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for the Windows operating system

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Data Warehouse Administration Guide

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1 Getting Started

The data warehouse is the repository for key business data that is cleansed, consolidated, and organized to support efficient queries, reports, and to populate a variety of business analytics. The contents of the data warehouse depend on the related HP applications that generate business data. For example, the data may originate with such HP Service Management applications as Asset Manager or HP Demand and Portfolio Management applications like Project and Portfolio Management.

The data warehouse consolidates the data from one or more of these applications and makes it available for business impact analysis.

Administration Guide Overview

This guide contains information about how to configure and use the HP Data Warehouse. Table 1 summarizes the content of each chapter.

Table 1 Document Map

Chapter	Describes
Chapter 1, Getting Started	Configuration and requirements overview.
Chapter 2, Working With a Data Warehouse	General data warehouse information about layers, schemas, files, and models.
Chapter 3, Audit, Balance, and Control	Managing the Audit, Balance, and Control processes.
Chapter 4, ETL Tasks	The first steps after the initial ETL process.
Chapter 5, ABC Administrative Tasks	How to complete typical data warehouse tasks.
Chapter 6, Error Handling	What to do when an error occurs in an Audit, Balance, and Control job.
Chapter 7, Data Warehouse Reports	Out-of-box administrative and operational reports about the data warehouse.
Chapter 8, ABC Command Reference	A syntax reference for all Audit, Balance, and Control utilities used by data warehouse administrators.
Chapter 9, Time Zone Configuration	How to configure time zone information for data sources and the data warehouse.
Chapter 10, Tracing and Logging	How to customize logs and start traces.

Table 1 Document Map

Chapter	Describes
Chapter 11, Backup and Re-Initialization	Daily data warehouse backup procedures and re-initialization scenarios.
Chapter 12, Recovery	How to recover the data warehouse to a steady state when errors occur.
Chapter 13, Troubleshooting	Tips, tricks, and problem solving strategies.
Glossary	A list of Data Warehouse terms and definitions.
Appendix A, Data Warehouse Command Reference	A syntax reference for all data warehouse utilities used by ETL designers and developers.
Appendix B, Naming Conventions	Naming conventions for the data warehouse, SAP BusinessObjects Data Services, and target and staging databases.

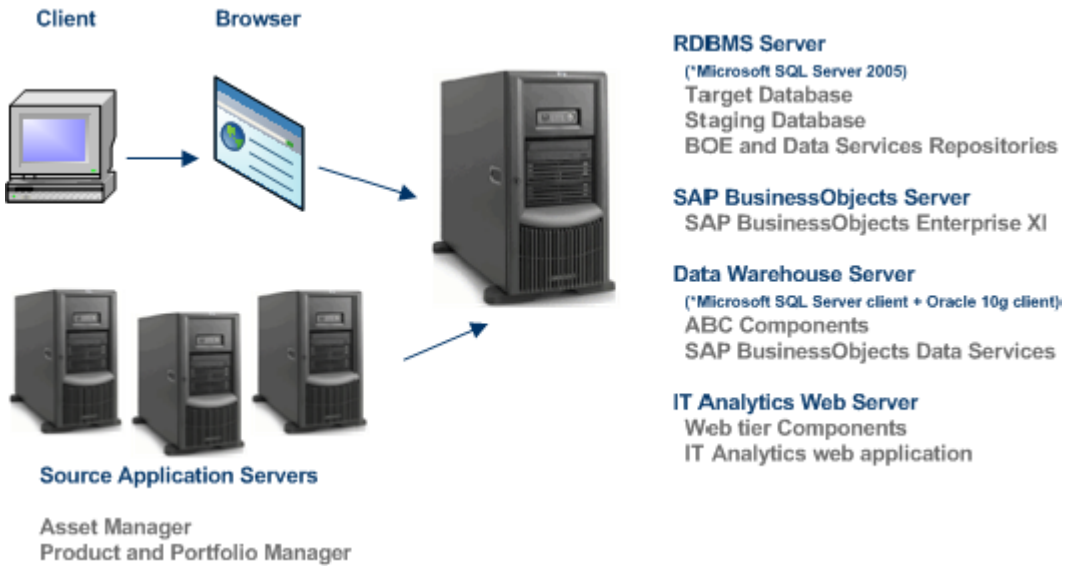
Hardware and Software Requirements

There are specific requirements for the hardware, operating system, and third party software products that support the data warehouse. For complete information about required software that must be installed and configured before you install the data warehouse, see the data warehouse Support Matrix on the **HP Software Support** web site (**http://support.openview.hp.com/sc/support_matrices.jsp**).

