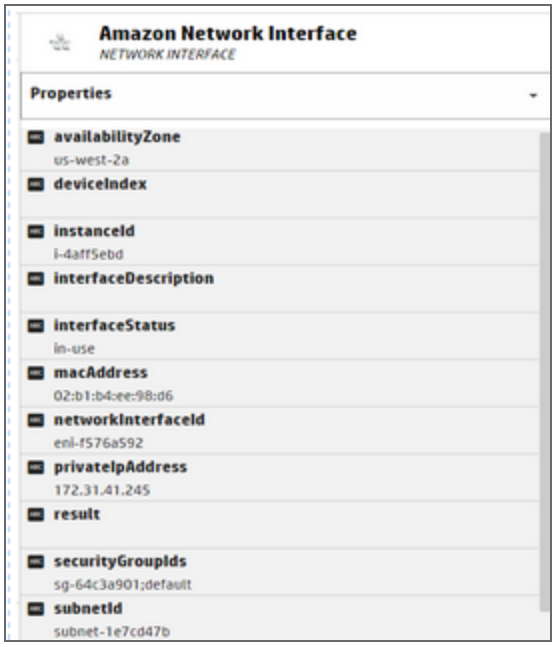
Metrics in the *Content Acceleration Packs Guide*.

Customize CSA Service Designer for Amazon Web Service Resource Provider

In CSA, you can define different service designs for Amazon Provider and those service designs can be different from user to user, and can be different from the CSA OOTB service design.

By default, the ETL logic hardcodes, the component type value, the component property value, and the values match only the CSA OOTB service design. If you do not use the CSA OOTB service designer, then you must change the ETL scripts manually.

In addition, when you add fields to component property list, and then display these field in the report, the data model does not include the new customized data.



- **The CSA Content Pack provides a separate ETL logic to support customized CSA service designs**

  Below is the ETL logic that you can use to get the component value from the AWS service design. To easily customize the logic in the ETL scripts:

  a. The logic used to handle the AWS service design is extracted into a separate script instead of having all logic in one Server Side Includes (SSI) step. The file name of the script is **AWS-service-design**.

b. Afterwards, you can modify the OOTB logic to support your own CSA service design, without impacting the others. Modify the **$HPBA_HOME/ContentPacks/CSA/INBUILT/ETL/COMPONENT/CSA_COMPONENT_CONF_DF.sql** file by providing the SSI scripts folder and the file name for the SSI component in the **CSTM_PROPERTY_<NN>** fields.

```
case
    when positionb('^|^'||ext.propertylist,'^|^'||'INSTANCEID'||'^=^') = 0 then null
    else
        ext.SERVICEINSTANCEID || ':' ||split_part(split_part(substrb('^|^'||
        ext.propertylist,positionb('^|^'||ext.propertylist,'^|^'||'INSTANCEID'||'^=^')),'^|^',2),'^=^',2)
end as CSTM_PROPERTY_01 ,
case
    when positionb('^|^'||ext.propertylist,'^|^'||'IPaddress'||'^=^') = 0 then null
    else
        ext.SERVICEINSTANCEID || ':' ||split_part(split_part(substrb('^|^'||
        ext.propertylist,positionb('^|^'||ext.propertylist,'^|^'||'IPaddress'||'^=^')),'^|^',2),'^=^',2)
end as CSTM_PROPERTY_02 ,
```

- **Additional Customized Fields in the Component Entity to Support Customized CSA Service Designs**

  Currently, you cannot add extra fields to the **Showback for Cloud Services** report as the current data model cannot accommodate customized fields.

  To support the capability of adding customized fields to the **Showback for Cloud Services** report, the component was modified to include 10 additional customized fields. For details, see "Customize CSA Service Designer for Amazon Web Service Resource Provider" on the previous page.

How to Upload .BIAR Files

Some Webi reports are supported in ITBA. You can view these reports in the relevant ITBA Dashboard pages. They are provided in the CSA CAP and the CSA_Demo CAP.

You can view these reports through the Dashboard pages that are linked to the BOE server.

Only the CSA CAP reports are imported into the BOE server automatically if you have configured the BOE connection while installing ITBA.

If you did not configure the BOE connection while installing ITBA, or if you want to view BO reports in the ITBA application, perform the configuration as in Optional - Install Client BOE on Windows or Optional - Install BOE on a Linux Server, then configure the Vertica Driver as shown in Optional - Install the Vertica Driver in the BOE Server and the BOE Client Server and then run the below steps.

Note: Cloud_Billing.biar is needed for the reports provided in the CSA CAP while **Cloud_Billing_Demo.biar** is needed for the reports provided by the CSA_Demo CAP.

To import the **Cloud_Billing.biar** or the **Cloud_Billing_Demo.biar**:

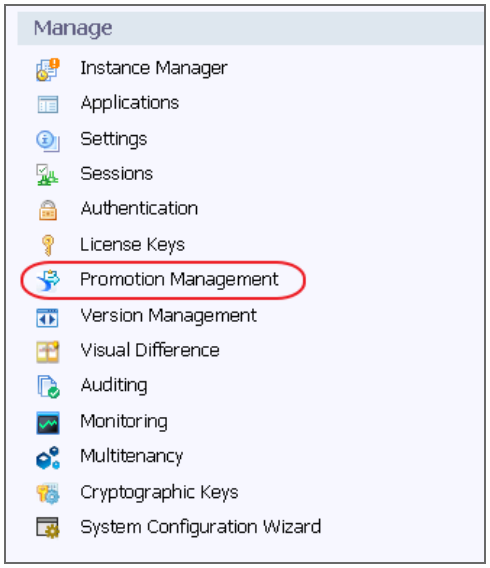
1. Copy the **.biar** files from the ITBA server:

   $HPBA_HOME /ContentPacks/CSA/INBUILT/BI/BOE/Cloud_Billing.biar

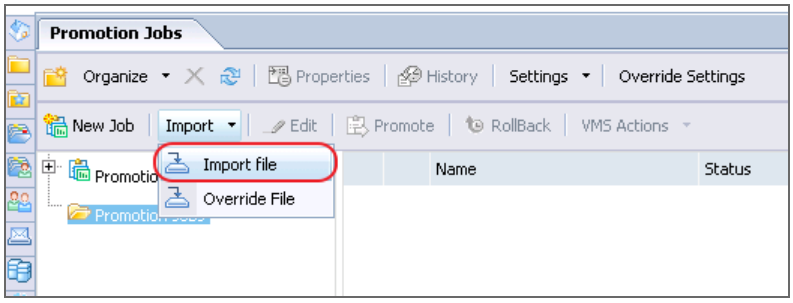
   $HPBA_HOME /ContentPacks/DEMO_CONTENT/INBUILT/BI/BOE/Cloud_Billing_Demo.biar

2. Log on to the SAP BusinessObjects Central Management Console (CMC) at: **http://<BOE_Server_IP>:8080/BOE/CMC**.

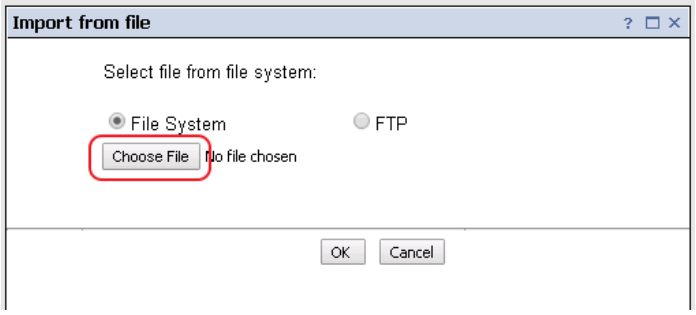
3. Click **Promotion Management**.



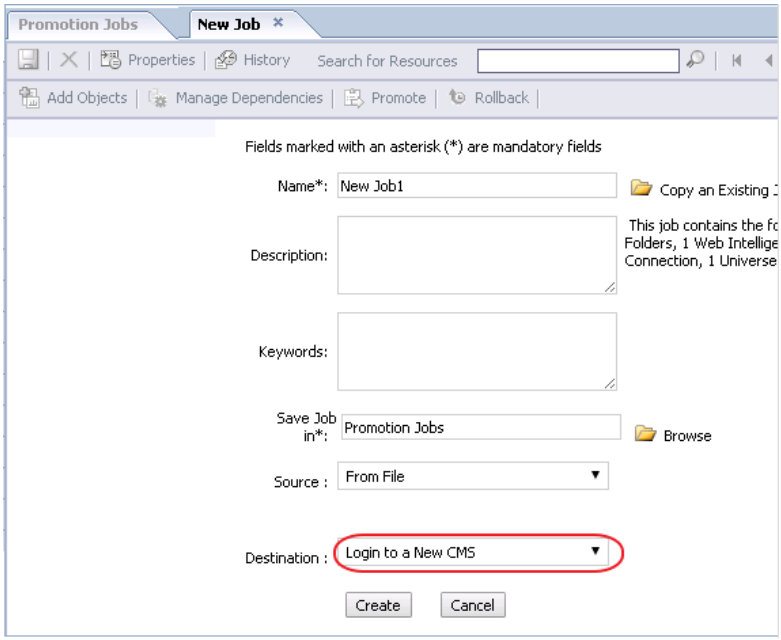
4. Click **Promotion Jobs > Import > Import file**.



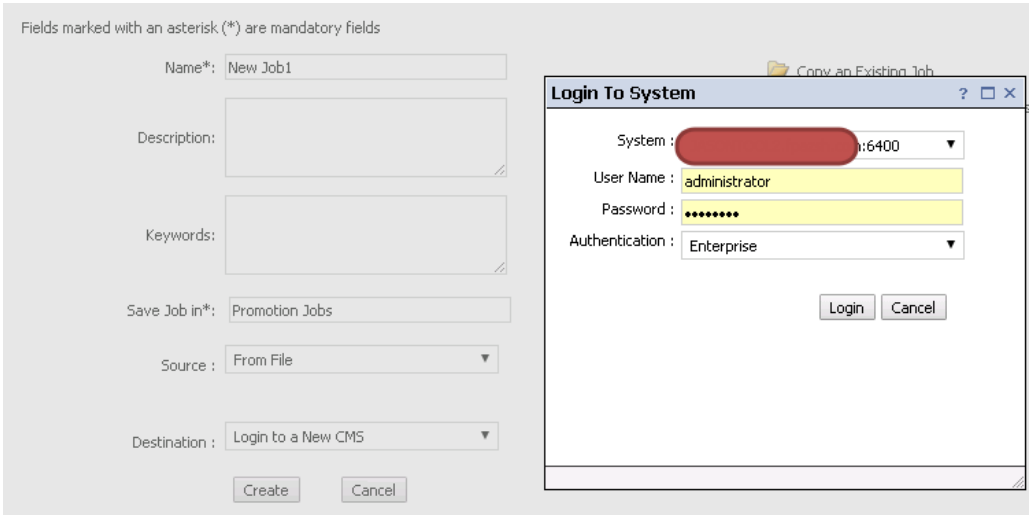
5. Click **Choose File** and select the relevant .biar file.



