

HP Service Health Reporter

For the Windows[®] and Linux operating systems

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Content Development - Getting Started Guide

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Chapter 1

Introduction

This guide provides an overview of HP Service Health Reporter (SHR) content development and describes the process of creating a content pack. You will use sample files available in your SHR installation media and the instructions in this guide to create a sample content pack.

Note: HP does not provide support for Content Packs created or modified with the Content Development Environment (CDE) tool, or otherwise, via HP's standard product support/service agreements. Any defects found in the underlying CDE tool, however, will be addressed by HP.

About this Guide

This guide contains the following:

1. See ["Introduction"](#) (this chapter): Provides the prerequisites and references helpful in understanding content packs and content development terminologies used in this guide.
2. See ["Content Pack Architecture and Development" on page 10](#): Describes the architecture of content packs and introduces the Content Development Environment (CDE). The CDE is a set of tools provided by SHR that enable you to develop a content pack.
3. See ["Creating a Content Pack—Getting Started" on page 14](#): Provides step-by-step instructions to create a content pack by using an example of Retail Point of Sales. You will use the sample files and templates available in the SHR media to create a working content pack.
4. See ["Creating an ETL Component Package" on page 42](#): Provides instructions and sample files to create a generic ETL content pack component, with limited capabilities, for the Retail Point of Sales example.
5. See [Glossary](#) of terms.

Who Should Read this Guide

This guide is meant for developers who want to create content packs on SHR or extend existing content packs.

Prerequisites and Reference Documentation

This guide assumes you have a prior understanding of the following:

Prerequisite	Reference Documentation
<p>HP Service Health Reporter concepts and usage</p>	<p>Read the following documents available at Start - > Programs -> HP Software -> SH Reporter - > Documentation</p> <ul style="list-style-type: none"> • Concepts Guide: This guide explains the key concepts, architecture, and typical workflow of SHR. Read this guide to understand the concept and working of content packs before you start developing any. • Installation and Configuration Guide: In this guide you find instructions to install content packs and steps to troubleshoot problems during installation of content packs. • Online Help for Administrators: In this Help you find information about monitoring the installed content packs. • Online Help for Users: In this Help you find information about the out-of-the-box content packs provided by SHR.
<p>Data Warehouse concepts</p>	<p>You can find resources related to data warehouse concepts and examples on the internet. SHR does not recommend any particular resource.</p>
<p>SAP BusinessObjects reporting concepts</p>	<ul style="list-style-type: none"> • SAP BusinessObjects Enterprise InfoView User's Guide: This guide is available at Start - > Programs -> BusinessObjects > BusinessObjects Enterprise -> Documentation. This guide provides instructions to create and work with Web Intelligence reports. • SAP BusinessObjects Universe Designer Online Help: In this Help you find information about creating, building, and managing Universes. You can launch the Help from the Universe Designer user interface. <p>For additional information and the latest help documents, see http://help.sap.com/businessobject/product_guides/.</p>
<p>XML concepts and how to create XML documents</p>	<p>You can find resources related to XML concepts and examples on the internet. SHR does not recommend any particular resource.</p>

Chapter 2

Content Pack Architecture and Development

SHR enables you to create the following content on the performance management database platform:

- **Content pack:** You can create new content packs and extend the out-of-the-box content packs provided by SHR. This guide uses an example to describe the steps to create a content pack.
- **Web Intelligence reports:** Using the SAP BusinessObjects InfoView application interface you can create new reports and customize the out-of-the-box reports provided by SHR.

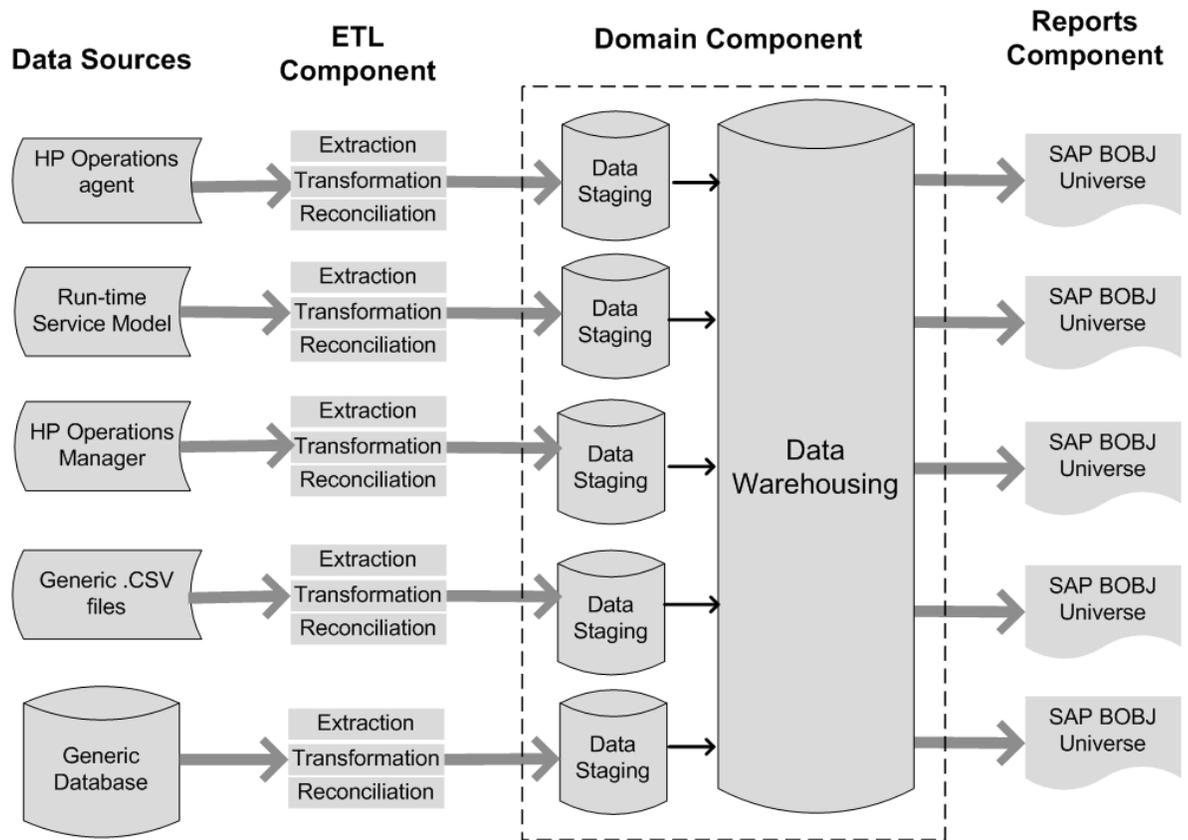
Content Pack Architecture

A content pack is a domain or application specific data mart deployed on the SHR performance management database platform. Content packs determine the metrics to be collected, how to process and store the metrics, and display the processed data on the reports.

Components of a Content Pack

A typical content pack consists of three components - the Domain, Extraction Transformation Loading (ETL), and Reports components.

The following figure shows the typical data flow between the components.



Note: The Transformation and Reconciliation steps in an ETL component are optional and may not be applicable for all data sources.

Domain Component

The Domain component defines the data model of the domain you are reporting on along with the logic to perform processing on the data. It requires domain experts to model the data according to the business requirements. This component is independent of the data source. The Domain component includes:

- The data model consisting of the facts and dimensions of the domain you are reporting on and the relationship between them.
- Workflow streams that control and monitor the processing of the data. A stream is made up of steps that are related to one another in a sequential relationship. A content pack contains a set of workflow streams that define and control the flow of data from one step to another. In the Domain component of a content pack, workflow streams are defined in XML files to load the data into tables and perform offline aggregation of the data.
- Optionally defines the dimensions and cubes for the business view to be used by one or more Reports components.

Extraction Transformation Loading (ETL) Component

The ETL component is data source dependant; it defines the collection of data from the specified data source, followed by transformation and loading of the data into the data warehouse. Therefore, for a particular domain, each data source application has a separate ETL content pack component. Before you start creating the ETL component you must identify the data source that provides the metrics suitable to be fed into the domain data model. The ETL component includes the following:

- **Data Collection (Extraction) rules:** After you identify a data source you must create a collector program or use an existing collector program to collect the required facts and dimensions from the data source. A collection policy must be written in XML to define the metrics to be collected by the collector program from the data source. The collector program collects data as defined in the collection policy and places this data into .csv files.

SHR supports data collection from a set of known data sources and provides collector programs for each such data source.

The data sources supported by SHR are:

- Run-time Service Model (RTSM)
 - HP Operations agent
 - HP Operations Manager
 - HP Business Service Management Profile Database
 - Generic .csv files
 - Databases supporting JDBC.
- **Data Transformation rules (optional):** Data transformation rules are required if the collected data, as .csv files, need to be transformed before loading the data into the data warehouse. For example, you can write a rule to remove the rows that contain an empty value in the 'host name' column. Transformation rules are written in XML files. SHR provides a data transformation utility called the 'mapper' utility for the out-of-the-box transformation rules.
 - **Data Reconciliation rules (optional):** Data reconciliation is the process of associating fact data to the corresponding dimension data. In SHR data reconciliation rules are written to associate fact data from one source to the corresponding dimension data from another source using common business keys. For example, in the Service and Operations Bridge (SaOB) deployment, the dimension data is collected from RTSM and the fact data is collected from HP Operations agent. Reconciliation rules are written in XML to reconcile the fact data with the dimension data.
 - **Data Staging rules:** After the data (in the form of .csv files) is collected, transformed, and reconciled, it is moved to staging tables. Data staging rules define how the data must be moved to staging tables including the process to merge columns and rows.

- **Workflow Stream definitions:** In the ETL component, workflow streams are defined in XML to control the data movement from collection to stage through transformation and reconciliation steps if required.

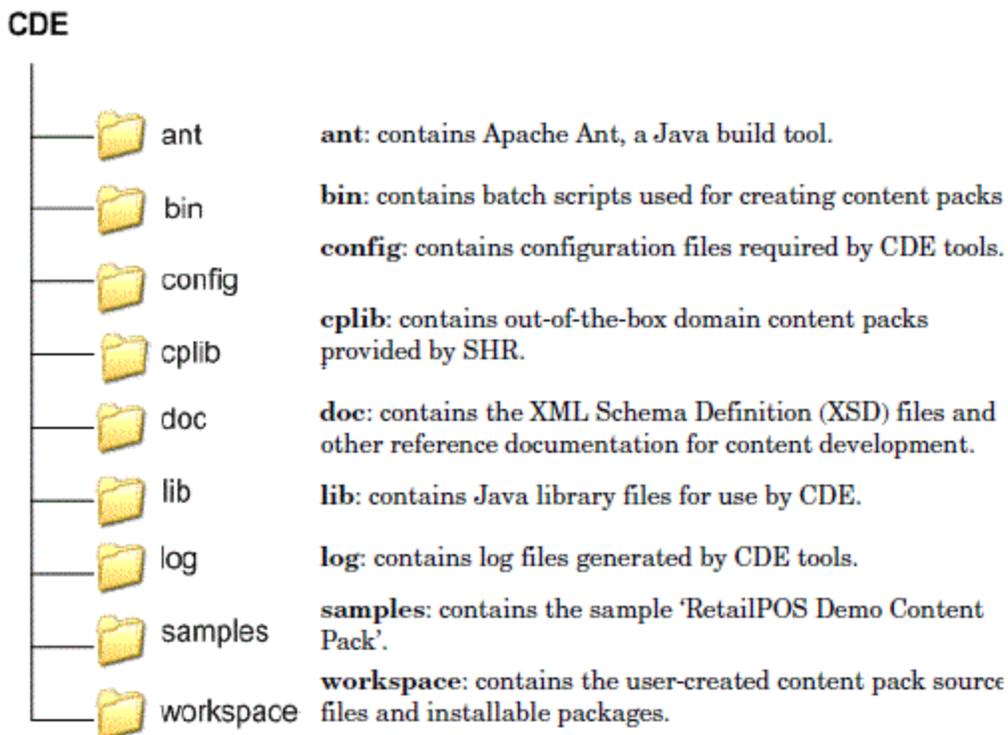
Reports Component

The Reports component contains the SAP BusinessObjects Web Intelligence reports and universes. A content pack universe provides a business-oriented meaningful mapping of the underlying complex database and simplifies the creation of reports. It is a logical view of the underlying data model that you define in the Domain component. The Reports component imports the dimensions and cubes defined in the corresponding Domain component.