Server Configuration

The data warehouse functions in a single or multiple application environment. Although it is possible to operate successfully in a single server environment, shown in Figure 1, it is primarily a simple configuration that works well for small operations, prototyping, and testing before you deploy to a production environment.

Figure 1 Single server environment

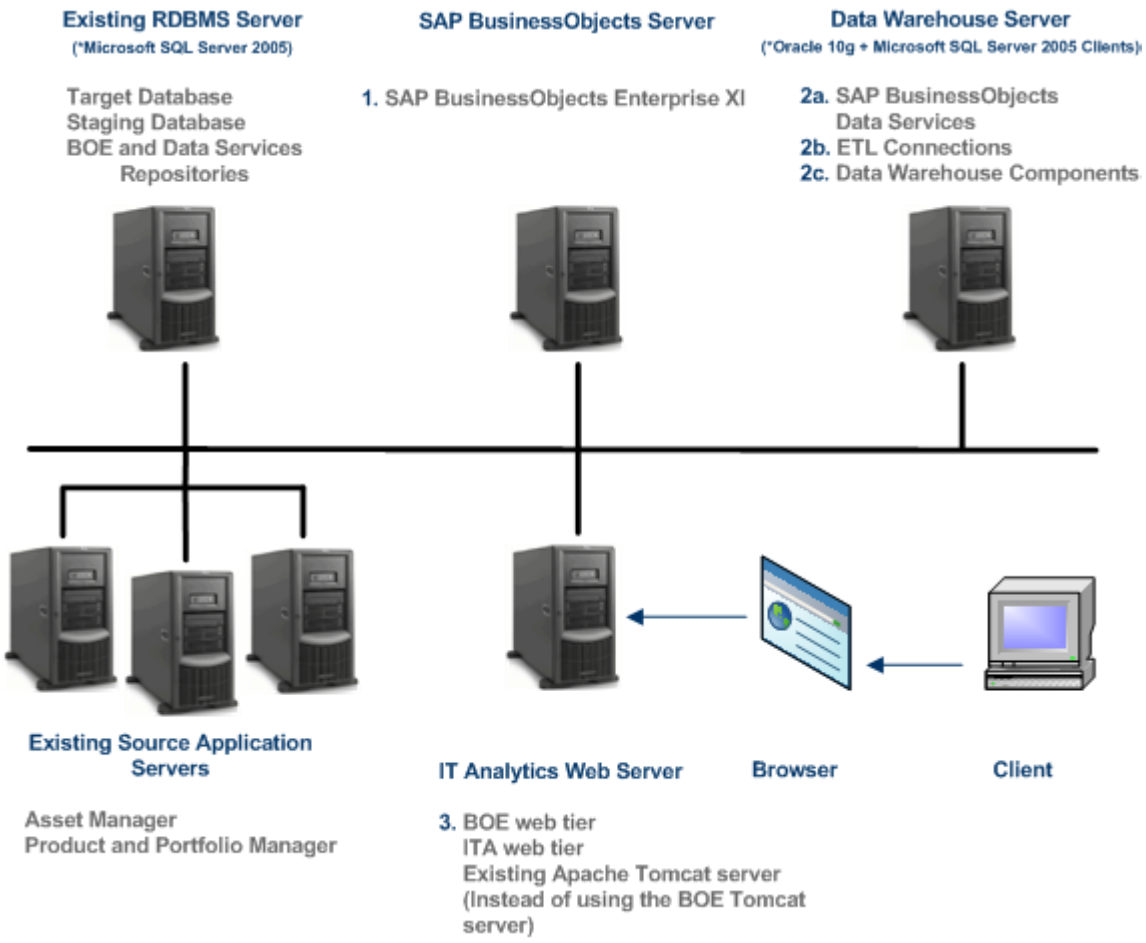


Multiple Servers

The most common installation of the data warehouse occurs in a distributed server environment. This configuration involves networked servers that can be co-located or in diverse locations and time zones. For example, the source data repositories might be in different cities and time zones. The data warehouse can be in yet another location and time zone. There must be an SAP BusinessObjects server, RDBMS server, and web application server that can be in different locations.

Installation and configuration processes ensure that these differences are transparent in the production environment. Figure 2 shows a typical distributed server configuration.

Figure 2 Multiple server environment



For more information about the possible server configurations, see the *HP IT Analytics Installation and Configuration Guide*.