6. In the **Destination** field, select **Login to a New CMS**.

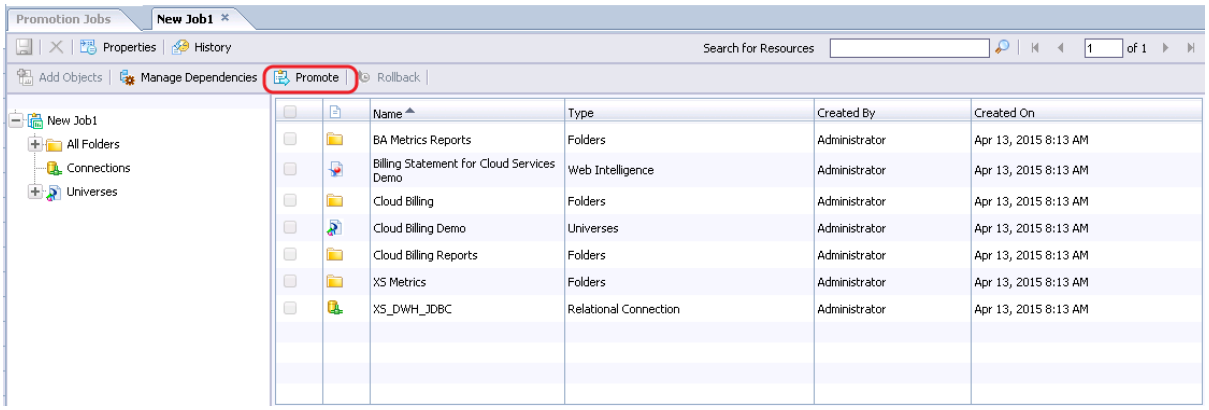


7. Enter the BOE server IP number or server name, user name, and password, and then click **Login**.

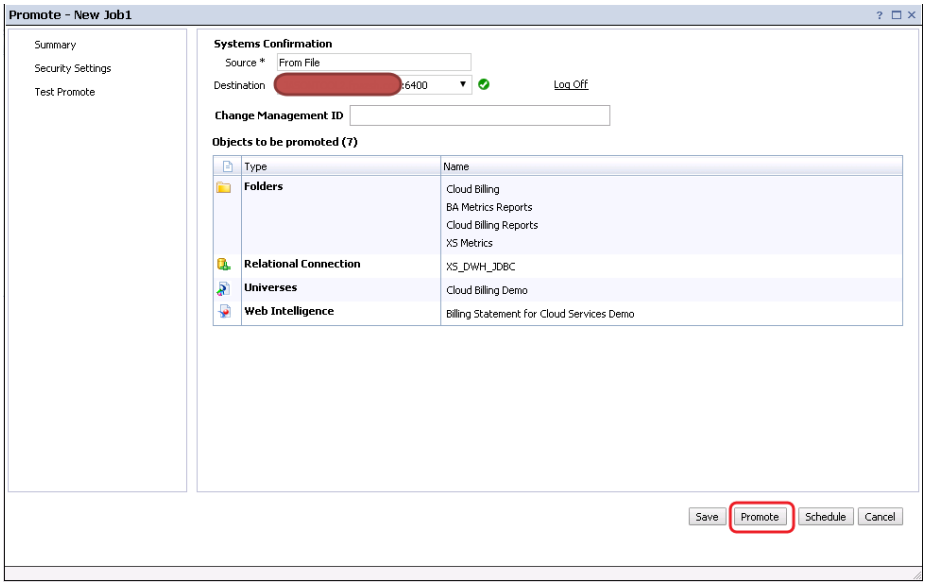


8. Click **Create** to create promotion job.

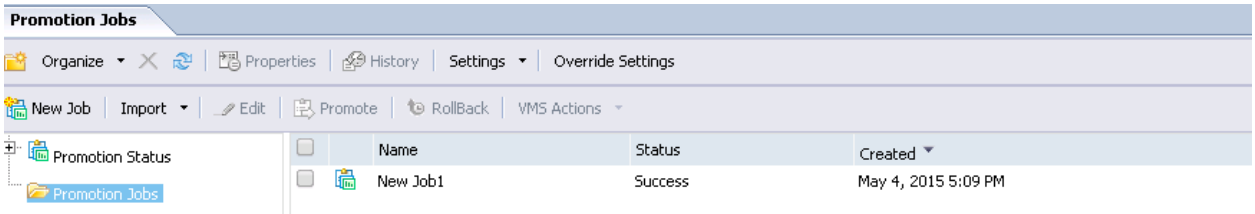
9. Click **Promote**.



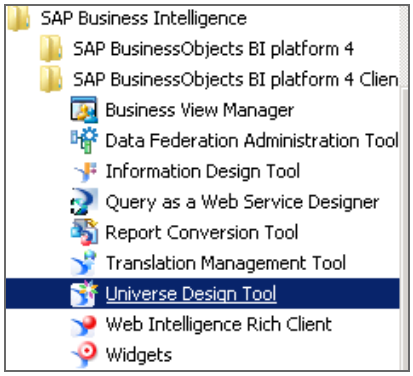
10. Click **Promote**.



The .biar file is uploaded successfully.



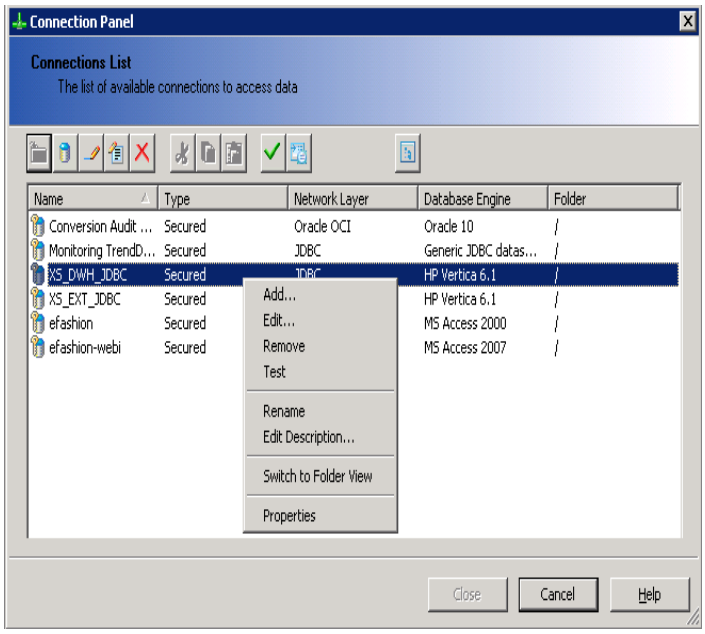
11. Log on to the **Universe Design Tool** from the BOE Client.



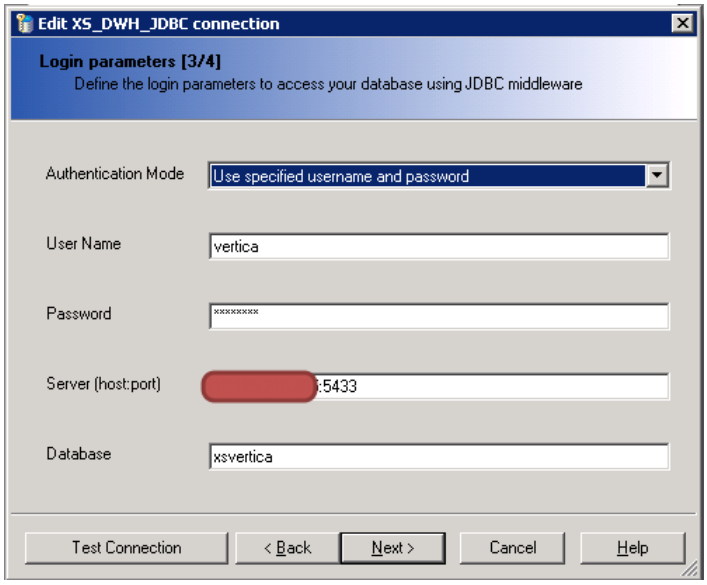
12. Click **Tools > Connections...**. Edit the relevant connection.

    If you are uploading the CSA CAP, edit **XS_DWH_JDBC**.

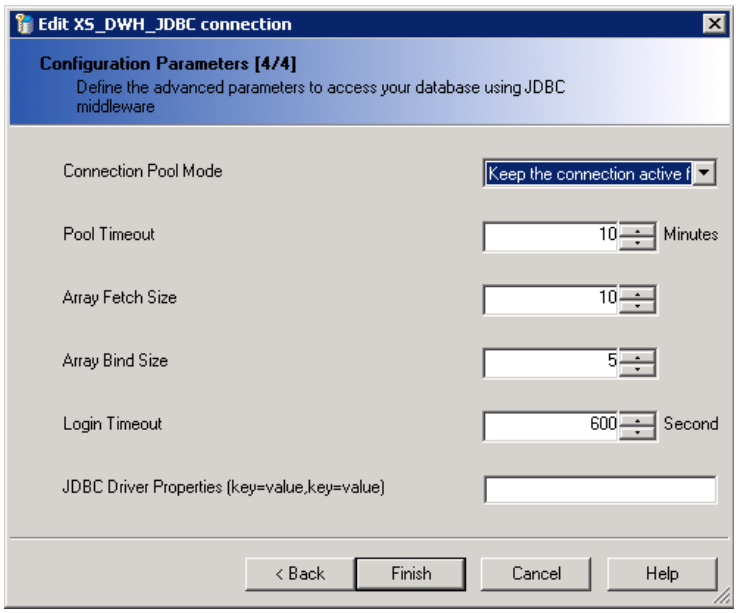
    If you are uploading the CSA_Demo CAP, edit **XS_EXT_JDBC**.