Introducing the Content Development Environment

The Content Development Environment (CDE) consists of a set of tools that you use during the process of content development. These tools use XML files authored by the content pack developer to generate the installable content pack component packages.

The CDE tools are provided in the SHR media as a self-extracting CDE .exe file in the *<installation_directory>*. Upon extraction of the file contents CDE provides a folder structure as shown in the following figure.



Chapter 3

Creating a Content Pack—Getting Started

This chapter describes the steps to create a sample content pack by using a real world example related to the retail sales industry. The following flowchart shows the typical steps as well as simplified steps to create a content pack. To evaluate if you want to use the simplified steps, see section ["When to use CDE Simplified?" on the next page](#).

Preparing for Content Development

Study the Business Domain

Consider a large electronics retail chain with:

- 100 stores spread across five locations
- Each store having about 10,000 individual products on its shelves, the individual products identified by Stock Keeping Units (SKUs).

The retail chain is automated and each product has a scanner label attached to it. The collection of transaction data is done mainly at the Point-of-Sale (PoS) system at the front door of the store where the bar codes are scanned and directly entered into the system. The customer takeaway is measured at this place.

After you understand the retail store chain business you can proceed to determine the business user personas and their respective reporting requirements.

Identify User Personas and Reporting Requirements

In the Retail Point of Sales example, we consider the business management personnel as the users of the reports.

The management users are interested in a sales summary report that shows the product sales information for different product categories in stores located across different locations. The sales information must be available across time periods such as yearly, quarterly, monthly and daily.

It is recommended to create a design mock-up of the required reports at this stage. This initial mock-up can be created on paper or any design tool of choice. The actual development of the Web Intelligence reports by using SAP BusinessObjects can be done when you create the Reports component package.

Extract and Configure CDE

1. Logon to the host system where SHR is installed. In the *<installation_directory>* you find an application named `CDE.exe`.
2. Run the file `CDE.exe` to extract the CDE tools into the **CDE** folder.
3. Type **cmd** and press **ENTER** to open the Command Prompt window.
4. At the command prompt run the `cd` command to navigate to the directory where SHR is installed. Then run the following commands to change the directory:
 - a. *<installation_directory>*`cd CDE` which sets the directory at *<installation_directory>*`\CDE`.
 - b. *<installation_directory>*`\CDE> cd bin` which sets the directory at *<installation_directory>*`\CDE\bin`.

Here *<installation_directory>* is the directory where SHR is installed.

5. Run the following command:

```
setenv.bat
```

The following environment variables are set in the path

```
CDE_HOME
```

```
ANT_HOME
```

```
JRE_HOME
```

When to use CDE Simplified?

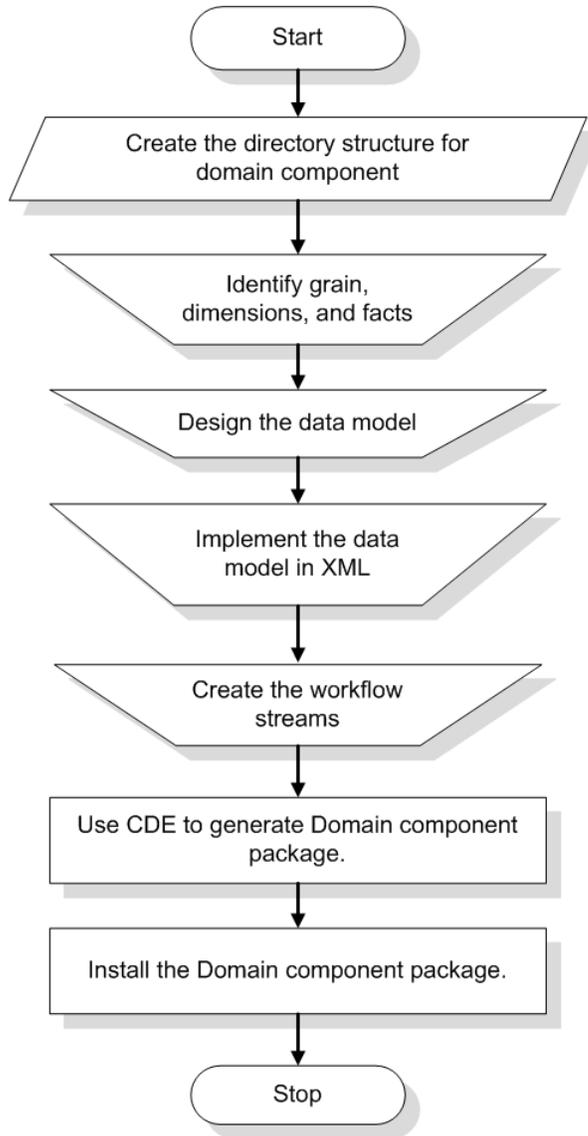
The simplified method of creating a content pack can be used in the following cases:

1. When a fact table is associated with one or more dimensions (star schema) and the dimensions are not further normalized (dimensions without a parent table).
2. When all the facts are to be reconciled against host (when HP Performance Agent is the data source).
3. When the generated reports do not require any roll up or drill down of data.

If you wish to follow the CDE simplified steps, see section [""Creating a Content Pack—Simplified" on page 49"](#). Otherwise, use the regular method for content development using section [""Creating a Content Pack—Getting Started" on the previous page"](#).

Creating and Installing the Domain Component

The following flowchart shows the typical steps to create the Domain component of a content pack.



Create the Directory Structure

To create the directory structure for the Domain component source files, at the command prompt run the following command:

```
<installation_directory>\CDE\bin>CreateCPFolders.bat -package RetailPOS -  
subpackage RetailPOSDomain -type domain
```

where,

- `<installation_directory>` is the directory where you have installed SHR
- RetailPOS is the name of the content pack you are developing
- RetailPOSDomain is the name of the Domain component within RetailPOS

The directory will contain templates provided by SHR that you will use to create the Domain component source files — the model XML and the workflow streams XML files.

SHR provides sample source files for the Retail POS content pack at the following location. You can use these files as reference to create your own content pack.

`%CDE_HOME%\samples\RetailPOS_Demo_Content_Pack\Source\`

Identify the Grain, Dimensions, and Facts

The grain of the fact table is the most granular data. In the Retail Point of Sales Domain example, the grain is an individual line item on a Point of Sales transaction.

The dimensions are:

- Date
- Product
- Store

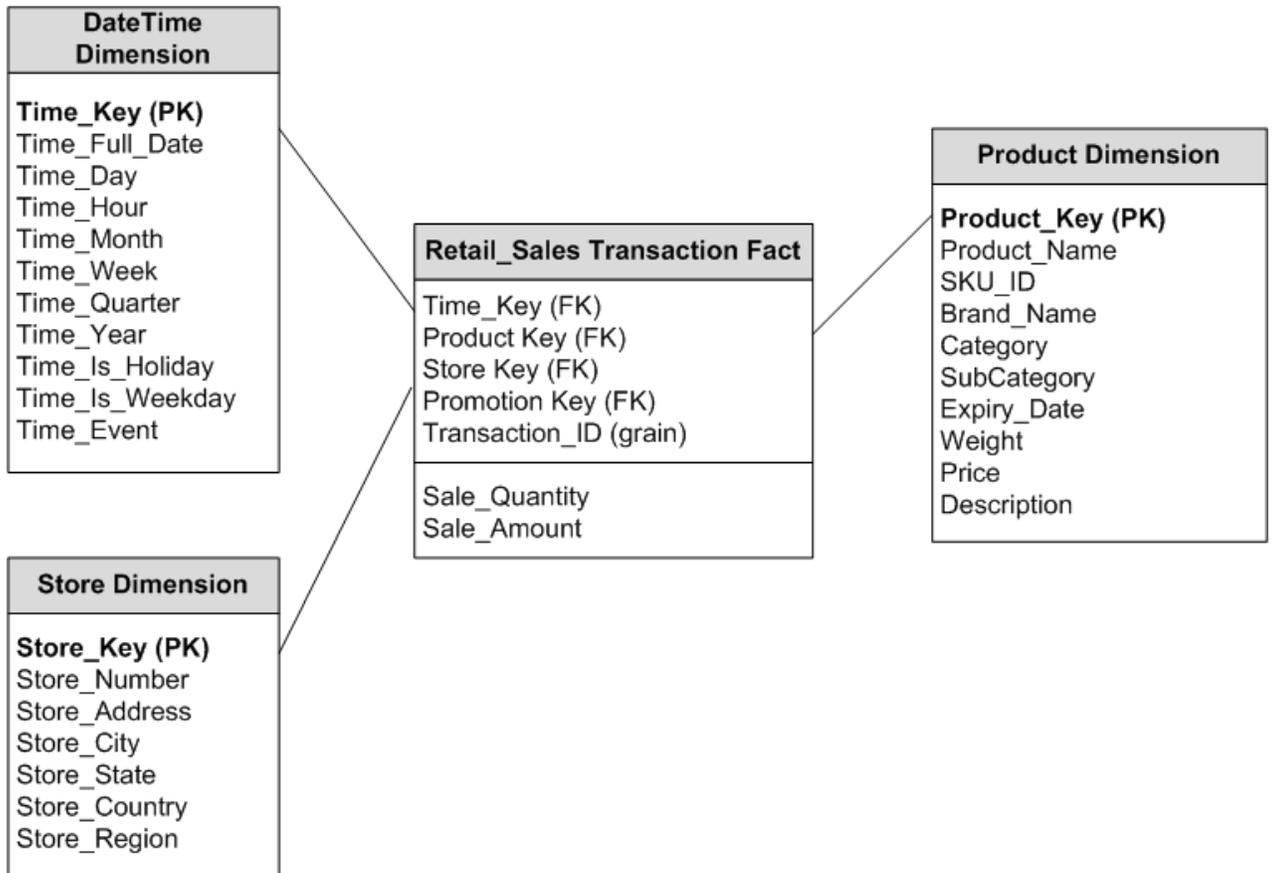
The facts collected by the Retail Point of Sales system are:

- Quantity of Sales
- Amount of Sales

Design the Data Model

A data model illustrates the relationship between entities (facts and dimensions tables) and their attributes (database table columns). In SHR, a data model is an XML file. To create a data model start by creating a schema diagram and then implement the same into an XML file.

The following figure shows the schema diagram that we will use to create the data model for the RetailPOS Content Pack.



Implement the Data Model in XML

The schema that you designed in the previous step must be implemented using XML to be used by the CDE to create the Domain component package. This XML file is called Model XML.

A typical Model XML file has the following sections:

- **Relational section** defines the fact tables and dimension tables, and the relationship between the facts and dimensions.
- **Logical section** defines the cubes, hierarchies, and levels. You define one cube for every fact table.
- **Aggregate section** defines the aggregation to be performed on the source tables.

After you create the Domain component directory structure you find a template `model_template.xml` at the following path:

```
%CDE_HOME%\workspace\RetailPOS\RetailPOSDomain.ap\source\model
```

You can edit this `.xml` file to author the Model XML.

Also, for reference you can find a sample Model XML file for the RetailPOSDomain available at the following location:

```
%CDE_HOME%\samples\RetailPOS_Demo_Content_Pack\Source\RetailPOS\RetailPOSDomain.ap\source\model
```

To read the contents of the sample Model XML file, on this PDF document click the **Attachments: View File Attachments** tab and select RetailPOS_dimension_model.xml. Double click to open the XML file on your browser window.

Create the Workflow Streams

SHR provides a workflow framework to control and monitor the workflow of the data processes. This framework is made up of workflow streams. A stream is made up of steps that are related to one another in a sequential relationship. Each content pack contains a set of streams that define and control the flow of data from one step to another.

As an example, the Domain component may have the following steps in the workflow stream:

```
Loading data to rate table -> Hourly aggregation -> Daily aggregation
```

You must implement the workflow streams in XML to be used by CDE to create the Domain component package. The streams that you must create using XML are:

- One workflow stream XML to load and aggregate the fact.
- One workflow stream XML to load the Store dimension.
- One workflow stream XML to load the Product dimension.

After you create the directory structure for the Domain component you find a workflow stream template file named ABC_stream_template.xml at the following path:

```
%CDE_HOME%\workspace\RetailPOS\RetailPOSDomain.ap\source\orchestration
```

You can edit this ABC_stream_template.xml file to author the workflow streams XML files.