Knowledge Requirements

The administration tasks described in this guide assume that you have experience as a Database Administrator with responsibilities in these areas:

- Installation
- Configuration
- Administration
- Troubleshooting

SAP BusinessObjects Enterprise XI 3.1 expertise with emphasis in SAP BusinessObjects Data Services is highly recommended.

Updates

HP makes hotfix and fix pack releases available to address defects and other software problems. Contact HP Support to verify that you have all the available post-release fix packs applied before you implement a production environment.

Other Documentation Resources

There are other documentation sources that you need to reference for data management and administration tasks.

For all data warehouse installation and configuration information, see the *HP IT Analytics Installation and Configuration Guide*. For more information about obtaining source data from external applications, see the *HP IT Analytics ETL User Guide*.

For all SAP BusinessObjects Enterprise XI 3.1 or SAP BusinessObjects Data Services tasks and troubleshooting, refer to the SAP BusinessObjects Enterprise XI 3.1 and SAP BusinessObjects Data Services documentation that is accessible from those installed products.

For basic RDBMS tasks and troubleshooting, see the appropriate vendor documentation.

2 Working With a Data Warehouse

The data warehouse is the repository for key business data that support queries, reports, and populates business analytics. The data warehouse acquires, standardizes, enriches, and consolidates data based on the target model designed to satisfy the business analytic requirements. The data warehouse uses SAP BusinessObjects Data Services to complete the process that extracts data from one or more source applications.

The content of the data warehouse depends on the related HP applications that generate business data, and the analytic application that presents the data. Data can originate with external applications such as Asset Manager and Project and Portfolio Management. The data warehouse can consolidate similar data from these applications into a meaningful target model that populates relevant business analytics. Enabling multiple source applications to provide input data ensures that the application can produce robust and comprehensive results.

The data warehouse enables data integration and promotes data consolidation by using consistent data models regardless of the disparate data models among different data sources. The data warehouse software relies on common data models that support each phase of ETL. As the data is progressively aligned into a single target model, transformation processes assign common data names and attributes for each entity that appears in the target model.

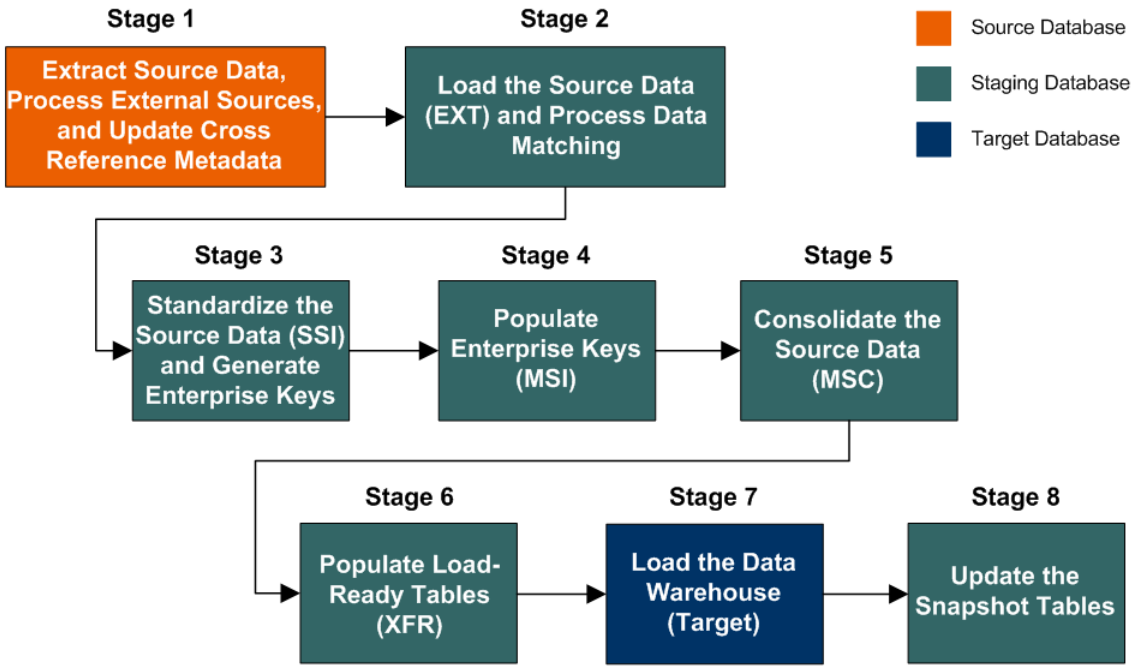
The data warehouse is scalable, extensible, and modular. It can grow and respond to added processes and an increasing volume of data. It is maintainable with a set of tools that monitor processes, troubleshoot problems, and produce reports.