13. Enter the relevant connection message of the Vertica server and click **Next**.



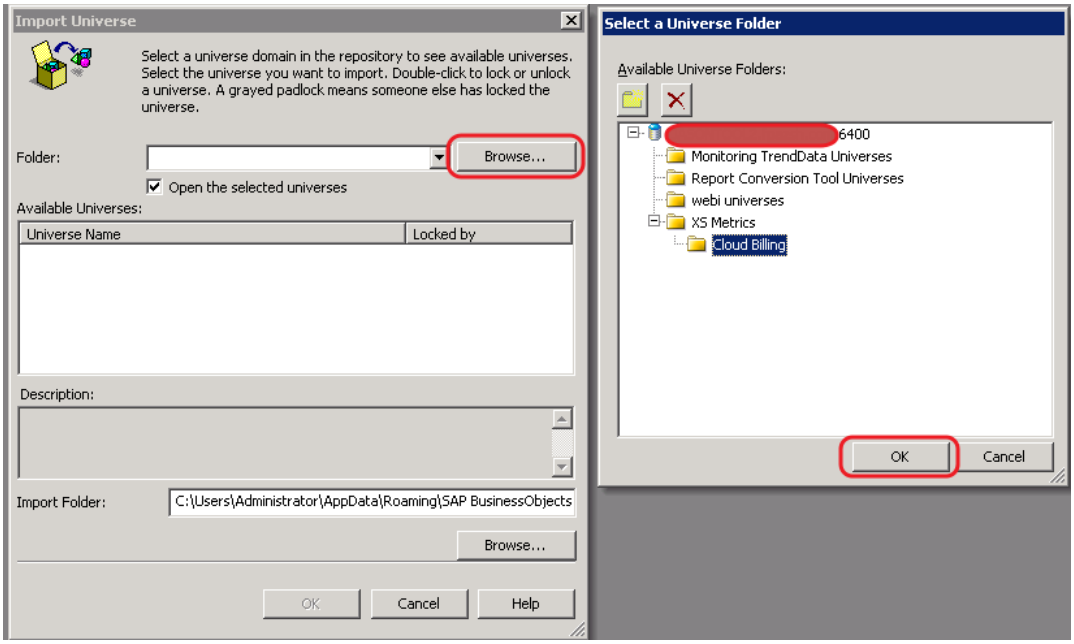
14. Click **Next > Finish > Close**.



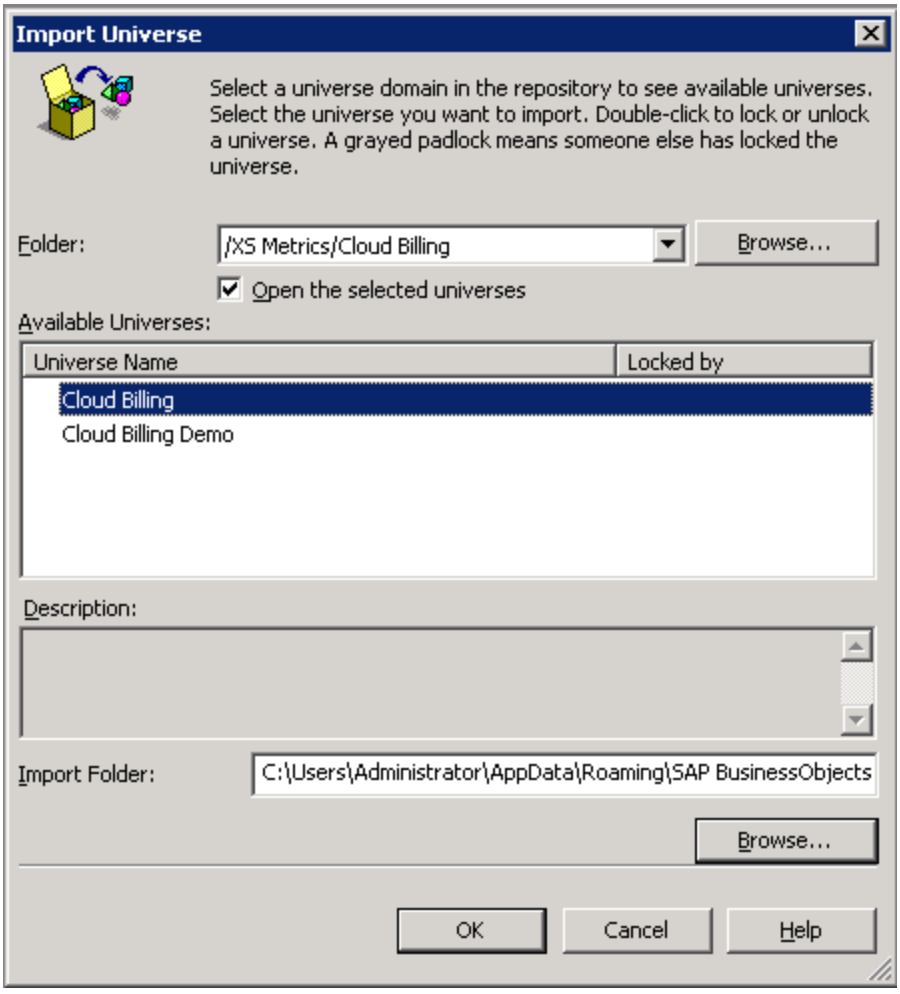
The import of the .biar files is complete.

15. By default, the application schema name is **BA**, the extension schema name is **ext**, and the database name is **xsvertica**. If the customer server settings are different, change the as shown below.

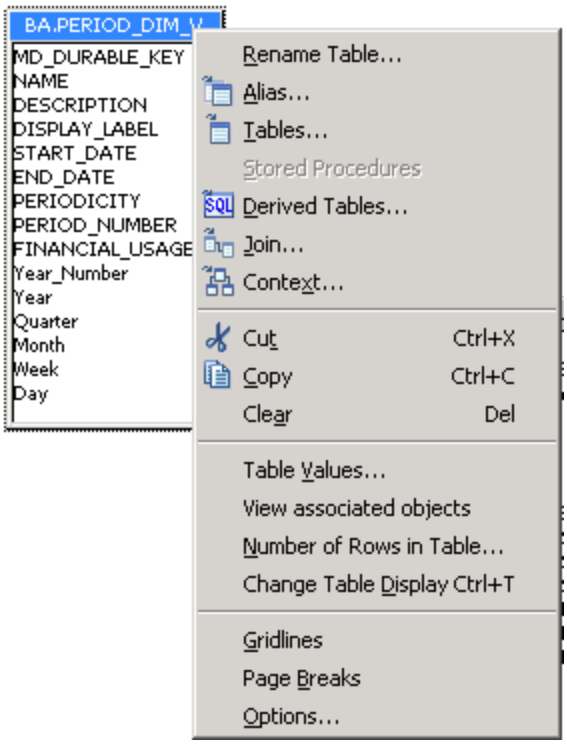
a. Click **File > Import...**, and select the **Cloud Billing** universe directory.



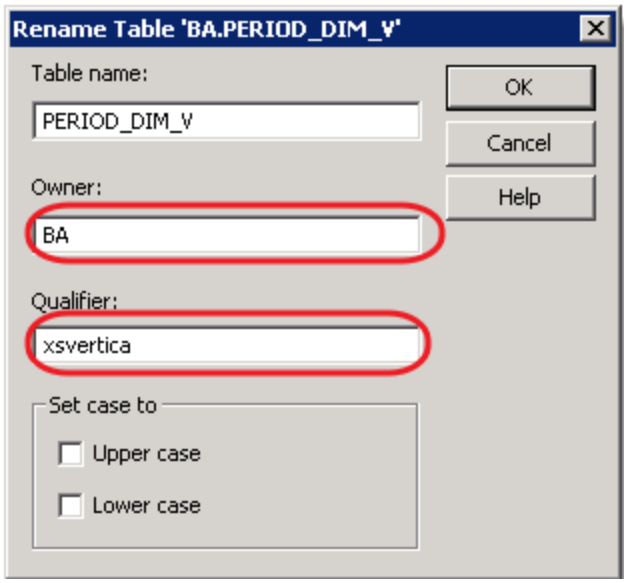
b. Select **Cloud Billing** and click **OK**.


Import Universe
Select a universe domain in the repository to see available universes. Select the universe you want to import. Double-click to lock or unlock a universe. A grayed padlock means someone else has locked the universe.
Folder:
/XS Metrics/Cloud Billing
Browse...
Open the selected universes
Available Universes:
Universe Name
Locked by
Cloud Billing
Cloud Billing Demo
Description:
Import Folder:
C:\Users\Administrator\AppData\Roaming\SAP BusinessObjects
Browse...
OK
Cancel
Help

c. Right-click the relevant table, and select **Rename Table**.



d. In the **Owner** field enter the correct application schema name and in the **Qualifier** field enter the correct database name.



e. After modifying all the relevant tables as shown above, click **File > Export...**.

f. Click **OK** to upload the changes to BOE the server.

16. Proceed in the same way for the Cloud Billing Demo universe directory.

Troubleshooting

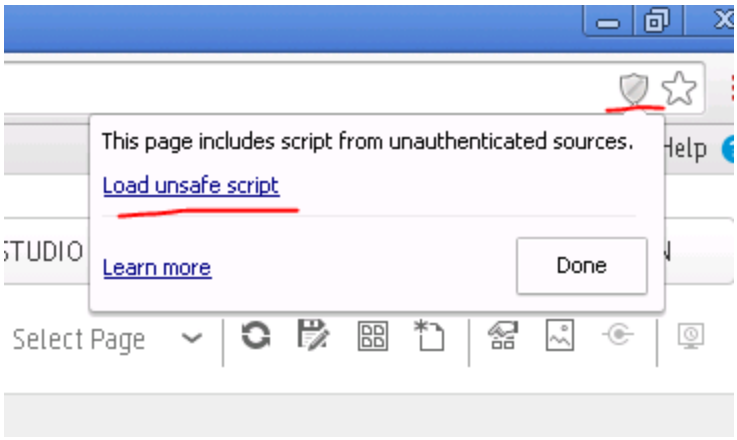
This section includes:

The billing statement (Showback) report does not display in Chrome and IE 162

The billing statement (Showback) report does not display in Chrome and IE

To run the BOE reports in an BA Dashboard page, you must set Chrome to allow the running of unsecure content, by default. If you do not do that, the shield icon is displayed in the browser address bar, each time you start the application. .

- In Chrome, click the gray shield on the right top corner of the application, click **Load unsafe script**, and click **Done**.



- In IE, click the **Show all content** link.

Integration with CO

The integration with Cloud Optimizer (CO) as a data source enables accessing vCenter and HP Helion data.

Cloud Optimizer (CO) is a web-based analysis and visualization tool that analyzes performance trends of elements in virtualized environments. CO gives you at-a-glance visibility across your virtual environment for real-time insights into performance, capacity, and health. This helps you to optimize your infrastructure and quickly solve virtualization and cloud performance issues. It enables virtualization monitoring by providing an overview of the environment, near-real-time and historical data analysis and triaging using an interactive dashboard. It also enables monitoring for cloud and hypervisor environments. CO provides performance monitoring, graphing, and reporting in a single interface.