Also, as reference you can find sample workflow streams XML files for the **RetailPOSDomain** at the following location:

```
%CDE_HOME%\samples\RetailPOS_Demo_Content_Pack\Source\
```

To read the contents of the sample workflow stream XML files, on this PDF document click the **Attachments: View File Attachments** icon and select the following .xml files:

- Implement the Data Model in XML: Workflow stream XML to load and aggregate the fact.
- Dimension_Store_stream.xml: Workflow stream XML to load the Store dimension.
- Dimension_Product_stream.xml: Workflow stream XML to load the Product dimension.

Double click to open the XML files on your browser window.

Use CDE to Generate Domain Component Package

To generate the Domain component package, follow these steps:

1. Create Manifest XML file

The Manifest XML file contains the definitions of the source files to be used by CDE to generate the Domain component package.

To create the Manifest XML file using CDE:

- a. Using the `cd` command change directory to:

```
%CDE_HOME%\workspace\RetailPOS\RetailPOSDomain.ap
```

- b. Run the following command:

```
antcreateManifestTemplate
```

The Manifest XML file named `RetailPOSDomain_manifest_template.xml` is created in `%CDE_HOME%\workspace\RetailPOS\RetailPOSDomain.ap\source`

You can see a sample Manifest XML file for the `RetailPOSDomain` at the following location:

```
%CDE_HOME%\samples\RetailPOS_Demo_Content_Pack\Source\RetailPOS\RetailPOSDomain.ap\source\RetailPOSDomain_manifest_template.xml
```

To read the contents of the sample Manifest XML file, on this PDF document click the **Attachments: View File Attachments** icon and select `RetailPOSDomain_manifest_template.xml`. Double click to open the XML file on your browser window

2. Build Domain component package

To create the Domain component package using CDE:

- a. Using `cd` command change directory to:

```
%CDE_HOME%\workspace\RetailPOS\RetailPOSDomain.ap
```

- b. Run the following command:

```
ant
```

The installable Domain component package is created in

```
%CDE_HOME%\workspace\RetailPOS\RetailPOSDomain.ap\dist
```

3. Browse to `%CDE_HOME%\workspace\RetailPOS\RetailPOSDomainCP.ap\dist`

4. Copy `RetailPOS` to `%PMDB_HOME%\packages`. Copying the package makes it available in the Deployment Manager for installation.

Note: It is not necessary to have SHR installed on the machine where you are creating the Domain component package. If you created the Domain component package on another machine, you must copy the package to the SHR machine under `%PMDB_HOME%\packages`.

Install the Domain Component Package

SHR provides the Deployment Manager utility on the Administration Console to install the content pack component packages. For instructions on how to install the content pack components, see the *HP Service Health Reporter Installation and Configuration Guide*.

Creating and Installing the ETL Component

The ETL component consists of data collection, transformation, reconciliation, and staging rules. The creation of the complete ETL component using all the rules can be quite complex. Therefore, to enable you to create a sample content pack this chapter describes a simple alternative method to generate data in the form of .csv files and load into the data warehouse.

The following chapter See "[Creating an ETL Component Package](#)" on page 42 describes the creation of an ETL component package that you can install by using the Deployment Manager on the Administration Console.

Custom Data Loading Using CSV Files

In this method you create a set of CSV files in the required format and place them in the following locations which are then loaded into the SHR data warehouse tables:

`%PMDB_HOME%\stage` (Windows)

`$PMDB_HOME/stage` (Linux)

Perform these steps to create and load the .csv files.

1. **Install the Domain component package:** Before you begin creating the CSV files for loading, make sure you generate the Domain component package you created in "[Install the Domain Component Package](#)" above. The Domain component creates a stage interface.html file that contains the format in which the CSV files must be created. The stage interface.html file is created in the following directory:

`%PMDB_HOME%\packages\RetailPOS\RetailPOSDomainCP.ap\doc` (Windows)

`$PMDB_HOME/packages/RetailPOS/RetailPOSDomainCP.ap/doc` (Linux)

For reference, see the example `RetailPOSDomain_INTERFACE.html` file available in `%CDE_HOME%\samples\RetailPOS_Demo_Content_Pack\RetailPOS\RetailPOSDomain.ap\doc` (Windows) or `$CDE_HOME/samples/RetailPOS_Demo_Content_Pack/RetailPOS/RetailPOSDomain.ap/doc` (Linux).

2. **Generate CSV files:** SHR provides a simple CSV files generator program to create sample .csv files for the RetailPOS content pack. To create the CSV files in the given format provided in the template .html file by using the .csv file generation program follow these steps:

- a. Browse to the folder:
 - o %CDE_HOME%\samples\RetailPOS_Demo_Content_Pack\Sample CSV Generator. (Windows)
 - o \$CDE_HOME/samples/RetailPOS_Demo_Content_Pack/Sample CSV Generator. (Linux)
- b. Copy the following files to the specified location as shown in the following table:

File	Copy to location
retailpos_csvgen.exe	%PMDB_HOME%\bin (Windows) \$PMDB_HOME\bin (Linux)
retailpos_csvgen.ini	%PMDB_HOME%\config\startup (Windows) \$PMDB_HOME\config\startup (Linux)
retailposcsvgen.jar	%PMDB_HOME%\lib (Windows) \$PMDB_HOME\lib (Linux)

- c. For Windows, run retailpos_csvgen.exe. in the command prompt. For Linux, go to the \$PMDB_HOME\bin directory and run ln -s launcher retailpos_csvgen in the shell prompt.

For the sample RetailPOS content pack that you are creating, the .csv file generator program generates two months worth of .csv files and places these files in the %PMDB_HOME%\stage folder (Windows) or the \$PMDB_HOME/stage directory (Linux). The Domain component that you installed earlier loads the CSV files to the SHR data warehouse tables.

Verifying Workflow Streams on Administration Console

After the HP_PMDB_Platform_Timer service is started, you logon to the Administration Console to check the status of the Domain component workflow streams. Follow these steps:

1. On the Administration user interface, click **Internal Monitoring-> Data Processing**.
2. On the **Stream Details** tab, view the status of streams in the RetailPOSDomain content pack. All streams must show a status of OK to indicate successful completion.

In the RetailPOS example, the Domain component has the following workflow streams with one or more steps within each stream.

- A workflow stream XML to load and aggregate the Retail_Sales fact.
- A workflow stream XML to load the Store dimension.
- A workflow stream XML to load the Product dimension.
- A workflow stream XML to load the Promotion dimension.

As shown in the following figure, successful completion of the streams is indicated using green color.

Data Processing

Stream Details Historical Stream Overview Historical Stream Details

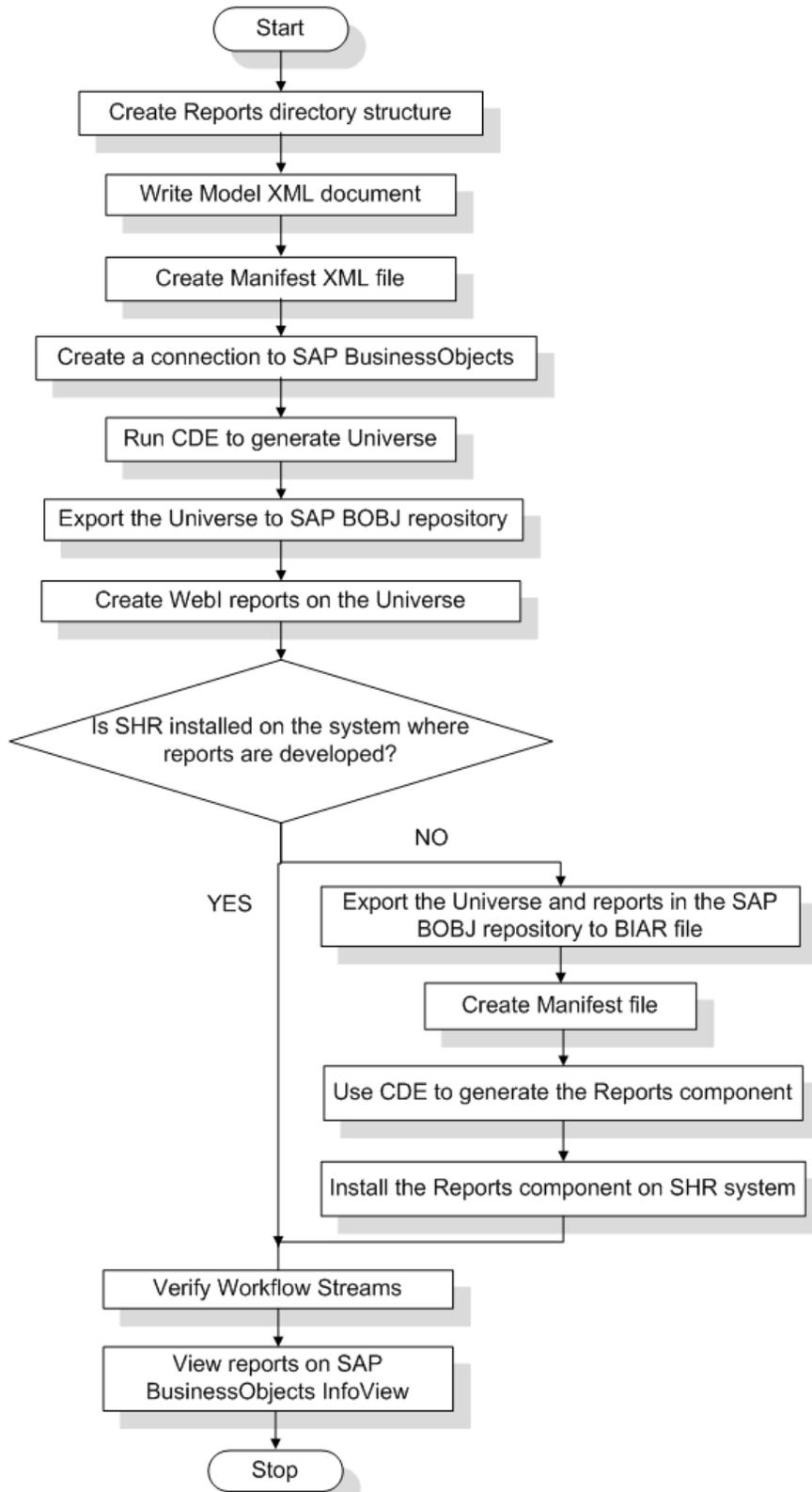
Content Pack Component name	Number of Streams	Stream Status Details			
		OK	Warning	Error	Total
Core	26	26	0	0	26
RetailPOSDomain	5	5	0	0	5
ETL_SM_VL_Sol_Zones_PA	0	0	0	0	0
ETL_SystemManagement_SIS	0	0	0	0	0
SystemManagement	0	0	0	0	0
MSAppCore	1	1	0	0	1

Stream Detail for Content Pack Component : RetailPOSDomain

Stream Name	Step Status(Completed/Total)	Step Status	Start Time
RetailPOSDomain@Product	1/1	SUCCESS	May 25, 2012 12:30:11 PM
RetailPOSDomain@Store	1/1	SUCCESS	May 25, 2012 12:30:11 PM
RetailPOSDomain@Downtime	1/3	SUCCESS	May 25, 2012 12:30:11 PM
RetailPOSDomain@Retail_Sales	1/4	SUCCESS	May 25, 2012 12:30:12 PM
RetailPOSDomain@Promotion	1/1	SUCCESS	May 25, 2012 12:30:11 PM

Creating and Installing the Reports Component

The following flowchart shows the steps to create the Reports component.



Prerequisites

Before you create the Reports component, make sure the following are done:

- CDE is installed on the same machine where you have installed SHR and SAP BusinessObjects.
- The Domain component that you created in See "[Install the Domain Component Package](#)" on [page 21](#) is installed. Use the Deployment Manager utility on the Administration Console to install the Domain component. For instructions, see the *HP Service Health Reporter Installation and Configuration Guide*.

Create the Directory Structure

To create the directory structure for the Reports component source files, at the command prompt run the following command:

```
<installation_directory>\CDE\bin> CreateCPFolders.bat -package RetailPOS -subpackage  
RetailPOSApp -type application
```

where,

- *<installation_directory>* is the directory where you have installed SHR
- RetailPOS is the name of the content pack you are developing
- RetailPOSReporting is the name of the Reports component within RetailPOS

The directory will contain templates provided by SHR that you will use to create the Reports component source files.

SHR provides sample source files for the Retail POS content pack at the following location. You can use these files as reference to create your own content pack.

```
%CDE_HOME%\samples\RetailPOS_Demo_Content_Pack\Source\
```

Write the Model XML Document

The Model XML document for the Reports component must have a Logical section. In this section, you provide a reference to the cube that you defined in the Domain component Model XML document.