The purpose of the integration of CO as a data source is to bring this information into the Data Warehouse.

The data extracted from CO is correlated to the data available in the KPIs and reports available in the CSA CAP. For details, see CSA_Demo and CSA Content Acceleration Packs in the *Content Acceleration Packs Guide*.

To access:

Select **ADMIN > Data Management > Connect Data Source** then click **Add data source** and select **CO** to activate the integration processes for the **CO** data source.

Learn More

Content Packs and their functionality

To learn about Content Packs and their functionality, see Connect the Data Source in the *Administrator Guide*.

Important Information

- The CO Content Pack supports multiple instances.
- **DCS Integration:** An extractor using the Data Collection Service mechanism that extracts entities from the source and generates corresponding flat files. For details, see Data Collection Service (DCS) in the *Administrator Guide*.
- All fields are case-sensitive.
- CO must be activated with the CSA data source. If you activate CO alone, you cannot see relevant CO data in the KPIs and reports.

For details, see CSA_Demo and CSA Content Acceleration Packs in the *Content Acceleration Packs Guide*.

Tasks

This section includes:

Activate the Integration 164
Change the default price of the CO private cloud resources 164

Activate the Integration

1. Select **ADMIN > Data Management > Connect Data Source** then click **Add data source**.
2. The Add Data Source page opens. Select the CO data source type.
3. Select or enter the configuration parameters.
4. Click **Next** to proceed to the validation page.

Change the default price of the CO private cloud resources

To help you calculate the cost for CO supported private cloud resources (CPU, Memory, Disk), ITBA has pre-configured their default prices.

To change the default price:

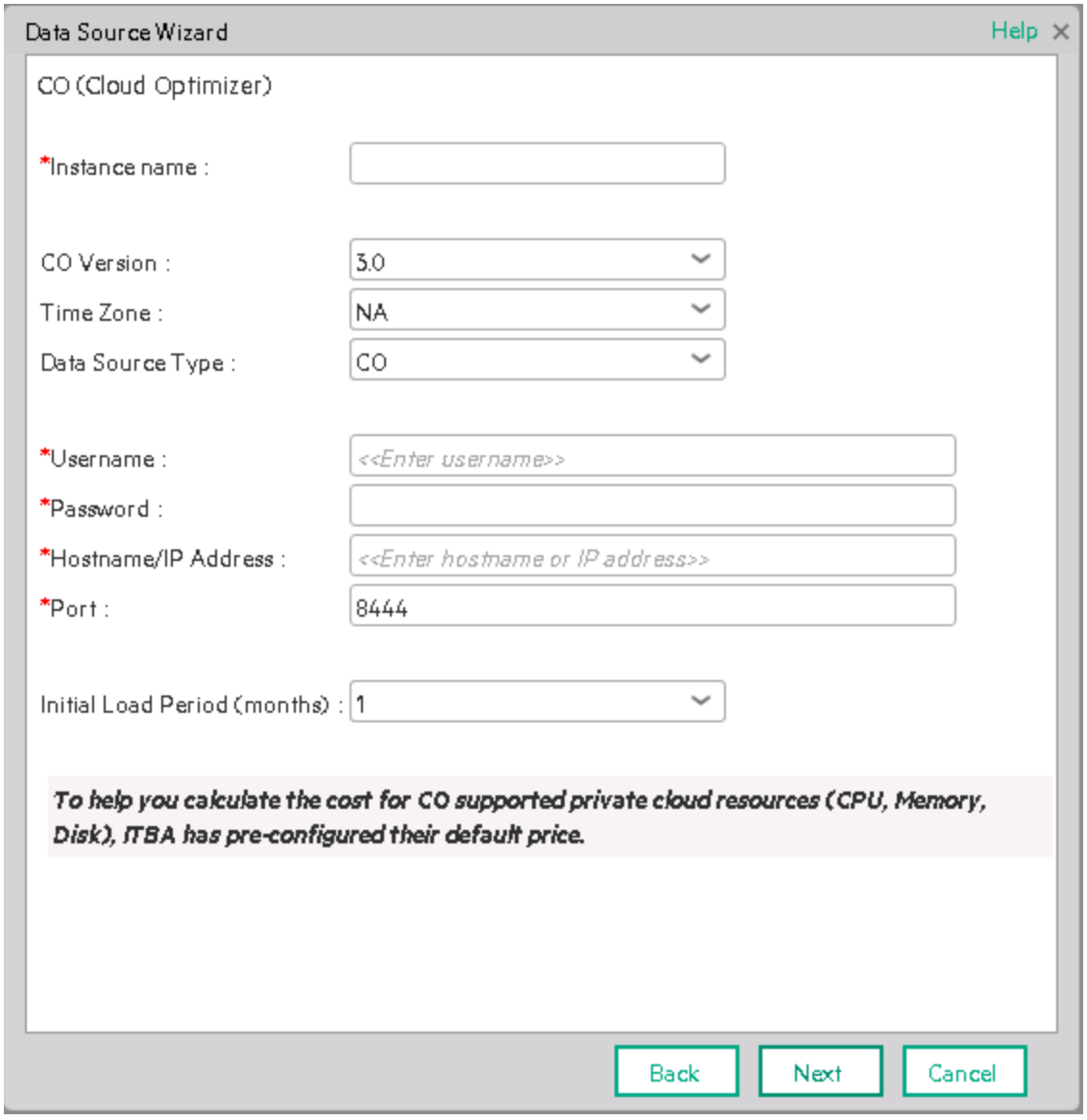
1. Log on to the ITBA server.
2. Edit the last column in the **PRICING_MODEL.csv** located in **$HPBA_ Home/ContentPacks/CO/EXTERNAL**. The column provides the unit price.
3. Save.

   The new pricing model will be valid in the next ETL run.

UI Description

CO Activation Page

The following is an example of the CO Activation page.



User interface elements are described below:

UI Element	Description
Instance name	Enter a name for the data source instance you are activating.
CO Version	Select the relevant CO version. For details, see the *Support Matrix*.
Time Zone	Time zone must be UTC.
Data Source Type	**CO.** This parameter is read only.
COUsername	Enter your username used to log on to the CO web application.
COPassword	Enter your password used to log on to the CO web application.
Hostname/IP Address	Enter the hostname or IP address on which CO is installed.
Port	Port for CO web application.
Initial Load Period (months)	Select the number of months from which you want the initial data loaded.

Reference

CO-Related KPIs and Metrics

The KPIs and Metrics related to the integration with CO are part of the integration with CSA. For details, see KPIs and Metrics in the *Content Acceleration Packs Guide*.

Integration with PPM

Project and Portfolio Management (PPM) Software provides an integrated platform for planning, staffing and monitoring Agile development projects, as well as managing application quality. PPM Center offers a consolidated view of all IT activities so that management has better visibility into the portfolio, more effective controls, greater flexibility in applying automated processes, and better-defined quality standards.

This section describes the integration, contexts, KPIs, Metrics, and reports, if any, associated with the integration with the Project and Portfolio Management data source.

The purpose of the integration of PPM as a data source is to bring quality management information into the Data Warehouse.

To access:

Select **ADMIN > Data Management > Connect Data Source** then click **Add data source** and select **PPM** to activate the integration processes for the **PPM** data source.

Learn More

Content Packs and their functionality

To learn about Content Packs and their functionality see, Connect the Data Source in the *Administrator Guide*.

Important Information

- The PPM Content Pack supports multiple instances.
- **DCS Integration:** An extractor using the Data Collection Service mechanism that extracts entities from the source and generates corresponding flat files. For details, see Data Collection Service (DCS) in the *Administrator Guide*.
- All fields are case-sensitive.

Tasks

This section includes:

Activate the Integration 169
Consolidate PPM and ALM 169
Dimensions that are filled by CSVs 171
PPM-Related KPIs and Metrics 171

Activate the Integration

1. Select **ADMIN > Data Management > Install Content Pack** then click the install button relevant for the data source.
2. Select **ADMIN > Data Management > Connect Data Source** then click **Add data source**.
3. The Add Data Source page opens. Select the **PPM** data source type.
4. Select or enter the configuration parameters.
5. Click **Next** to proceed to the validation page.

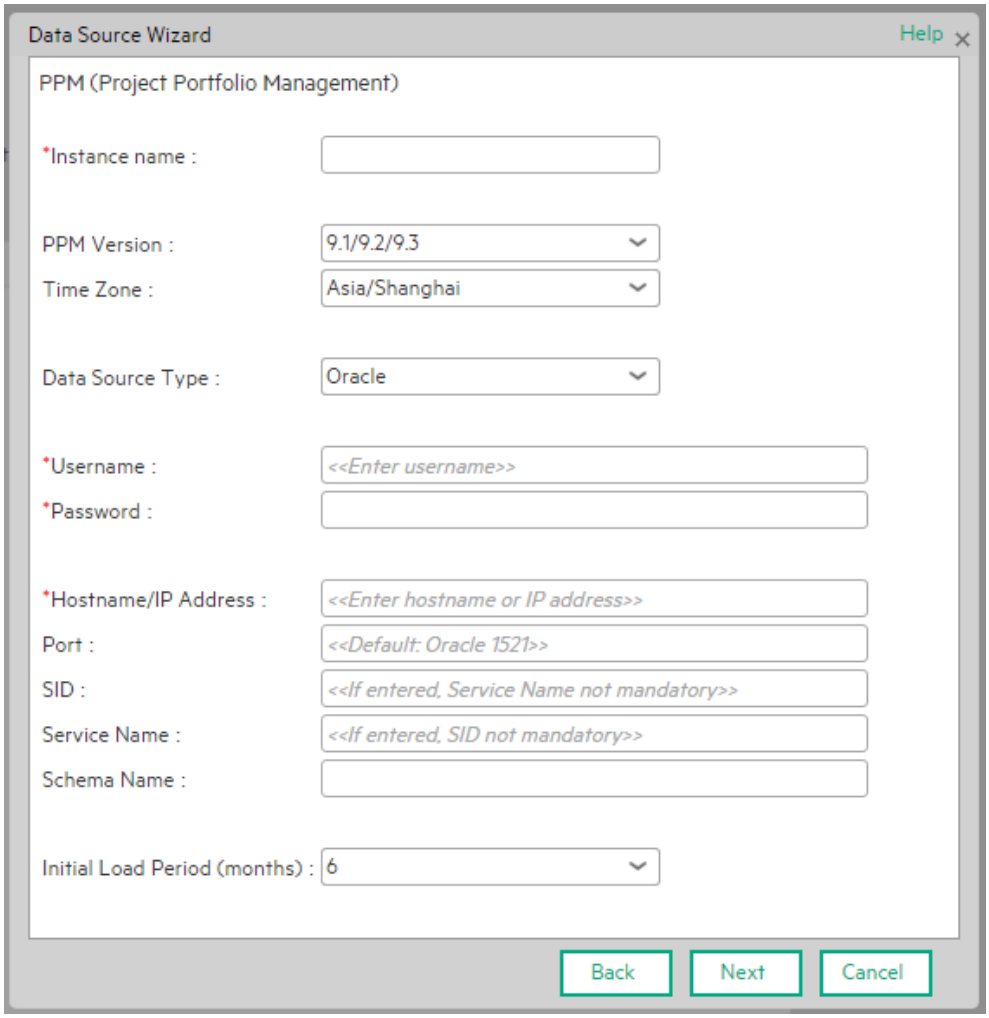
Consolidate PPM and ALM

If you are integrating ALM and PPM data sources, the consolidation process between ALM and PPM identifies ALM releases as child- projects of PPM projects.You can map which release of the ALM domain is connected to the specific PPM project. The manual mapping must be performed before running ETL. For details, see Consolidate Between ALM and PPM in the *Content Reference Guide*.

UI Description

PPM Activation Page

The data warehouse is connected to Project and Portfolio Management through high-level integration processes. A set of database views enables the extraction of the main PPM objects.



Mandatory fields are marked with a red asterisk.

User interface elements are described below:

Note: The Oracle database can have both Server ID (SID) and Service Name properties, but the

user should specify only one. If you define the SID, then the SID is used, and if you define Service Name, then Service Name is used. If you define both in the UI, only SID is used.

UI Element	Description
Instance name	Enter a name for the data source instance you are activating.
PPM Version	Select the relevant PPM version. For details, see the *Support Matrix*.
Time Zone	Select the time zone for the data source.
Data Source Type	PPM can be run only on Oracle.
Username	Enter your username used to log on to the PPM database.
Password	Enter your password used to log on to the PPM database.
Hostname/IP Address	Enter the Oracle server database hostname or IP address.
Port	Port for database connections.
SID	Enter the unique name of the database.
Service Name	Enter the alias used when connecting.
Schema Name	Enter the name of the Schema.
Initial Load Period (months)	Select the number of months from which you want the initial data loaded.

Reference

Dimensions that are filled by CSVs

- Budget
- Cost Category

PPM-Related KPIs and Metrics

For details about the KPIs and Metrics related to the integration with PPM, see KPIs and Metrics in the *Content Acceleration Packs Guide*.

Integration with SA

This section describes the integration, contexts, KPIs, Metrics, and reports, if any, associated with the integration with the Server Automation data source.

Server Automation (SA) enables you to govern the full spectrum of your software management requirements. With SA policy-based software management you can automate software installation and application configuration, and ensure that managed servers are compliant with software policies.

Note: Information about the ALT data source and more general content issues are detailed in the *Content Reference Guide*.

The purpose of the integration of SA as a data source is to bring quality management information into the Data Warehouse.

To access:

Select **ADMIN > > Data Management > Connect Data Source** then click **Add data source** and select **SA** to activate the integration processes for the **SA** data source.

Learn More

Content Packs and their functionality

To learn about Content Packs and their functionality, see Connect the Data Source in the *Administrator Guide*.

Important Information

- The SA Content Pack supports multiple instances.
- All fields are case-sensitive.

Tasks

This section includes:

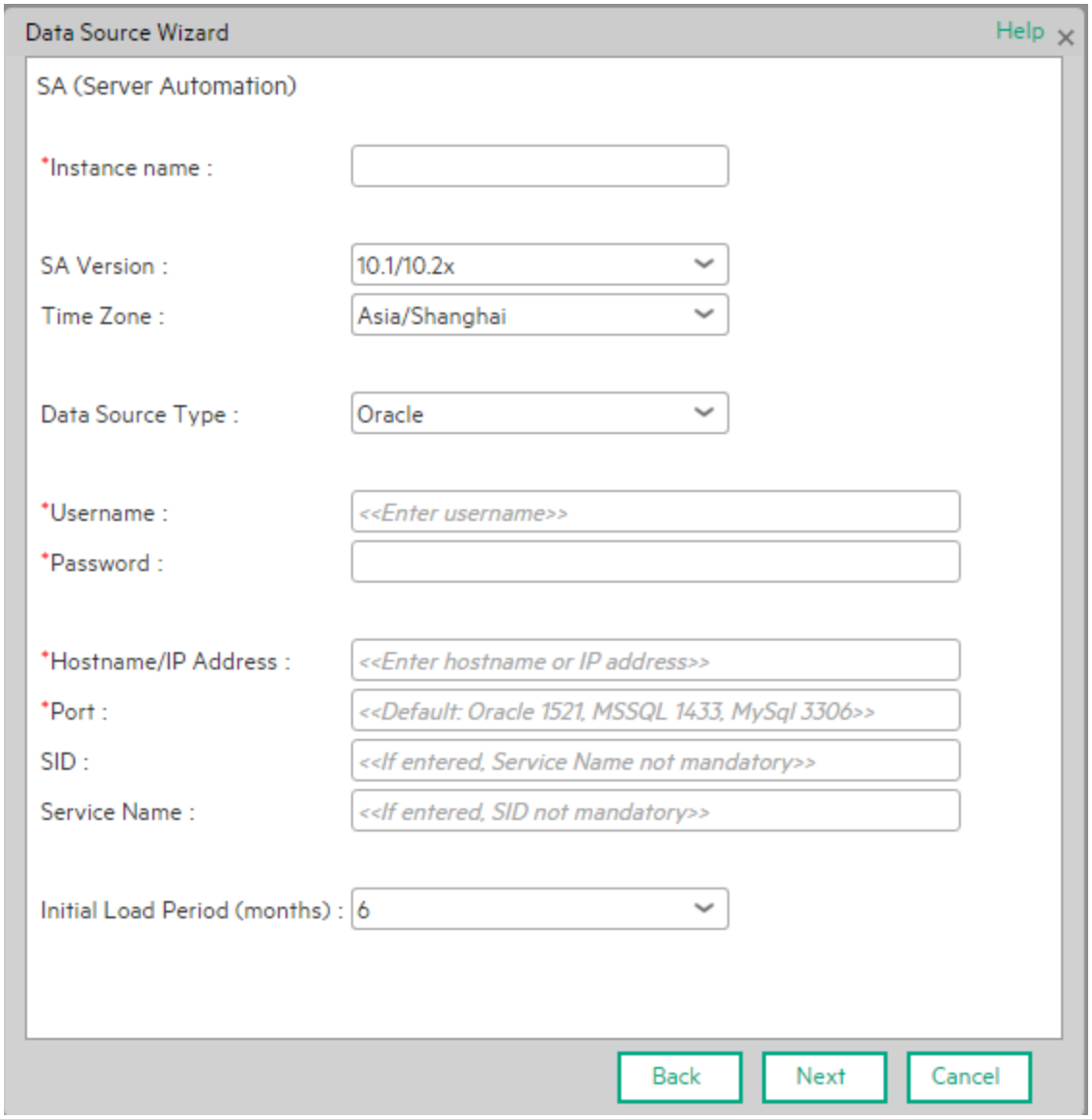
Activate the Integration 173

Activate the Integration

1. **Prerequisite:**
   - Make sure that the Server Automation Platform is ready for use, meaning a set of APIs and a runtime environment that facilitate the integration and extension of SA.
   - Check the *Support Matrix* for supported versions.
2. Select **ADMIN > Data Management > Connect Data Source** then click **Add data source**.
3. The Add Data Source page opens. Select the **SA** data source type.
4. Select or enter the configuration parameters.
5. Click **Next** to proceed to the validation page.

UI Description

SA Activation Page



Mandatory fields are marked with a red asterisk.

User interface elements are described below:

UI Element	Description
Instance name	Enter a name for the data source instance you are activating.
SA Version	Select the relevant SA version. For details, see the *Support Matrix*.
Time Zone	Select the time zone for the data source.
Data Source Type	Oracle This parameter is read only.
User	Enter your username used to log on to the SA database.
Password	Enter your password used to log on to the SA database.
Hostname/IP Address	The remote server on which the SA database resides.
Port	Enter the port in the SA server which waits for connections from the SDK Client side. By default, the port number is 443. Enter the port of the SA DB. By default, the port number is 1521.
SID	Enter the unique name of the database.
Service Name	Enter the alias used when connecting.
Initial Load Period (months)	Select the number of months from which you want the initial data loaded.

Reference

SA-Related KPIs and Metrics

For details about the KPIs and Metrics related to the integration with SA, see KPIs and Metrics in the *Content Acceleration Packs Guide*.

Integration with SM

This section describes the integration, contexts, KPIs, Metrics, and reports associated with the integration with the Service Manager data source.

Service Manager (SM) is a comprehensive and fully integrated IT Service Management software suite that enables IT to improve service levels, balance resources, control costs, and mitigate risk exposure to the organization.

The purpose of the integration of SM as a data source is to bring quality management information into the Data Warehouse.

To access:

Select **ADMIN > Data Management > Connect Data Source** then click **Add data source** and select **SM** to activate the integration processes for the **SM** data source.

Learn More

Content Packs and their functionality

To learn about Content Packs and their functionality see, Connect the Data Source in the *Administrator Guide*.

Important Information

- The SM Content Pack supports multiple instances.
- **DCS Integration:** An extractor using the Data Collection Service mechanism that extracts entities from the source and generates corresponding flat files. For details, see Data Collection Service (DCS) in the *Administrator Guide*.
- All fields are case-sensitive.
- **SM DBdict (Database Dictionary) Interface:** The structure of the SM database may differ

according to SM version. The SM FBI extractor uses the DBdict interface containing the map between entities and physical tables. Dbdict interface for SM, maintains a logical view of RDBMS tables and columns in the database dictionary. DBdict describes how each table and column in your system is mapped to logical entities within SM. The SM applications use the logical definitions in the database dictionary to query and manage the actual records in your RDBMS. DBDict is used to avoid SM version compatibility issues.

Tasks

Activate the Integration

1. **Prerequisite:**

   The SM data source can work with either the Oracle, SQL Server, or DB2 Server type.
2. Select **ADMIN > Data Management > Install Content Pack** then click the install button relevant for the data source.
3. Select **ADMIN > Data Management > Connect Data Source** then click **Add data source**.
4. The Add Data Source page opens. Select the **SM** data source type.
5. Select or enter the configuration parameters.
6. Click **Next** to proceed to the validation page.

UI Description

SM Activation Page

The data warehouse is connected to SM through high-level integration processes.