For reference find a sample Model XML file for the RetailPOSReporting available at the following location:

```
%CDE_HOME%\samples\RetailPOS_Demo_Content_Pack\Source\RetailPOS\RetailPOSReporti  
ng.ap\source\model
```

To read the contents of the sample Model XML file, on this PDF document click the **Attachments: View File Attachments** tab and select RetailPOS_App_model.xml Double click to open the XML file on your browser window.

Create the Manifest XML File

The Manifest XML file contains the definition of the Model XML document that you created in See ["Write the Model XML Document" on the previous page](#) to be used by CDE.

To create the Manifest XML file using CDE:

1. Using the `cd` command change directory to:

```
%CDE_HOME%\workspace\RetailPOS\RetailPOSReporting.ap
```

2. Run the following command:

```
antcreateManifestTemplate
```

The Manifest XML file named `RetailPOS_manifest_template.xml` is created in `%CDE_HOME%\workspace\RetailPOS\RetailPOSReporting.ap\source`

You can see a sample Manifest XML file for the `RetailPOSReporting` at the following location:

```
%CDE_HOME%\samples\RetailPOS_Demo_Content_Pack\Source\RetailPOS\RetailPOSReporting.ap\source
```

Create a Connection to SAP BusinessObjects

To generate the SAP BusinessObjects Universe you must create a secured database connection to SAP BusinessObjects by using the Universe Designer. SHR provides a batch script to create the connection. To create a connection by using the script:

1. Using the `cd` command change directory to:

```
%CDE_HOME%\bin
```

2. At the command prompt, run the following:

```
setenv.bat
```

3. At the command prompt, run the following batch script:

```
createUniverseConnection.bat
```

A message 'Default BO Universe connection ("MA") was created successfully' appears.

Use CDE to Generate SAP BusinessObjects Universe

To generate the universe by using CDE, at the command prompt:

1. Using the `cd` command change directory to

```
%CDE_HOME%\workspace\RetailPOS\RetailPOSReporting.ap
```

2. Run the following command:

```
ant
```

The universe is created with a filename extension of `.unv` and placed under the following folder:

```
%CDE_  
HOME%
```

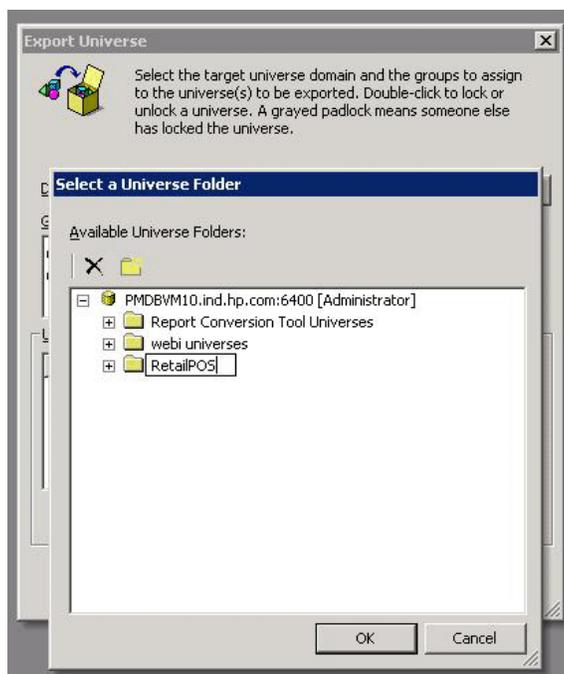
```
\workspace\RetailPoS\RetailPoSReporting.ap\dist\RetailPOS\RetailPOSReporting.ap
```

Tip: You can also edit the Universe to add additional hierarchies. See the *SAP BusinessObjects Universe Designer Online Help* for more information.

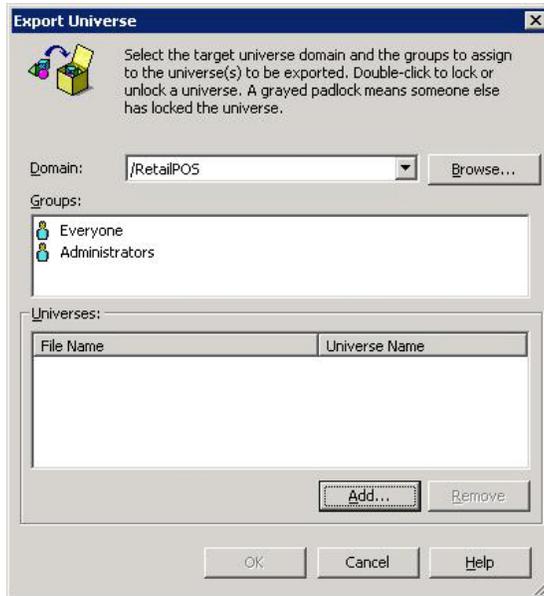
Export the Universe to SAP BusinessObjects Repository

On the SAP BusinessObjects Universe Designer:

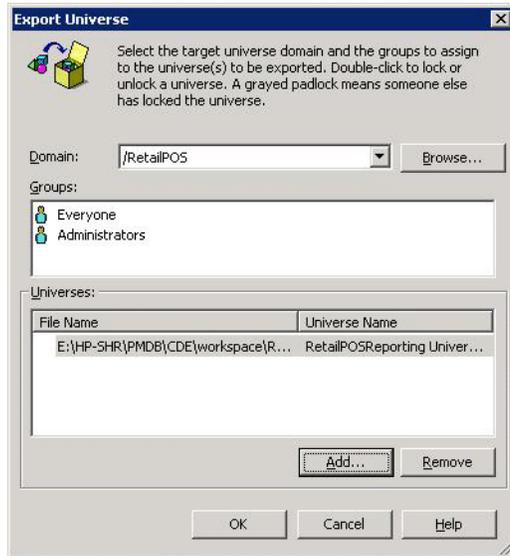
1. Select **File-> Export**. The Export Universe window opens.
2. Select the required universe folder, in this example the RetailPOS, from the available list. Click **OK**.



3. On the Export Universe window, browse to the location of universe, in this example, the RetailPOSReporting.unv. Click **Open**.



The Export Universe window shows the **RetailPOSReporting.unv** added to the list of universes to be exported. Click **OK**.



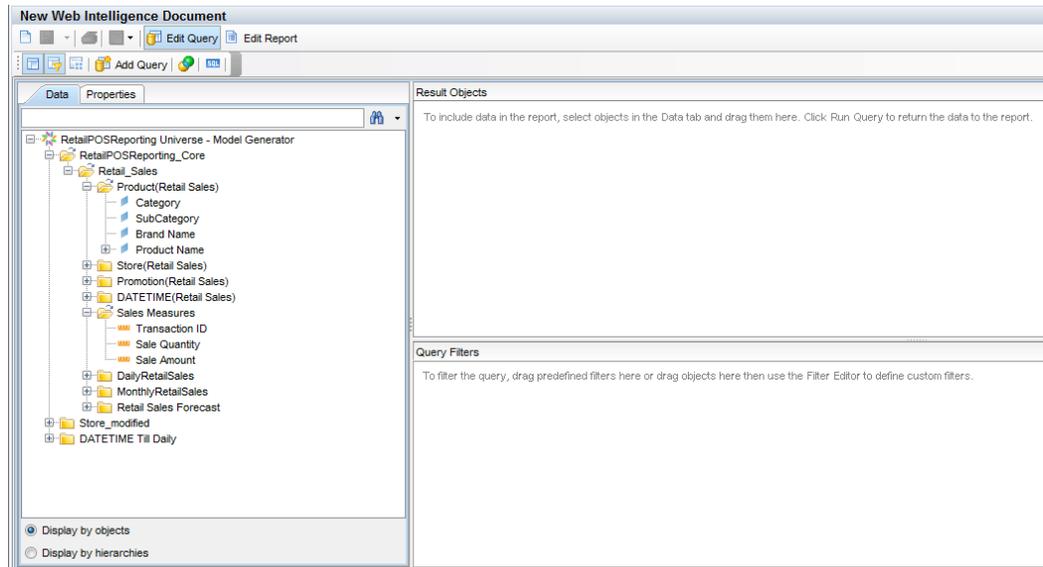
4. The universe successfully exported message appears.

Create Web Intelligence Reports

You can create Web Intelligence reports by selecting the universe in SAP BusinessObjects InfoView and building one or more queries to define the data content of the reports.

To create a simple sales report containing a table of sales quantity and sales amount per product category, follow these steps:

1. Logon to SAP BusinessObjects InfoView by using one of the following ways:
 - In the address bar of your web browser, type the URL of the SAP BusinessObjects system. The URL of the machine will be in the format: `http://<Host Name or IP address>:PORT NO (8080)/InfoViewApp/logon.jsp`.
 - In the Administration Console, click **Administration->SAP BOBJ** and then click **Launch InfoView**. The InfoView login page opens.
2. Click **Document List**.
3. Click **New -> Web Intelligence Document**. The list of BusinessObjects Universes appears.
4. Select **RetailPOSReporting Universe - Model Generator**. The New Web Intelligence Document window opens. The data tab shows the objects – dimensions and measures – available in the universe as shown in the following figure.

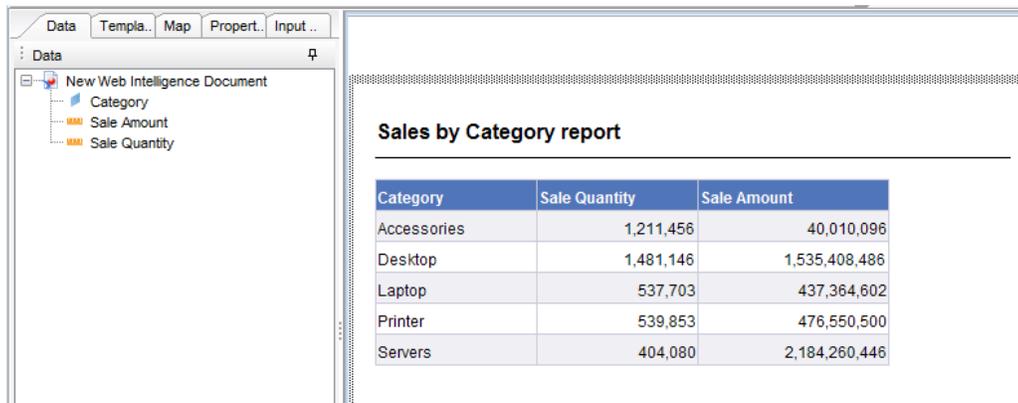


5. To include data in the report, select the following in the data tab and drag them into the Result Objects window. Alternatively, you can double click the objects to place them in the Result Objects window.

- Dimension: Category (under Product(Retail Sales))
- Measures:
 - Sale Quantity (under Sales Measures)
 - Sale Amount (under Sales Measures)

6. Click **Run Query** to return the data to the report.

A table of Sale Quantity and Sale Amount by Product Category is created. You can rename the table to an appropriate title.



Enabling Time Drill Option in Reports

To enable time drill option in the report, click **Drill**  on the InfoView toolbar. You can drill down and roll up by the product category dimension.

Note: Option 1: If you developed the Web Intelligence reports on a different system where SHR is not installed, you must do the following:

- Export the BIAR file to the system where SHR is installed
- Generate the Reports component and install it using the Deployment Manager.

See instructions for See ["Exporting Reports to SHR" below](#)

Option 2: If you developed the Web Intelligence reports on the same system where SHR is installed, you can verify the workflow streams and view the reports on the SAP BusinessObjects InfoView as described in the following sections.

Exporting Reports to SHR

Export Business Intelligence Archive Resource (BIAR) File

If you developed the reports on a system where SHR is not installed, you must export the BIAR file and install the Reports component on the system where SHR is installed. You select a source, a destination, and the objects that you want to import. Follow these steps:

1. Open the BusinessObjects Import Wizard.
2. On the **Source environment** page, enter the following:
 - CMS Name: The name of the machine on which BusinessObjects is installed
 - User Name: The username for BusinessObjects user.
 - Password: The password for BusinessObjects user.