In the Data Source Type field, if you select 7.11 or 9.2 or 9.3 in SM Version, the data sources are:

- MSSQL(Non dbdict)
- Oracle(Non dbdict)
- MSSQL(dbdict)

- Oracle(dbdict)
- DB2(dbdict)

If you select 9.4 or 9.41 in SM Version, the data source types are:

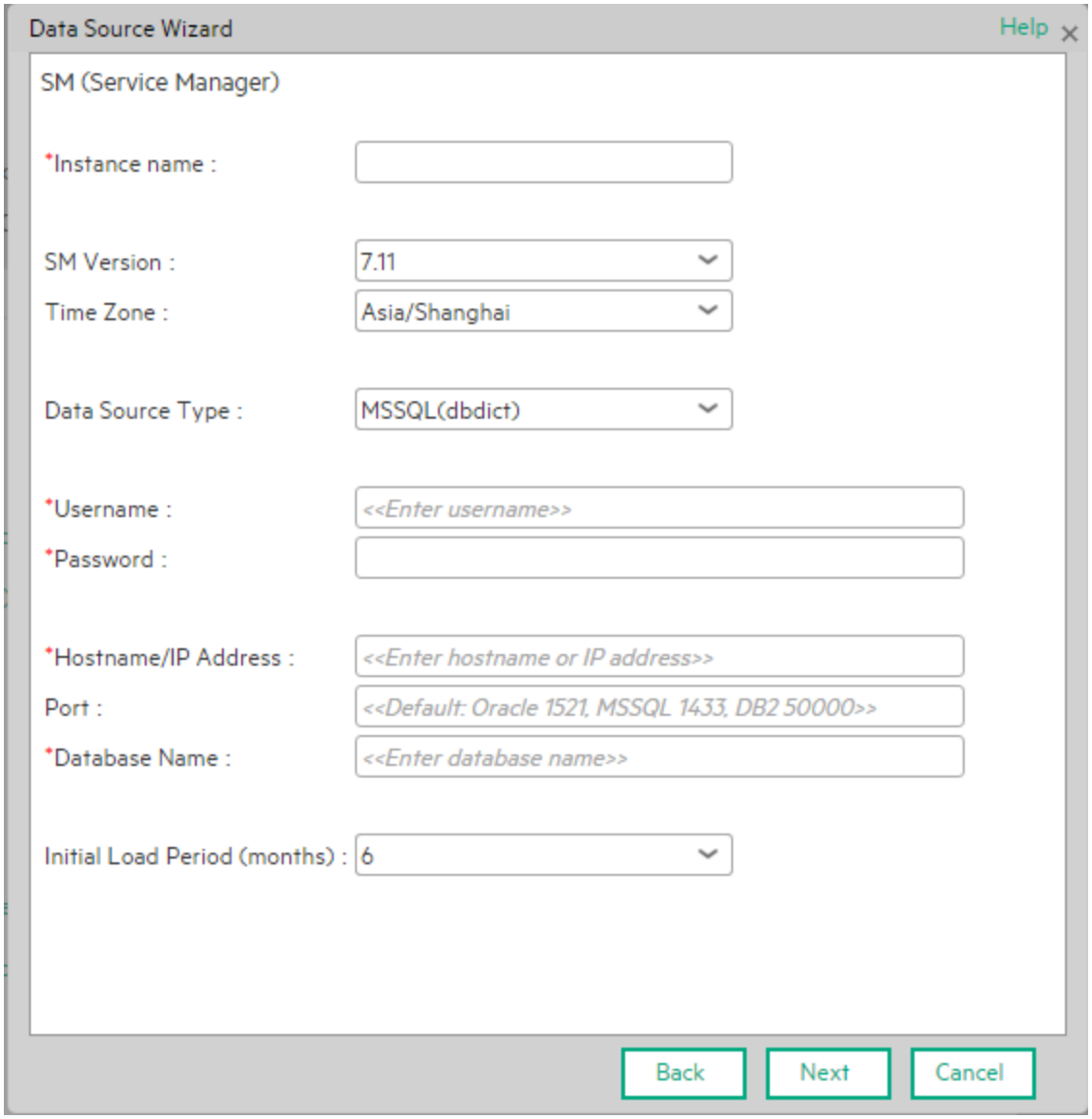
- MSSQL(dbdict)
- Oracle(dbdict)

User interface elements are described below:

For the SQL server

The following is an example of the SM Activation page when SM is installed on an SQL server.

Mandatory fields are marked with a red asterisk.



UI Element	Description
Instance name	Enter a name for the data source instance you are activating.
SM Version	Select the relevant SM version. For details, see the *Support Matrix*.
Time Zone	**UTC** is recommended.
Data Source	• Select **MSSQL(dbdict)**. It is recommended to configure SM to run on an

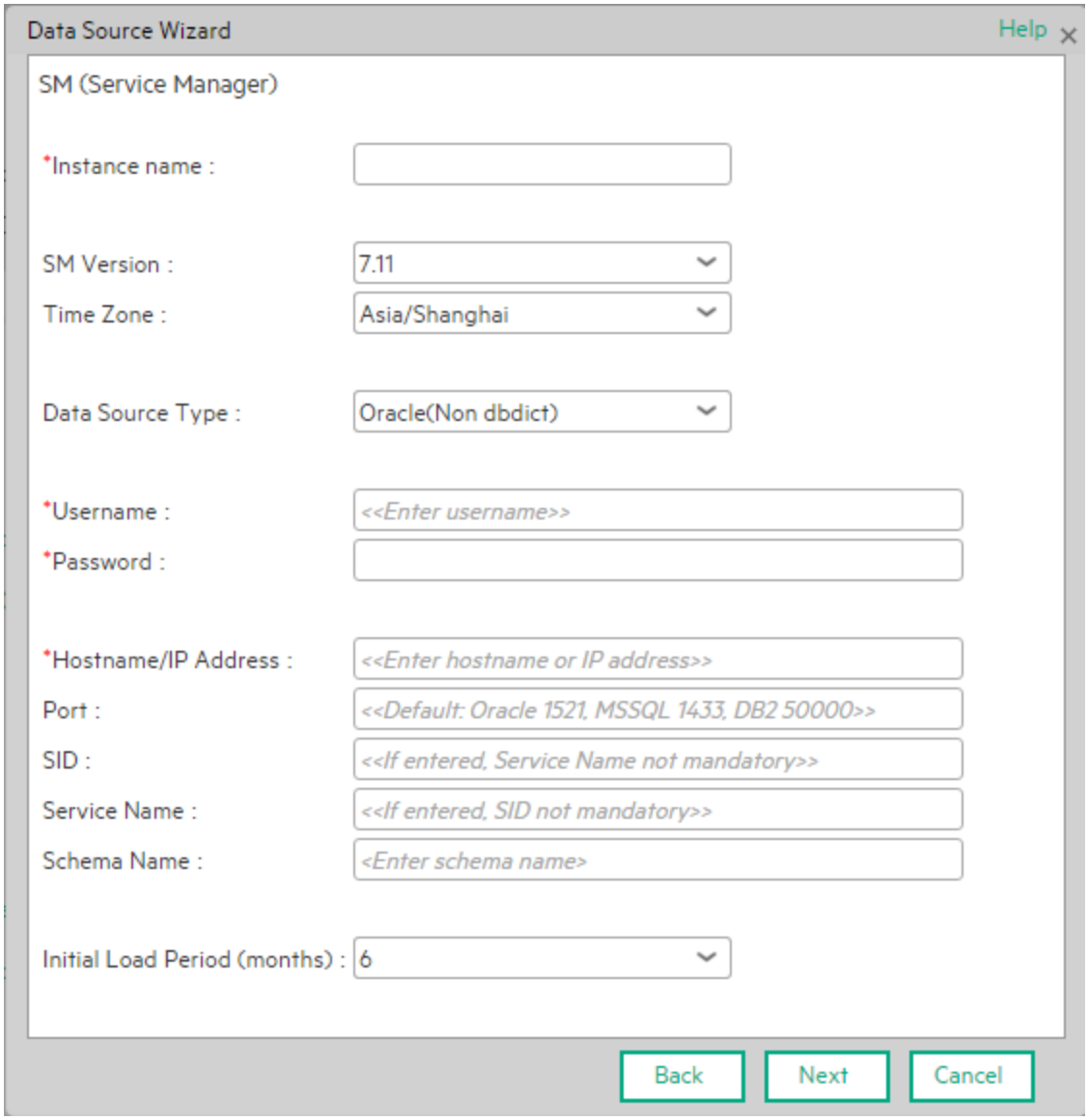
UI Element	Description
Type	SQL Server through DBdict (SM application interface). • Select **MSSQL(Non dbdict)** Configure SM to run on a regular MSSQL server.
Username	Enter your username used to log on to the SM database.
Password	Enter your password used to log on to the SM database.
Hostname/IP Address	Enter the SQL data source hostname or IP address. If you connect to Named Instance, enter: **<host_name or IP Address>\<instance_name>**.
Port	Port for database connections.
Database Name	Enter the name of the database for the MS SQL server.
Initial Load Period (months)	Select the number of months from which you want the initial data loaded.

For the Oracle server

Note: The Oracle database can have both Server ID (SID) and Service Name properties, but the user should specify only one. If you define the SID, then the SID is used, and if you define Service Name, then Service Name is used. If you define both in the UI, only SID is used.

The following is an example of the SM Activation page when SM is installed on an Oracle server.

Mandatory fields are marked with a red asterisk.



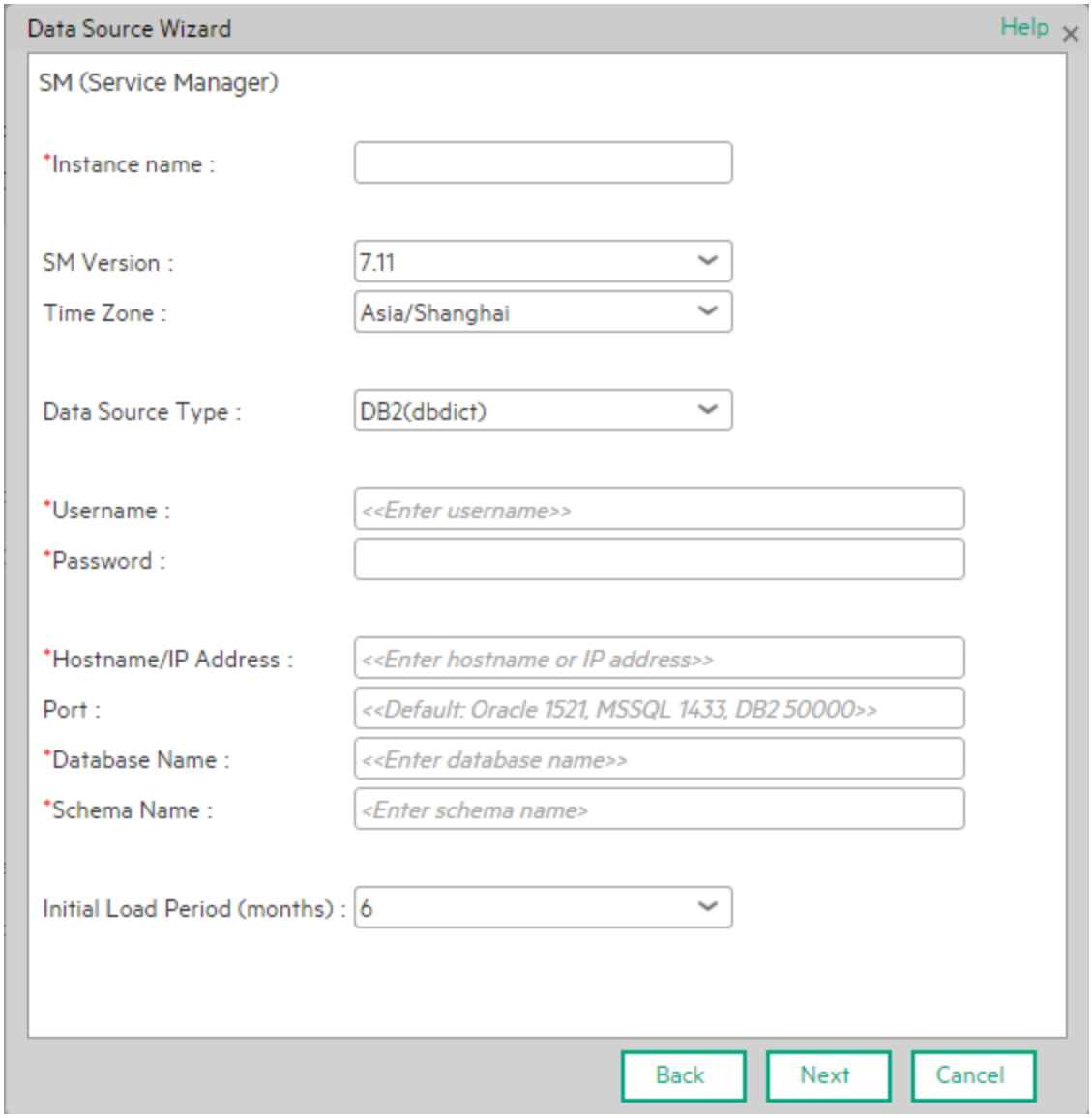
UI Element	Description
Instance name	Enter a name for the data source instance you are activating.
SM Version	Select the relevant SM version. For details, see the *Support Matrix*.
Time Zone	Select the time zone for the data source.
Data Source	• Select **Oracle(dbdict)**. It is recommended to configure SM to run on an

UI Element	Description
Type	Oracle Server through DBdict (SM application interface). • Select **Oracle(Non dbdict)** Configure SM to run on a regular Oracle server.
Username	Enter your username used to log on to the SM database.
Password	Enter your password used to log on to the SM database.
Hostname/IP Address	Enter the Oracle data source hostname or IP address. If you connect to Named Instance, enter: **<host_name or IP Address>\<instance_name>**.
SID	Enter the unique name of the database.
Service Name	Enter the alias used when connecting.
Schema Name	Enter the name of the Schema.
Initial Load Period (months)	Select the number of months from which you want the initial data loaded.

For the DB2 server

The following is an example of the SM Activation page when SM is installed on a DB2 server.

Mandatory fields are marked with a red asterisk.



UI Element	Description
Instance name	Enter a name for the data source instance you are activating.
SM Version	Select the relevant SM version. For details, see the *Support Matrix*.
Time Zone	**UTC** is recommended.
Data Source	Select **DB2(dbdict)**. Configure SM to run on an IBM DB2 database.

UI Element	Description
Type	
Username	Enter your username used to log on to the SM database.
Password	Enter your password used to log on to the SM database.
Hostname/IP Address	Enter the data source hostname or IP address. Currently only the default port for connecting to MS SQL data sources is supported. There is no option to connect to a SQL server named instance. Only the default instance is supported.
Port	Port for database connections.
Database Name	Enter the name of the database for the MS SQL server.
Schema Name	Enter the db_owner of the source entities for the Oracle server, if your user who deploys the data source is not the db_owner of the source entities. When integrating with SM 7.11, make sure the name does not include the double-quote character as the character is not supported by the Data Collection Service (DCS).
Initial Load Period (months)	Select the number of months from which you want the initial data loaded.

Reference

SM-Related KPIs and Metrics

For details about the KPIs and Metrics related to the integration with SM, see KPIs and Metrics in the *Content Acceleration Packs Guide*.

List of Entities

PRODUCT NAME	SOURCE ENTITY	Table
ALM	CYCLE	CYCLE_DIM

PRODUCT NAME	SOURCE ENTITY	Table
ALM	DEFECT	DEFECT_DIM
ALM	DEFECT_PLHD	DEFECT_PLHD_DIM
ALM	DEFECT_LINK	DEFECT_REQUIREMENT_BRIDGE_FACT
ALM	DEFECT_LINK	DEFECT_TESTINSTANCE_BRIDGE_FACT
ALM	DEFECT_REOPEN_MAPPING	DEFECTHIST_FACT
ALM	DEFECTHIST	DEFECTHIST_FACT
ALM	RELEASE	PROJECT_DIM PROJECT_FACT
ALM	RELEASE_MAPPING	PROJECT_DIM PROJECT_FACT
ALM	RELEASE_PLHD	PROJECT_PLHD_DIM
ALM	REQUIREMENT	REQUIREMENT_DIM
ALM	REQUIREMENT_TYPE	REQUIREMENT_DIM
ALM	REQUIREMENTHIST	REQUIREMENT_DIM
ALM	CYCLE	REQUIREMENT_BRIDGE_FACT
ALM	REQUIREMENT	REQUIREMENT_BRIDGE_FACT
ALM	REQUIREMENT_PLHD	REQUIREMENT_PLHD_DIM
ALM	REQUIREMENTHIST	REQUIREMENTHIST_FACT
ALM	TEST	TEST_DIM
ALM	TEST_PLHD	TEST_PLHD_DIM
ALM	TESTHIST	TESTHIST_FACT
ALM	CYCLE	TESTINSTANCE_DIM TESTINSTANCE_FACT
ALM	TEST	TESTINSTANCE_DIM TESTINSTANCE_FACT
ALM	TESTINSTANCE	TESTINSTANCE_DIM

PRODUCT NAME	SOURCE ENTITY	Table
		TESTINSTANCE_FACT
ALM	TESTSET	TESTINSTANCE_DIM TESTINSTANCE_FACT
ALM	TESTINSTANCE_PLHD	TESTINSTANCE_PLHD_DIM
ALM	CYCLE	TESTRUN_DIM TESTRUN_FACT
ALM	TEST	TESTRUN_DIM TESTRUN_FACT
ALM	TESTINSTANCE	TESTRUN_DIM TESTRUN_FACT
ALM	TESTRUN	TESTRUN_DIM TESTRUN_FACT
ALM	TESTSET	TESTRUN_DIM TESTRUN_FACT
ALM	TESTRUN_PLHD	TESTRUN_PLHD_DIM
ALM	CYCLE	TESTSET_DIM
ALM	TESTSET	TESTSET_DIM
ALM	TESTSET_PLHD	TESTSET_PLHD_DIM
AM	AMCURRATE	ACTUALCOST_FACT
AM	AMEXPENSELINE	ACTUALCOST_FACT
AM	AMMODEL	ACTUALCOST_FACT
AM	AMNATURE	ACTUALCOST_FACT
AM	AMPORTFOLIO	ACTUALCOST_FACT
AM	AMASSET	ASSET_DIM
AM	AMMODEL	ASSET_DIM
AM	AMNATURE	ASSET_DIM
AM	AMPORTFOLIO	ASSET_DIM

PRODUCT NAME	SOURCE ENTITY	Table
AM	AMBUDGET	BUDGET_DIM
AM	AMBUDGCENTER	BUDGETCENTER_DIM
AM	AMBUDGLINE	BUDGETLINE_DIM
AM	AMASSET	CI_DIM
AM	AMCOMPUTER	CI_DIM
AM	AMMODEL	CI_DIM
AM	AMNATURE	CI_DIM
AM	AMPORTFOLIO	CI_DIM
AM	AMCONTRACT	CONTRACT_DIM
AM	AMBUDGETCATEGORY	COSTCATEGORY_DIM
AM	AMCOSTCATEGORY	COSTCATEGORY_DIM
AM	AMCOSTCENTER	COSTCENTER_DIM
AM	AMCURRATE	EXCHANGE_DIM
AM	AMCOMPANY	LOCATION_DIM
AM	AMCOUNTRY	LOCATION_DIM
AM	AMLOCATION	LOCATION_DIM
AM	AMMODEL	MODEL_DIM
AM	AMASSET	NODE_DIM
AM	AMCOMPUTER	NODE_DIM
AM	AMMODEL	NODE_DIM
AM	AMNATURE	NODE_DIM
AM	AMPORTFOLIO	NODE_DIM
AM	AMCOMPANY	ORG_DIM
AM	AMEMPLDEPT	ORG_DIM
AM	AMCONTACT	PERSON_DIM
AM	AMEMPLDEPT	PERSON_DIM
AM	AMBUDGCENTER	PLANNEDCOST_FACT

PRODUCT NAME	SOURCE ENTITY	Table
AM	AMBUDGET	PLANNEDCOST_FACT
AM	AMBUDGLINE	PLANNEDCOST_FACT
AM	AMCURRATE	PLANNEDCOST_FACT
AM	AMEMPLDEPT	PLANNEDCOST_FACT
AM	AMPORDER	PORDER_DIM
AM	AMPORDLINE	PORDLINE_DIM
AM	AMPROJECT	PROJECT_DIM PROJECT_FACT
AM	AMRECEIPT	RECEIPT_DIM
AM	AMPORDLINE	RECEIPTLINE_FACT
AM	AMRECEIPT	RECEIPTLINE_FACT
AM	AMRECEIPTLINE	RECEIPTLINE_FACT
AM	AMPORTFOLIO	SOFTINSTALL_FACT
AM	AMSOFTINSTALL	SOFTINSTALL_FACT
AM	AMBRAND	SOFTLICCOUNTER_FACT
AM	AMSOFTLICCOUNTER	SOFTLICCOUNTER_FACT
AM	AMWORKORDER	WORKORDER_DIM WORKORDER_FACT
AWS	COSTALLOCATION	SERVICE_PROVIDER_BILLING_ FACT
AWSCW	INSTANCE_DESC	NODE_DIM
AWSCW	INSTANCE_DESC	SERVICE_PROVIDER_ UTILIZATION_FACT
AWSCW	UTILIZATION_METRICS	SERVICE_PROVIDER_ UTILIZATION_FACT
AZURE	VMINFO	NODE_DIM
AZURE	RATECARD	SERVICE_PROVIDER_BILLING_ FACT
AZURE	SUBSCRIPTION	SERVICE_PROVIDER_BILLING_