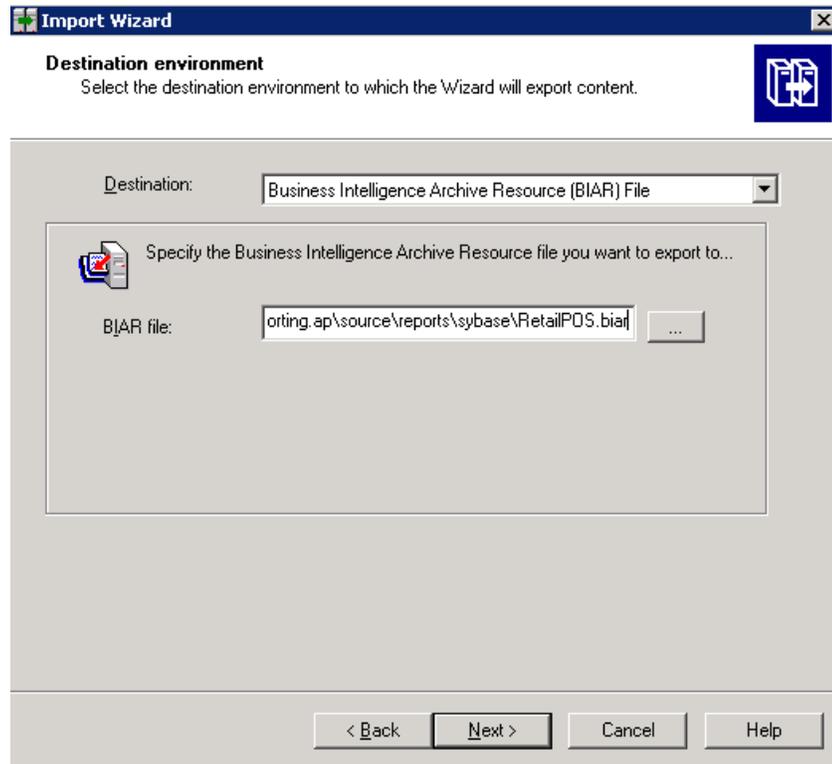
- Authentication: Select **Enterprise**.

The screenshot shows the 'Import Wizard' dialog box with the 'Source environment' page selected. The title bar reads 'Import Wizard'. Below the title bar, the text says 'Source environment' and 'Select an existing environment from which the Wizard will import user/group and object/folder information.' A blue icon with a document and a plus sign is on the right. The 'Source:' dropdown menu is set to 'BusinessObjects Enterprise XI 3.x'. Below this is a section with a document icon and the text 'Enter the name of the source CMS. You also need to specify your user name and password.' This section contains four input fields: 'CMS Name' with 'TestCMS', 'User Name' with 'Administrator', 'Password' (empty), and 'Authentication' dropdown set to 'Enterprise'. At the bottom are four buttons: '< Back', 'Next >', 'Cancel', and 'Help'.

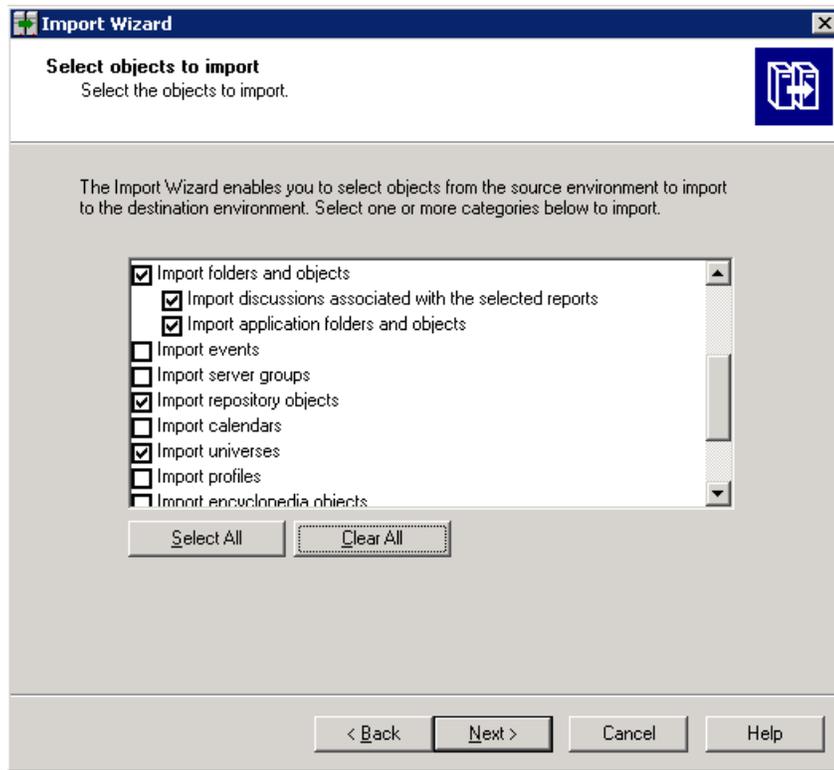
3. On the **Destination environment** page, select the following:

- Destination: Business Intelligence Archive Resource (BIAR) File.
- BIAR file: The .biar file you want to export to. The path of the .biar file is

`%CDE_HOME%\workspace\RetailPOS\RetailPOSReporting.ap\source\reports\sybase\`

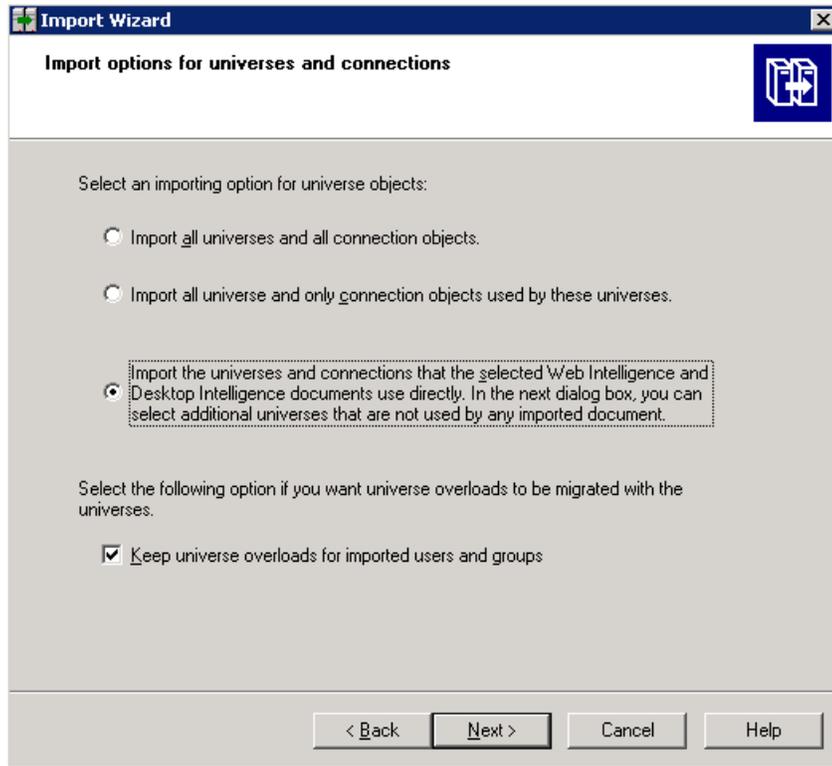


4. On the **Select objects to import** page, select the following:
 - Import folders and objects.
 - Import repository objects.
 - Import universes.

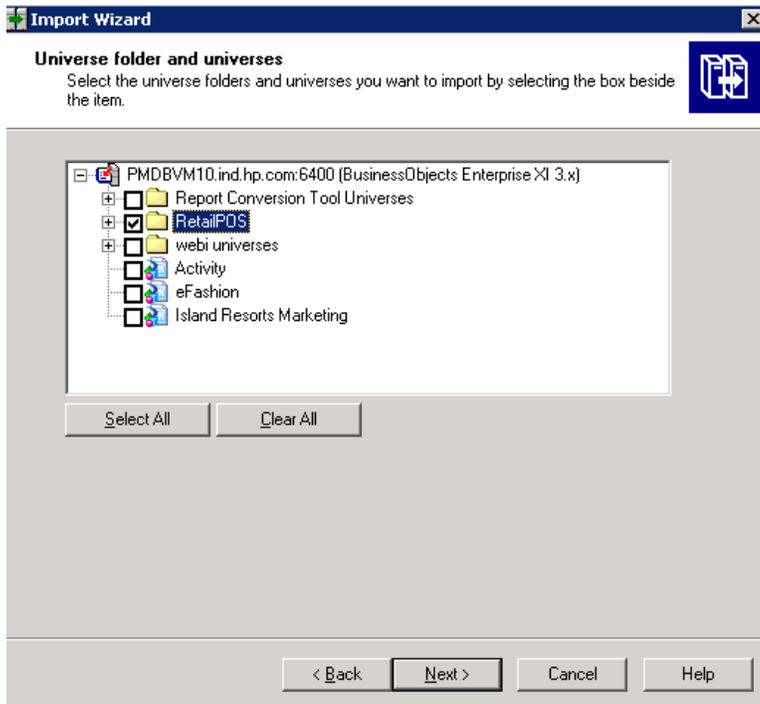


5. On the **Import options for universes and connections** page, select the following option:

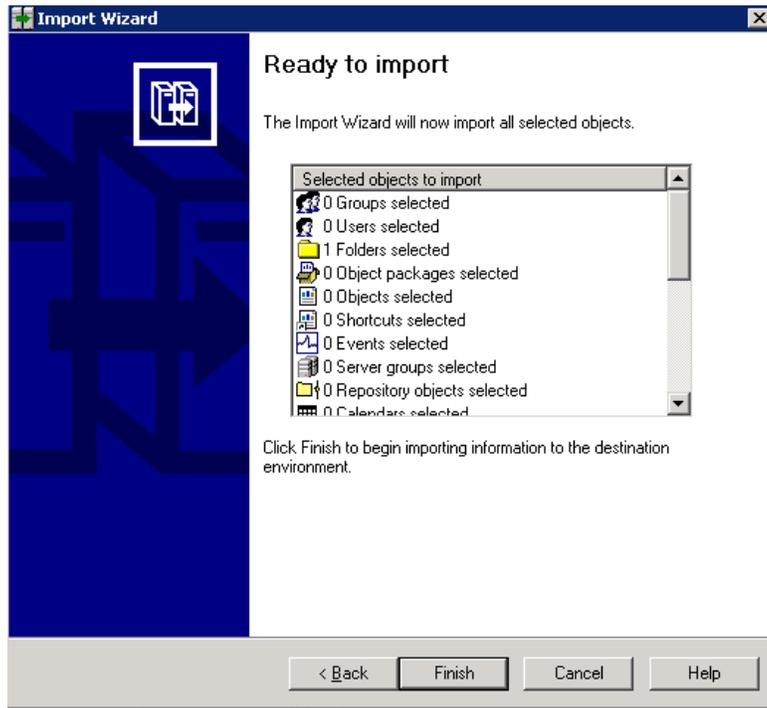
Import the universes and connections that the selected Web Intelligence and Desktop Intelligence documents use directly.



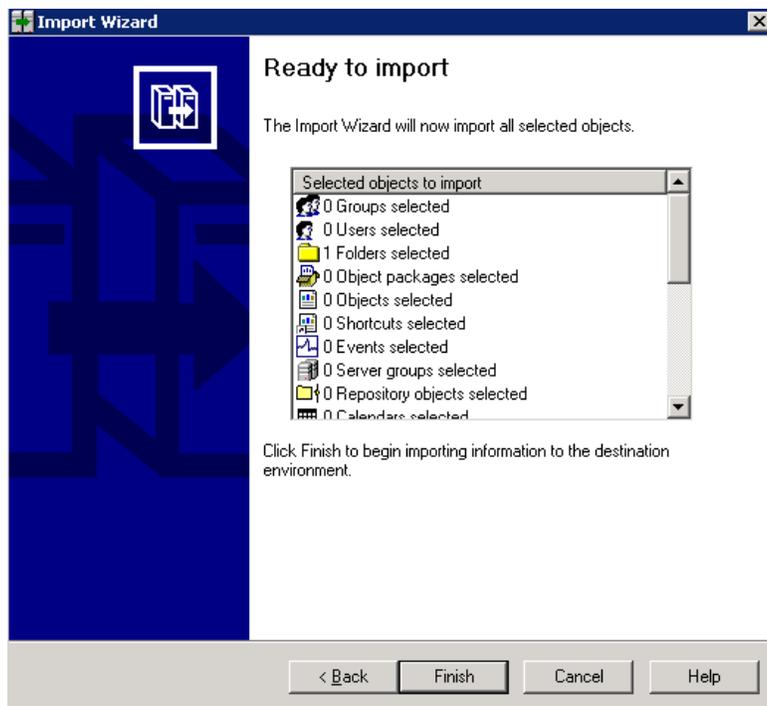
6. On the **Universe folder and universes** page, select the RetailPOS universe. Click **Next**.



7. On the **Import options for publications** page, select the Do not import recipients option



The **Ready to import** page appears. Click **Finish** to import the universe.



Create the Manifest XML File

The Manifest XML file contains the definition of the BIAR file that you exported in the previous step to be used by CDE.

To create the Manifest XML file using CDE:

- Using `cd` command change directory to:

```
%CDE_HOME%\workspace\RetailPOS\RetailPOSReporting.ap
```

- Run the following command

```
antcreateManifestTemplate
```

The Manifest XML file named `RetailPOSReporting_manifest_template.xml` is created in `%CDE_HOME%\workspace\RetailPOS\RetailPOSReporting.ap\source`

For reference, see a sample Manifest XML file for the `RetailPOSReporting` at the following location:

```
%CDE_HOME%\samples\
```

Use CDE to Generate Reports Component Package

To generate the Reports component package using CDE:

1. Using `cd` command change directory to:

```
%CDE_HOME%\workspace\RetailPOS\RetailPOSReporting.ap
```

2. Run the following command

```
ant
```

The Reports component package named `RetailPOSReporting.ap` is created in

```
%CDE_HOME%\workspace\RetailPOS\RetailPOSDomain.ap\dist
```

3. Browse to `%CDE_HOME%\workspace\RetailPOS\RetailPOSDomain.ap\dist`.
4. Copy `RetailPOSReporting.ap` to `%PMDb_HOME%\packages\RetailPOS`

Install the Reports Component Package

SHR provides the Deployment Manager utility on the PMDB Platform Administration User Interface to install the content pack component packages.

For instructions on how to install the content pack components, see the *HP Service Health Reporter Installation and Configuration Guide*.

After you install the Reports component package, you can verify the workflow streams on the Administration Console and view the reports on SAP BusinessObjects InfoView.

See "[Verifying Workflow Streams on Administration Console](#)" on page 22

See "[Viewing Reports on SAP BusinessObjects InfoView](#)" below.

Viewing Reports on SAP BusinessObjects InfoView

Now that you installed the Domain and Reports component packages and the data is loaded into the data warehouse, you can view the reports on the SAP BusinessObjects InfoView interface.

If you installed the sample RetailPOS_Demo_Content_Pack from %CDE_HOME%\samples\ you see a report named Retail Sales Report available in the Document List in InfoView. For instructions on how to logon to InfoView and view reports, see *HP Service Health Reporter Online Help for Users*.

The Retail Sales Report contains the Sales Summary document which displays the sales revenue information for each of the dimensions that you defined in the data model – location, time, and product category. You can drill down and roll up on the dimensions to view granular information.

Developing Content in Linux using CDE

During SHR installation in Linux, client tools of SAP BusinessObjects are also installed but they are not supported on Linux. If SHR is installed on a Linux server, you must use a Microsoft Windows XP or later system for developing or customizing application content.

Prerequisites

A system with the following software:

1. Microsoft Windows XP or later operating system.
2. Java™ Platform, Standard Edition Development Kit (JDK™) 1.7.

Download from <http://www.oracle.com/>.

3. SAP BusinessObjectsXI 3.1 Client.
 - a. Copy the BusinessObjectsXI-3.1-Clienttools.zip file from the *bits/packages/BO* folder of the Linux installation media to the Windows system.
 - b. Extract the contents of the ZIP file to the Windows system.

Two folders—*BusinessObjectsXI-3.1-Clienttools\SP5Client* and *BusinessObjectsXI-3.1-Clienttools\SP5.3Client*—are created.

- c. Run the setup.exe file from both the folders; start with the SP5Client setup.exe.
- d. Follow the instructions on the installer wizard to perform the installation.

Extract and Configure CDE

1. On the Linux server where SHR is installed, from the */opt/HP/BSM* directory, copy the *CDE.zip* file.
2. Extract the contents of the ZIP file to the *root/CDE* directory.
3. Navigate to the *root/CDE/bin* directory and provide execution rights to shell scripts.
4. Run the *setenv.sh* command.

The following environment variables are set:

- CDE_HOME
- ANT_HOME
- JRE_HOME
- JRE_BIN

Creating the Application Component

1. On the Linux server where SHR is installed, navigate to the */opt/HP/BSM* directory.
2. Copy the *CDE.zip* file to the Windows system.
3. Extract the contents of the GZ file to the *C:\CDE* folder.
4. From the *C:\CDE\bin* folder, run the *setenv.bat* command with the complete directory path of CDE and Java Runtime Environment (JRE) as follows:

```
setenv.bat -CDE_HOME C:\CDE -JRE_HOME C:\Java\jdk1.7.0_xx\jre
```

5. From the *C:\CDE\bin* folder, run the *updateCDEProperty.bat* file.
 - a. Enter values for the *bo.username* and *bo.password* parameters.
 - b. Enter the short name of the SHR server for the *bo.server=* field.

For example, *bo.server=shrdev*
6. Install the SAP Sybase IQ Network Client 15.4.
 - a. Copy the *SybaseIQ32_odbcDriver.zip* file available in the *C:\CDE\bin* folder.
 - b. Extract the contents of the ZIP file to the Windows system.
 - c. Run the *setup.exe* file in the *C:\CDE\bin\SybaseIQ32_odbcDriver* folder.

7. From the Windows **Start** button, launch **Sybase > Sybase IQ 15.4 > ODBC Administrator 32-bit**. The ODBC Data Source Administrator dialog box appears.
8. Select the **System DSN** tab and click **Add**. The **Create New Data Source** dialog box appears.
9. From the options available in the row called **Name**, scroll to select **Sybase IQ** and click **Finish**. The ODBC Configuration for SQL Anywhere dialog box appears.
10. From the **ODBC** tab, in the **Data source name** field, enter BSMR.
11. From the **Login** tab, perform the following actions:
 - a. For **User ID**, enter pmdb_admin.
 - b. For **Password**, enter the PMDB schema password.
 - c. For **Action**, select **Connect to a running database on another computer**.
 - d. For **Host**, enter the FQDN of the SHR server.
 - e. For **Port**, enter 21424.
 - f. For **Server name**, enter the short name of the SHR server.
12. From the **ODBC** tab, click **Test Connection**; when successful, click **OK**.
13. From the Windows **Start** button, launch **Business Objects XI 3.1 > Business Objects Enterprise Client Tools > Designer**. The User Identification dialog box appears.
 - a. For **Server**, enter the short name of the SHR server.
 - b. For **User Name**, enter Administrator.
 - c. For **Password**, enter the SAP BusinessObjects Administrator password. By default, no password is required.
 - d. For **Authentication**, select Enterprise.
 - e. Click **OK**. The **Universe Designer** window appears.
14. To create a connection to the SHR database, select **Tools** from the menu and click **Connections**. The **Wizard Connection** dialog box appears.
 - a. Click **Add**. The **Define a new connection** wizard appears.
 - b. Click **Next**.
 - c. For **Connection Type**, select **Secured**.

- d. For **Connection Name**, enter MA.
- e. From the network layer pane, select **Sybase > Sybase IQ 15 > ODBC Drivers**.
- f. Click **Next**.
- g. For **Authentication Mode**, select **Use specified username and password**.
- h. Leave the **User name** and **Password** fields empty.
- i. For **Data source name**, enter BSMR.
- j. Click **Next > Next > Finish**.
- k. On the **Wizard Connection** dialog box, click **Finish**.

A new BusinessObjects connection by the name MA is created.

15. Launch the **Command Prompt** and run the following command to create the application content pack directory structure:

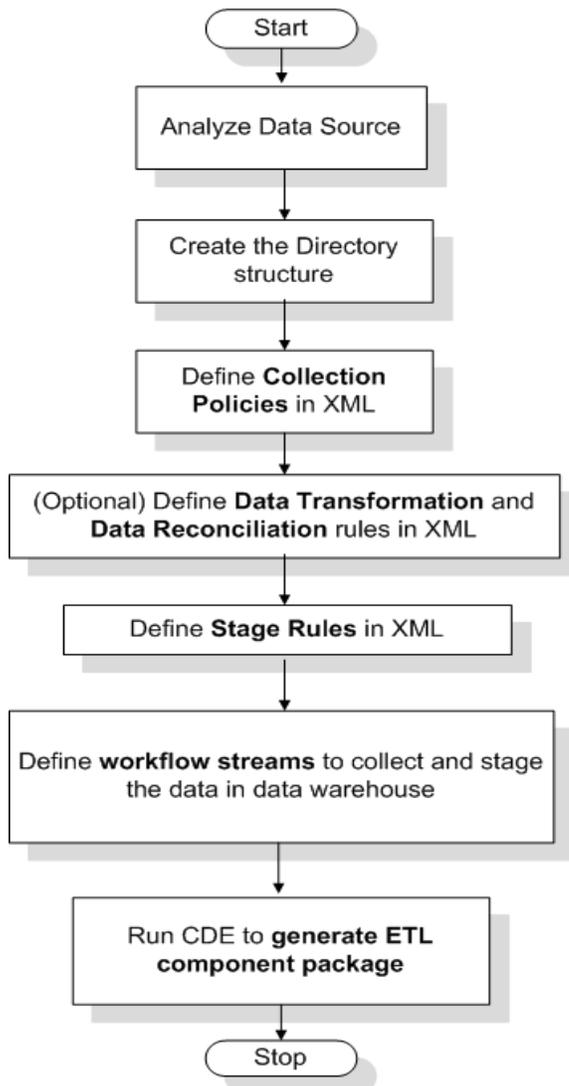
```
createCPFolders.bat -package cpname -subpackage subpackagename.ap -type application
```
16. Navigate to the `%CDE_HOME%\workspace \package\subpackagename.ap` folder and run the following commands:
 - `ant createManifestTemplate`
 - `ant`
17. The universe is created with a UNV extension and placed in the `%CDE_HOME%\workspace \package\subpackagename.ap\dist` folder.
18. Export the universe to the SAP BusinessObjects Server. For more information, see section "[Export the Universe to SAP BusinessObjects Repository](#)".

Chapter 4

Creating an ETL Component Package

This chapter describes the steps to create an ETL component package for the existing RetailPOS Domain component package.

Creating an ETL Component package involves the following steps:



Note: This Chapter does not describe data reconciliation.

Prerequisite

Create and Install the Domain Component Package

Follow the steps described in See ["Creating and Installing the Domain Component" on page 16](#) to create the Domain model and use CDE to generate the Domain component package.

Analyze the Data Source

As described in the chapter See ["Content Pack Architecture and Development" on page 10](#), before you start creating the ETL component, you must identify the data source containing metrics that are suitable to be fed into the Domain data model.

In this guide we consider a simple database as the source of data. The database is created using PostgreSQL software and contains data suitable to be fed into the RetailPOS Domain model. Sample files and scripts are provided in the SHR media to create the database and populate data into the tables. The ["Creating a Data Source for ETL Component"](#) describes how to create the PostgreSQL database, the database tables, and how to insert data into the tables.

Create the Directory Structure

To create the directory structure for the ETL component source files, at the command prompt run the following command:

```
<installation_directory>\CDE\bin>CreateCPFolders.bat -package RetailPOS -subpackage RetailPOSETL -type etl
```

where,

- *<installation_directory>* is the directory where you have installed SHR
- RetailPOS is the name of the content pack you are developing
- RetailPOSETL is the name of the ETL component within RetailPOS

The directory will contain templates provided by SHR that you will use to create the ETL component source files.

SHR provides sample source files for the Retail POS content pack at the following location. You can use these files as reference to create your own content pack.

```
%CDE_HOME%\samples\RetailPOS_Demo_Content_Pack\Source\
```

Define Collection Policy in XML

To collect the data from the retailpos database tables you must define a collection policy in XML. Use the collection policy template named DB_collection_template.xml available in the following folder:

`%CDE_HOME%\workspace\RetailPOS\RetailPOSETL.ap\source\etl\collection\`

For reference see the sample `RetailPOS_DB_Collection_Policy.xml` in the following folder:

`%CDE_HOME%\samples\RetailPOS_Demo_Content_Pack\Source\RetailPOS\RetailPOSETL.ap\source\etl\collection\`

To read the contents of the sample collection policy XML file, on this PDF document click the **Attachments: View File Attachments** icon and select `RetailPOS_DB_Collection_Policy.xml`. Double click to open the XML file on your browser window.

Define Data Transformation Rules

In the RetailPOS example, the data transformation rule is used to append the name of the city, state, country, and the zip code to the address column; and use the whitespace character as a delimiter of the column values in the .csv files.