PRODUCT NAME	SOURCE ENTITY	Table
		FACT
AZURE	USAGE_METRICS	SERVICE_PROVIDER_BILLING_ FACT
AZURE	VMINFO	SERVICE_PROVIDER_BILLING_ FACT
AZURE	VMINFO	SERVICE_PROVIDER_ UTILIZATION_FACT
AZURE	WADMETRICS	SERVICE_PROVIDER_ UTILIZATION_FACT
CO	VMUTIL	NODE_DIM
CO	PRICING_MODEL	SERVICE_PROVIDER_BILLING_ FACT
CO	VMUTIL	SERVICE_PROVIDER_BILLING_ FACT
CO	VMUTIL	SERVICE_PROVIDER_ UTILIZATION_FACT
CSA	OPTIONPROPERTY	BILLING_FACT
CSA	REQUESTOPTION	BILLING_FACT
CSA	SERVICEREQUEST	BILLING_FACT
CSA	SUBSCRIPTION	BILLING_FACT
CSA	SUBSCRIPTIONEXP	BILLING_FACT
CSA	SUBSCRIPTIONUSER	BILLING_FACT
CSA	COMPONENT	COMPONENT_DIM
CSA	COMPONENT	COMPONENT_PROPERTY_DIM
CSA	EXCHANGE	EXCHANGE_DIM
CSA	OPTIONPROPERTY	OPTION_PROPERTY_DIM
CSA	REQUESTOPTION	OPTION_PROPERTY_DIM
CSA	COMPONENT	ORG_DIM
CSA	ORG_PERSON	ORG_DIM
CSA	ORG_PERSON	PERSON_DIM

PRODUCT NAME	SOURCE ENTITY	Table
CSA	REQUESTOPTION	REQUEST_OPTION_DIM
CSA	COMPONENT	SERVICE_BLUEPRINT_DIM
CSA	SUBSCRIPTION	SERVICE_CATALOG_DIM
CSA	SUBSCRIPTION	SERVICE_CATEGORY_DIM
CSA	COMPONENT	SERVICE_INSTANCE_DIM
CSA	SERVICEOFFERING	SERVICE_OFFERING_DIM
CSA	SERVICEREQUEST	SERVICE_REQUEST_DIM
CSA	SERVICEREQUEST	SUBSCRIPTION_DIM
CSA	SUBSCRIPTION	SUBSCRIPTION_DIM
PPM	COSTCATEGORY	ACTUALCOST_FACT
PPM	KCRT_FG_PFM_ASSET	ACTUALCOST_FACT
PPM	KCRT_FG_PFM_PROJECT	ACTUALCOST_FACT
PPM	KCST_BUDG_LINE_CELLS	ACTUALCOST_FACT
PPM	KCST_BUDGET_LINES	ACTUALCOST_FACT
PPM	KCST_BUDGET_LNK_ENT	ACTUALCOST_FACT
PPM	KCST_BUDGETS	ACTUALCOST_FACT
PPM	KCST_CURRENCY_CELLS	ACTUALCOST_FACT
PPM	KCST_CURRENCY_LINES	ACTUALCOST_FACT
PPM	BUDGET	BUDGET_DIM
PPM	KCST_BUDGET_LINES	BUDGETLINE_DIM
PPM	COSTCATEGORY	COSTCATEGORY_DIM
PPM	FM_EXCHANGE_RATES	EXCHANGE_DIM
PPM	KNTA_REGIONS	LOCATION_DIM
PPM	KRSC_ORG_UNITS	ORG_DIM
PPM	KNTA_USERS	PERSON_DIM
PPM	COSTCATEGORY	PLANNEDCOST_FACT
PPM	KCRT_FG_PFM_ASSET	PLANNEDCOST_FACT

PRODUCT NAME	SOURCE ENTITY	Table
PPM	KCRT_FG_PFM_PROJECT	PLANNEDCOST_FACT
PPM	KCST_BUDG_LINE_CELLS	PLANNEDCOST_FACT
PPM	KCST_BUDGET_LINES	PLANNEDCOST_FACT
PPM	KCST_BUDGET_LNK_ENT	PLANNEDCOST_FACT
PPM	KCST_BUDGETS	PLANNEDCOST_FACT
PPM	KCST_CURRENCY_CELLS	PLANNEDCOST_FACT
PPM	KPMO_BUS_OBJ	PRJOBJECTIVE_DIM
PPM	PGM_PROGRAMS	PROGRAM_DIM
PPM	KCRT_FG_PFM_PROJECT	PROJECT_DIM PROJECT_FACT
PPM	PM_PROJECT_TYPES	PROJECT_DIM PROJECT_FACT
PPM	PM_PROJECTS	PROJECT_DIM PROJECT_FACT
PPM	KCRT_REQUEST_DETAILS	PROJECTISSUE_DIM PROJECTISSUE_FACT
PPM	KCRT_REQUESTS	PROJECTISSUE_DIM PROJECTISSUE_FACT
PPM	PM_PROJECTS	PROJECTISSUE_DIM PROJECTISSUE_FACT
PPM	PM_PROJECTS	PROJECTTASK_DIM PROJECTTASK_FACT
PPM	WP_TASKS	PROJECTTASK_DIM PROJECTTASK_FACT
PPM	KCRT_REQUESTS	REQUEST_DIM REQUEST_FACT
PPM	KCRT_REQ_DETAILS_PLHD	REQUEST_DETAIL_PLHD_DIM

PRODUCT NAME	SOURCE ENTITY	Table
PPM	REQUEST_TYPE_UD_PLHD	REQUEST_DETAIL_PLHD_DIM
PPM	KCRT_REQ_HEADER	REQUEST_HEADER_PLHD_DIM
PPM	REQUEST_TYPE_UD_PLHD	REQUEST_HEADER_PLHD_DIM
PPM	REQ_HD_TYPE_UD_PLHD	REQUEST_TYPE_UD_PLHD_DIM
PPM	REQUEST_TYPE_UD_PLHD	REQUEST_TYPE_UD_PLHD_DIM
PPM	REQUEST_USERDATA_PLHD	REQUEST_USERDATA_PLHD_DIM
SA	COMPLIANCE_TEST_RESULT_ DEVICES	COMPLIANCE_NODE_DIM COMPLIANCE_NODE_FACT
SA	COMPLIANCE_TEST_RESULTS	COMPLIANCE_NODE_DIM COMPLIANCE_NODE_FACT
SA	SESSION_COMP_TEST_RESULTS	COMPLIANCE_NODE_DIM COMPLIANCE_NODE_FACT
SA	COMPLIANCE_TEST_RESULT_ DEVICES	COMPLIANCE_POLICY_FACT
SA	COMPLIANCE_TEST_RESULTS	COMPLIANCE_POLICY_FACT
SA	CT_COMPLIANCE_RULESETS	COMPLIANCE_POLICY_FACT
SA	SESSIONS	JOB_DIM JOB_FACT
SA	COMPLIANCE_TEST_RESULT_ DEVICES	JOB_NODE_FACT
SA	SESSION_COMP_TEST_RESULTS	JOB_NODE_FACT
SA	SESSION_PARAM_VALUES	JOB_NODE_FACT
SA	SESSIONS	JOB_NODE_FACT
SA	COMPLIANCE_TEST_RESULTS	JOB_POLICY_FACT
SA	CT_COMPLIANCE_RULESETS	JOB_POLICY_FACT
SA	SESSION_COMP_TEST_RESULTS	JOB_POLICY_FACT
SA	SESSION_PARAM_VALUES	JOB_POLICY_FACT
SA	SESSIONS	JOB_POLICY_FACT

PRODUCT NAME	SOURCE ENTITY	Table
SA	DEVICES	NODE_DIM
SA	APP_POLICY	POLICY_DIM
SA	COMPLIANCE_RULESETS	POLICY_DIM
SA	ROLE_CLASSES	POLICY_DIM
SM	AGREEMENT	AGREEMENT_DIM
SM	DEVICE2M1	APPLICATION_DIM
SM	SMCM3RM1	CHANGE_DIM CHANGE_FACT
SM	SMCHANGEPHASE	CHANGE_PHASE_FACT
SM	SMCHANGEREJECTION	CHANGE_REJECTION_FACT
SM	DEVICE2M1	CI_DIM
SM	SMCURCONVERT	EXCHANGE_DIM
SM	PROBSUMMARY	INCIDENT_DIM INCIDENT_FACT
SM	INCIDENTSM1	INTERACTION_DIM INTERACTION_FACT
SM	SMLOCATION	LOCATION_DIM
SM	MODELM1	MODEL_DIM
SM	DEVICE2M1	NODE_DIM
SM	ASSIGNMENTM1	ORG_DIM
SM	COMPANYM1	ORG_DIM
SM	DEPTM1	ORG_DIM
SM	VENDORM1	ORG_DIM
SM	CONTCTSM1	PERSON_DIM
SM	ROOTCAUSEM1	PROBLEM_DIM PROBLEM_FACT
SM	REQUESTM1	REQUEST_DIM

PRODUCT NAME	SOURCE ENTITY	Table
		REQUEST_FACT
SM	BIZSERVICEM1	SERVICE_DIM
SM	SLAM1	SLA_DIM
SM	AGREEMENT	SLA_BREACHED_OLA_FACT
SM	SLTPROCESSSTATUS	SLA_BREACHED_OLA_FACT
SM	SLTSERVICESTATUS	SLA_BREACHED_OLA_FACT
SM	AGREEMENT	SLA_BREACHED_UC_FACT
SM	SLTPROCESSSTATUS	SLA_BREACHED_UC_FACT
SM	SLTSERVICESTATUS	SLA_BREACHED_UC_FACT
SM	SMSLAOUTAGE	SLAOUTAGE_FACT
SM	SLAMONTHLYM1	SLASTATUS_FACT
SM	SLARESPONSEM1	SLASTATUS_FACT
SM	SLOAVAIL1M1	SLT_DIM
SM	SLOM1	SLT_DIM
SM	ALERTM1	SLTSTATUS_FACT
SM	SLTPROCESSSTATUS	SLTSTATUS_FACT
SM	SLTSERVICESTATUS	SLTSTATUS_FACT

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