For reference see the sample `RetailPOS_transformation.xml` in `%CDE_HOME%\samples\RetailPOS_Demo_Content_Pack\RetailPOS\RetailPOSETL.ap\doc`

To read the contents of the sample data transformation rule XML file, on this PDF document click the **Attachments: View File Attachments** icon and select `RetailPOS_transformation.xml`. Double click to open the XML file on your browser window.

Define Stage Rules

Stage rules defined in XML files are used to map the column names in the source .csv files to the column names in the target physical tables, called staging tables, in the database. Use the stage rules template available in the folder `RetailPOS\RetailPOSDomain.ap\source\stagerule_templates` to write the stage rules XML files for each of the dimensions – product, sales, and store.

For reference see the sample stage rule XML files in `%CDE_HOME%\samples\RetailPOS_Demo_Content_Pack\RetailPOS\RetailPOSETL.ap\source\etl\stage_rules`

For all the OOTB domain content packs, stage rule templates are available in the folder `%CDE_HOME%\cplib\<ContentPack>\<SubPackage.ap>\source\stagerule_templates`

Taking the System Management Content Pack for example, the syntax is `C:\HP-SHR\CDE\cplib\SystemManagement\CoreSystemManagement.ap\source\stagerule_templates`

To read the contents of the sample stage rule XML files, on this PDF document click the **Attachments: View File Attachments** icon and select the following files:

- `Stage_product_stagerule.xml`: Stage rule for Product
- `Stage_retail_sales_stagerule.xml`: Stage rule for Sales
- `Stage_store_stagerule.xml`: Stage rule for Store

Double click to open the XML files on your browser window.

Define Workflow Streams

Workflow streams defined in XML files are used to collect and stage the .csv files in the data warehouse.

When topology information is collected, SHRCollector generates a *relations*.csv file for each topology view in addition to the CI type mentioned as part of the RTSM collection policy. You must author stage rules to stage this data and workflow streams to enable the process of loading the *relations*.csv files.

The *relations*.csv files contain topology data that must be loaded to the CI Bridge table. To create a stage rule definition for the CI Bridge, use the stage rule templates for the CI Bridge available in the folder %CDE_HOME%\cplib\Core\Core.ap\source\stagerule_templates[Core_0_Stage_K_CI_Bridge_0_stagerule.xml].

In addition to authoring stage rules, you must define a workflow stream to enable the data flow. For the syntax on creating ABC Streams, see *HP Service Health Reporter Content Development - Reference Guide*.

Note: In the COLLECT step, use the "View name" specified in the collection policy as the Category and "Relations" as the Type.

Use the workflow streams template available in the folder %CDE_HOME%\samples\RetailPOS_Demo_Content_Pack\source\RetailPOS\RetailPOSETL.ap\source\orchestration\stream_definitions to write the workflow stream XML files, one file for each of the dimensions – product, sales, and store.

For reference see the sample workflow stream XML files in %CDE_HOME%\samples\RetailPOS_Demo_Content_Pack\RetailPOS\RetailPOSDomain.ap\source\orchestration\stream_definitions

To read the contents of the sample ETL workflow stream XML files, on this PDF document click the **Attachments: View File Attachments** icon and select the following files:

- Dimension_Product_ETL_stream.xml: Workflow stream XML for Product dimension
- Dimension_Store_ETL_stream.xml: Workflow stream XML for Store dimension
- Fact_Retail_Sales_ETL_stream.xml: Workflow stream XML for the fact

Double click to open the XML files on your browser window.

Generate the ETL Component

To generate the ETL Component package using CDE:

1. Using cd command change directory to:

```
%CDE_HOME%\workspace\RetailPOS\RetailPOSETL.ap
```

2. Run the following command:

```
ant
```

The ETL component package is created in

```
%CDE_HOME%\workspace\RetailPOS\RetailPOSETL.ap\dist
```

3. Browse to %CDE_HOME%\workspace\RetailPOS\RetailPOSETL.ap\dist
4. Copy RetailPOS to %PMDB_HOME%\packages. Copying the package makes it available in the Administration Console Deployment Manager for installation.

Install the ETL component

SHR provides the Deployment Manager feature on the Administration Console to install the content pack component packages. Use the Deployment Manager to install the ETL component package; in the RetailPOS example, the name of the package is RetailPOSETL.

For instructions on how to install the content pack components by using Deployment Manager, see the *HP Service Health Reporter Installation and Configuration Guide*.

Working with the ETL Component

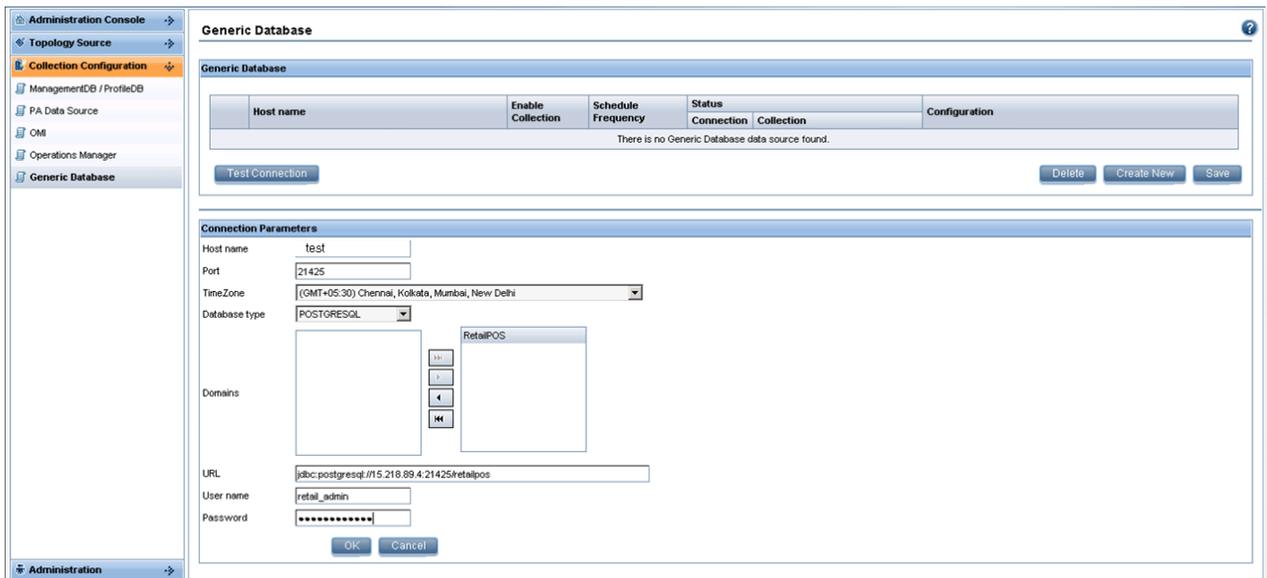
Configure a Generic Database

After you install the RetailPOS Domain and ETL components, you must configure a connection to the retailpos database to collect data based on the collection policy XML. You configure the connection on the Administration Console using the Generic Database page. Follow these steps:

1. In the Administrator Console, click **Collection Configuration** -> **Generic Database**. The Generic Database page opens.
2. Click **Create New**. The Connection parameters dialog box opens.
3. Type or select the following values:

Field	Description
Host name	Type the IP address or FQDN of the server where you created the retailpos database.
Port	Type the port number to query the database server.
TimeZone	Select the time zone under which the database instance is configured.
Database type	Select POSTGRESQL.

Field	Description
Domain	Select RetailPOS.
URL	Type jdbc:postgresql//<server>:<port>/retailpos
User Name	Type the name of the generic database user. In this example, the user name is retail_admin.
Password	Type the password of the generic database user. In this example, the password is retail admin.



Verify the ETL Component

After you install the ETL component package and the HP_PMDB_Platform_Timer service is started, you logon to the Administration user interface to check the status of the ETL component workflow streams. Follow these steps:

1. On the Administration user interface, click **Internal Monitoring -> Data Processing**.
2. On the **Stream Details** tab, view the status of streams in the RetailPOSETL content pack. All streams must show a status of OK to indicate successful completion.

In the RetailPOS example, the ETL component has the following workflow streams with one or more steps within each stream.

- A workflow stream RetailPOSETL@Retail_Sales_ETL to move Sales fact to stage tables.
- A workflow stream RetailPOSETL@Product_ETL to move Product dimension to stage tables.
- A workflow stream RetailPOSETL@Store_ETL to move Store dimension to stage tables.

- A workflow stream RetailPOSETL@Promotion_ETL to move Promotion dimension to stage tables.

As shown in the following figure, successful completion of the streams is indicated using green color.

Stream Detail for Content Pack Component : RetailPOSETL			
Stream Name	Step Status(Completed/Total)	Step Status	Start Time
RetailPOSETL@Promotion_ETL	1/1	SUCCESS	Jun 26, 2012 3:30:19 PM
RetailPOSETL@Retail_Sales_ETL	1/1	SUCCESS	Jun 26, 2012 3:15:19 PM
RetailPOSETL@Product_ETL	1/1	SUCCESS	Jun 26, 2012 3:15:19 PM
RetailPOSETL@StoreETL	2/2	SUCCESS	Jun 26, 2012 3:30:19 PM

View Reports

Now that you installed the Domain and Reports component packages and the data is loaded into the data warehouse, you can view the report on the SAP BusinessObjects InfoView interface. See ["Viewing Reports on SAP BusinessObjects InfoView" on page 38](#).

Creating a Content Pack—Simplified

This section describes a simplified method of creating the Domain, ETL, and Report components of a content pack with the following data sources:

- Generic Database

SHR collects data from only those databases that support Java Database Connectivity (JDBC).

- HP Operations agent or HP Performance Agent
- CSV files

Analyze the Data Source

You must identify the data source containing metrics that are suitable to be fed into the Domain data model. To design the data model, see section ["Design the Data Model" on page 17](#).

Generic Database as Data Source

When the SHR data source is a generic database (Microsoft SQL, Oracle, Sybase IQ and so on), perform the following steps to generate the Domain, ETL, and Report components of the content pack:

1. Using the command prompt, change to the `%CDE_HOME%\bin` directory.
2. Run the following command:

```
createpcfolders.bat -package RetailPOS -type all
```

The folders for the content pack components (Domain, ETL, and Report) are created.

3. Create the following input files based on the attached samples for RetailPOS and save them in the `%CDE_HOME%\samples\RetailPOS_Demo_Content_Pack\Source` folder:

Note: To read the contents of the sample attachments in this PDF document, click the **Attachments: View File Attachments** icon and double click to open the XML file in your browser window.

- a. Database Connection Properties File (*dbconfig.properties*)

This file contains log in credential details of the data source (generic database) from which content pack fetches data. It also contains the SHR database credentials that you will require for generating the SAP BusinessObjects Universe.

- b. Database Query XML File (*RetailPOS_Query.xml*)

This file contains the SQL queries to fetch data from the data source (generic database). It also contains the table and column definitions in SHR to store the data.

SHR bundles JDBC drivers for Microsoft SQL, Oracle, PostgreSQL, and Sybase IQ databases in the CDE.zip file. If you have a different database, you must copy the relevant JDBC driver to the SHR system and the content development environment.

4. With the Database Connection Properties File and the Database Query XML File as input, run the following command to generate the mapping (ModelMapper.CSV) file:

```
createMappingFile.bat -useDB -passwords "mssql.password=<password>" -  
dbQueryXml %CDE_HOME%\samples\RetailPOS_Demo_Content_Pack\Source\RetailPOS_  
Query.xml -config %CDE_HOME%\samples\RetailPOS_Demo_Content_  
Pack\Source\dbconfig.properties
```

Verify the values in the mapping CSV file and, if required, modify it manually based on your business requirement.

5. Run the following command to generate the content pack:

```
createendtoendcp.bat -mappingfile "%CDE_HOME%\workspace\RetailPOS\RetailPOS_  
MappingFile2394283040045872.csv" -collectionpolicyxml "%CDE_  
HOME%\workspace\RetailPOS\RetailPOS_CollectionPolicy.xml" -configfile "%CDE_  
HOME%\samples\RetailPOS_Demo_Content_Pack\Source\dbconfig.properties" -  
password "db.password=<password>"
```

The Domain, ETL, and Report components of the content pack are now created.

CSV Files as Data Source

When the SHR data source is a CSV file, perform the following steps to generate the Domain, ETL, and Report components of the content pack:

1. Using the command prompt, change to the %CDE_HOME%\bin directory.
2. Run the following command:

```
createcpcfolders.bat -package RetailPOS -type all
```

The folders for the content pack components (Domain, ETL, and Report) are created.

3. Create the following input files based on the attached samples for RetailPOS and save them in the %CDE_HOME%\samples\RetailPOS_Demo_Content_Pack\Source folder:

Note: To read the contents of the sample attachments in this PDF document, click the **Attachments: View File Attachments** icon and double click to open the XML file in your browser window.

a. CSV Connection Properties File (*dbconfig.properties*)

This file contains log in credential details of the data source (generic database) from which content pack fetches data. It also contains the SHR database credentials that you will require for generating the SAP BusinessObjects Universe.

b. CSV Policy File (*RetailPOS_Query.xml*)

This file contains the SQL queries to fetch data from the data source (generic database). It also contains the table and column definitions in SHR to store the data.

4. With the CSV File and the CSV Policy XML File as input, run the following command to generate the mapping (ModelMapper.CSV) file:

```
createMappingFile.bat -useCSV -csvXml %CDE_HOME%\samples\RetailPOS_Demo_Content_Pack\Source\RetailPOS_Query.xml -config %CDE_HOME%\samples\RetailPOS_Demo_Content_Pack\Source\dbconfig.properties -inputLocation %CDE_HOME%\inputcsvs-outputLocation %CDE_HOME%\workspace\RetailPOS
```

Verify the values in the mapping CSV file and, if required, modify it manually based on your business requirement.

5. Run the following command to generate the content pack:

```
createendtoendcp.bat -mappingfile "%CDE_HOME%\workspace\RetailPOS\RetailPOS_MappingFile2394283040045872.csv" -configfile "%CDE_HOME%\samples\RetailPOS_Demo_Content_Pack\Source\dbconfig.properties" -password "mssql.password=<password>"
```

The Domain, ETL, and Report components of the content pack are now created.

HP Performance Agent as Data Source

When the SHR data source is HP Performance Agent, perform the following steps to generate the Domain, ETL, and Report components of the content pack:

1. Using the command prompt, change to the `%CDE_HOME%/bin` directory.
2. Run the following command:

```
createcpcfolders.bat -package RetailPOS -type all
```

The folders for the content pack components (Domain, ETL, and Report) are created.

3. Create the following input files based on the attached samples for RetailPOS and save them in the `%CDE_HOME%\samples\RetailPOS_Demo_Content_Pack\Source` folder:

Note: To read the contents of the sample attachments in this PDF document, click the **Attachments: View File Attachments** icon and double click to open the XML file in your browser window.

a. Connection Properties File (*dbconfig.properties*)

This file contains information on the RTSM host name, port, user name, and the HP Performance Agent host name from which the content needs to be developed. It also contains the SHR database credentials that you will require for generating the SAP BusinessObjects Universe.

b. Topology Policy XML File (*TopologyRTSM_OM.XML*)

This file contains the view names, CI types and the attributes to be collected or excluded from CI types. It also contains the HPOM class names and data source details. In case of HPOM collection policy, the attribute names are generated for OOB content. For new CI types, the attributes must match with the attributes specified in the CMDDB collection policy.

c. HP Performance Agent Policy XML File (*Fact_PA.XML*)

This file contains the HP Performance Agent data source and classes from which data needs to be collected.

4. With the earlier files as input, run the following command to generate the mapping (ModelMapper.CSV) file:

```
createMappingFile.bat -usePA -paXml %CDE_HOME%\samples\RetailPOS_Demo_Content_Pack\Source\Fact_PA.xml -topologyXml %CDE_HOME%\samples\RetailPOS_Demo_Content_Pack\Source\TopologyRTSM_OM.xml -config %CDE_HOME%\samples\RetailPOS_Demo_Content_Pack\Source\dbconfig.properties -outputLocation %CDE_HOME%\workspace\RetailPOS -passwords <RTSM password>
```

Verify the values in the mapping CSV file and, if required, modify it manually based on your business requirement.

5. Run the following command to generate the content pack:

```
createendtoendcp.bat -mappingfile "%CDE_HOME%\workspace\RetailPOS\RetailPOS_MappingFile2394283040045872.csv" -topologyxml %CDE_HOME%\samples\RetailPOS_Demo_Content_Pack\Source\TopologyRTSM_OM.xml -paXml %CDE_HOME%\samples\RetailPOS_Demo_Content_Pack\Source\Fact_PA.xml -configfile %CDE_HOME%\samples\RetailPOS_Demo_Content_Pack\Source\dbconfig.properties
```

The Domain, ETL, and Report components of the content pack are now created.

Generating Domain and ETL Component Package

1. Browse to %CDE_HOME%\workspace\RetailPOS\RetailPOSDomainCP.ap\dist (for Domain) and %CDE_HOME%\workspace\RetailPOS\RetailPOSETLCP.ap\dist (for ETL)
2. Copy RetailPOS Domain and ETL to %PMDB_HOME%\packages.

Copying the package makes it available in the Deployment Manager for installation.

Note: It is not necessary to have SHR installed on the machine where you are creating the Domain component package. If you created the Domain component package on another machine, you must copy the package to the SHR machine under %PMDB_HOME%\packages.

Install the Domain and ETL Component Package

SHR provides the Deployment Manager utility on the Administration Console to install the content pack component packages. For instructions on how to install the content pack components, see the *HP Service Health Reporter Installation and Configuration Guide*.

Viewing SHR Reports

To view the reports based on the data you collected using the content pack you created, perform the steps in the following sections according to the order mentioned :

1. ["Export the Universe to SAP BusinessObjects Repository" on page 27](#)
2. ["Create Web Intelligence Reports" on page 29](#)
3. ["Exporting Reports to SHR" on page 31](#)
4. ["Viewing Reports on SAP BusinessObjects InfoView" on page 38](#)

Appendix A

Creating a Data Source for ETL Component

To create a sample PostgreSQL database, SHR provides the following files and scripts:

Files / Scripts Provided by SHR	Location of File / Script
<p>The following .csv files that are copied into the database tables by using scripts:</p> <p>RetailPOS_Product.csv RetailPOS_Promotion.csv RetailPOS_Sales.csv RetailPOS_Store.csv</p>	<p>%CDE_HOME%\samples\RetailPOS_Demo_Content_Pack\RetailPOS_DB_Creation_Scripts\RetailPOS_CSV</p>
<p>RetailPOS_CreateDatabase.sql</p> <p>This SQL script creates a PostgreSQL database named RetailPOS for the user named retail_admin.</p>	<p>%CDE_HOME%\samples\RetailPOS_Demo_Content_Pack\RetailPOS_DB_Creation_Scripts</p>
<p>RetailPOS_CreateTables.sql</p> <p>This SQL script creates tables in the RetailPOS database.</p>	<p>%CDE_HOME%\samples\RetailPOS_Demo_Content_Pack\RetailPOS_DB_Creation_Scripts</p>
<p>RetailPOS_PopulateTables.sql</p> <p>This SQL script copies the .csv files from the location %CDE_HOME%\samples\RetailPOS_Demo_Content_Pack\RetailPOS_DB_Creation_Scripts\RetailPOS_CSV to the database tables.</p>	<p>%CDE_HOME%\samples\RetailPOS_Demo_Content_Pack\RetailPOS_DB_Creation_Scripts</p>

Prerequisites: Perform the following tasks before you start creating the PostgreSQL database:

Download and install PostgreSQL software from <http://www.postgresql.org/>. You can install PostgreSQL on any system which can be different than the system on which SHR is installed.

Copy the following files to the C:\ drive of the system where you installed PostgreSQL.

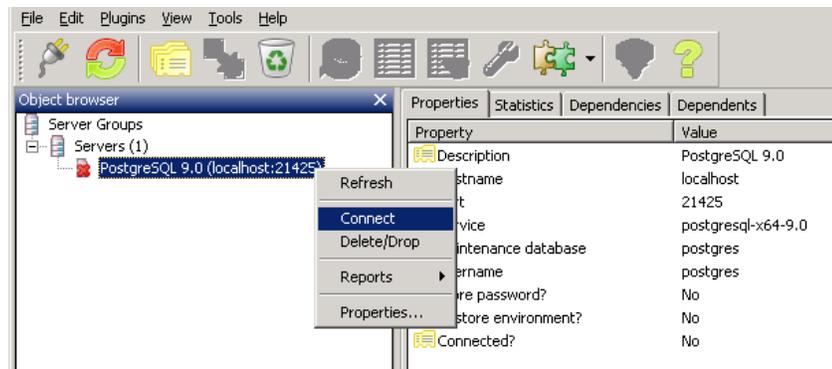
- RetailPOS_CSV
- RetailPOS_CreateDatabase.sql

- RetailPOS_CreateTables.sql
- RetailPOS_PopulateTables.sql

Create a PostgreSQL Database

To create the database named RetailPOS, follow these steps:

1. Logon to the system where you installed PostgreSQL as Administrator.
2. Start the PostgreSQL **pgAdmin III** program.
3. Connect to default user **postgres** with the password you configured.



The Object browser pane shows the databases available for the postgres user.

4. On the SQL Query Editor window click **File ->Open**. Browse to the location on C:\ drive where you copied the script RetailPOS_CreateDatabase.sql and click **Open**.
5. Click **Execute pgScript** to run the RetailPOS_CreateDatabase.sql script.

The script creates the retailpos database and retail_admin user as the database owner.

6. Close the SQL Query Editor and click **Refresh**.

The retailpos database with user retail_admin appear on the Object browser window.

Create Database Tables

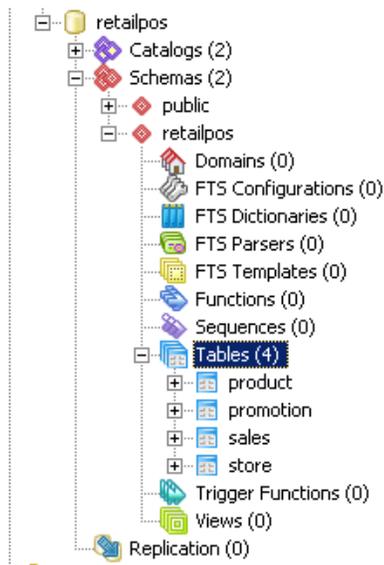
To create tables within the retailpos database, follow these steps:

1. On the Object browser window, select **retailpos** from the list of databases and open the SQL Query Editor.
2. On the SQL Query Editor window click **File ->Open**. Browse to the location on C:\ drive where you copied the script RetailPOS_CreateTables.sql and click **Open**.

3. Click **Execute pgScript** to run the RetailSPoS_CreateTables.sql script.

The following tables are created as shown in the following figure:

- retailpos.product
- retailpos.store
- retailpos.promotion
- retailpos.sales



Insert Data into the Database

To insert data from the .csv files into the tables, follow these steps:

1. On the SQL Query Editor window click **File ->Open**. Browse to the location on C:\ drive where you copied the script RetailPOS_PopulateTables.sql and click **Open**.
2. Click **Execute pgScript** to run the RetailPOS_PopulateTables.sqlscript.

The script inserts the .csv files from RetailPOS_CSV to the database tables.

Glossary

C

CDE

CDE is a set of tools provided by SHR for development of content packs.

Collection policy

A Collection policy is written in XML to define the metrics to be collected by a collector program from the specified data source.

Content pack

Content packs are data marts deployed on the SHR performance management database platform. Content packs enable the platform to collect, store, process, and report the data. A content pack has three components – Domain, ETL, and Reports.

D

Data Model

Data model is a schema diagram that illustrates the relationship between dimension tables (that have attributes) and fact tables (that have measures).

Domain Component

Domain component of a content pack defines the data model of the Domain you are reporting on along with the logic to perform processing on the data. It is independent of the data source you collect data from.

E

ETL Component

ETL component of a content pack is data source dependant; it defines the

collection of data from the specified data source

L

Loading

The process of loading data from the stage tables to the data warehouse tables.

R

Reconciliation

Data reconciliation is the technique of associating fact data to corresponding dimension data.

Reports Component

The Reports component contains the SAP BusinessObjects Web Intelligence reports and universes.

S

Staging

Data staging is the process of moving the collected, transformed, and reconciled data into the staging tables.

T

Transformation

Data transformation is the optional step of cleaning the collected data according to business requirements.

W

Workflow Streams

Workflow streams in content packs are used to define and control the movement of data from one step to another.

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Feedback on Service Health Reporter, 9.31 Content Development - Getting Started Guide

Just add your feedback to the email and click send.

If no email client is available, copy the information above to a new message in a web mail client, and send your feedback to docfeedback@hp.com.