ETL

The Extract, Transform, and Load (ETL) process is an end-to-end transfer of external source data through several staging layers and into the target layer of the data warehouse. The source data can reside in a single database or multiple databases. The data warehouse uses the ETL process to extract, consolidate, and transform the source data into a meaningful target model that populates relevant business analytics. The ETL engine is SAP BusinessObjects Data Services.

The ETL process comprises eight primary stages. The stages that process depend on metadata and the nature of the sources. Figure 3 on page 18 shows the overall ETL process.

Figure 3 ETL Process



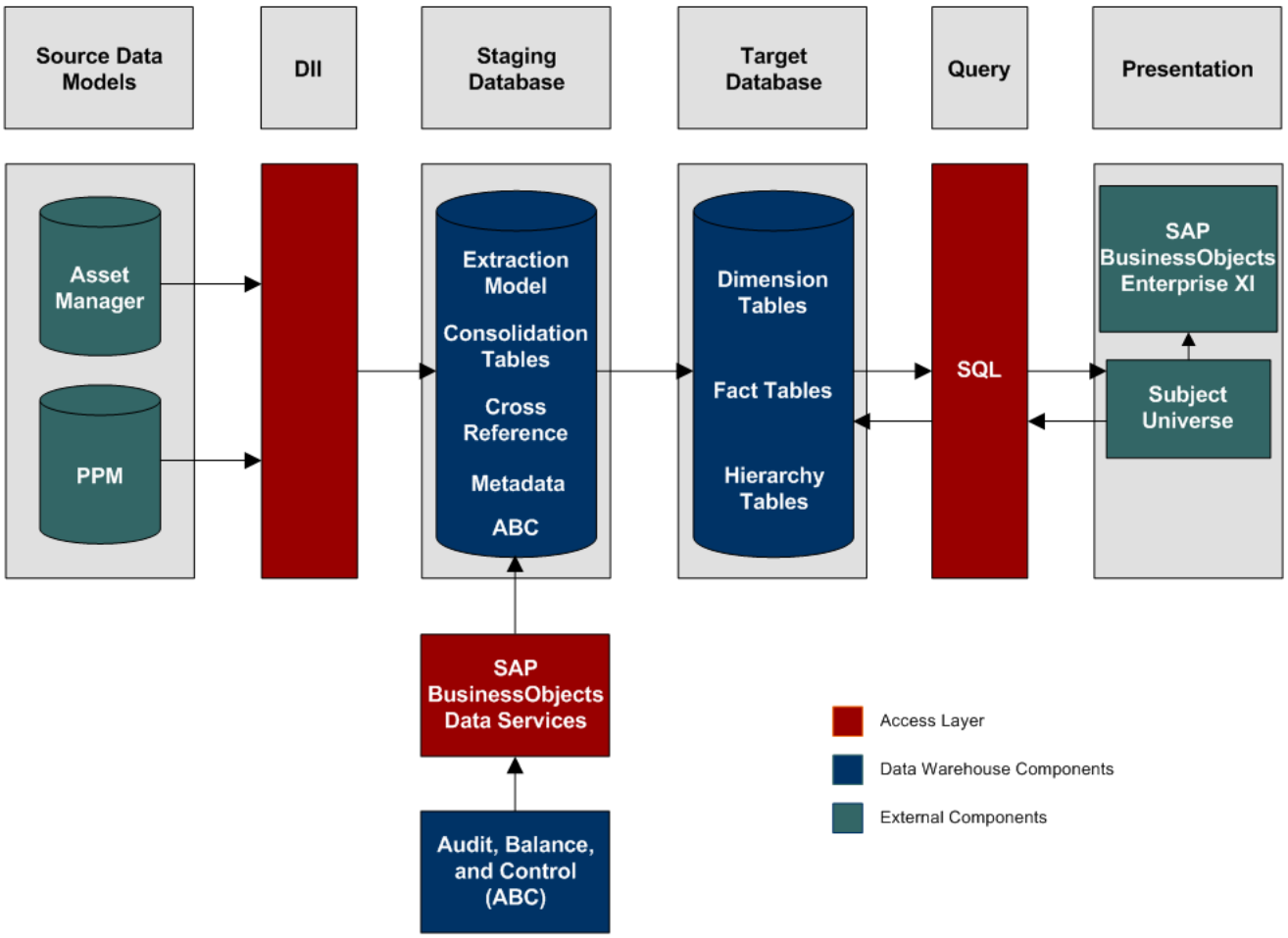
Data Warehouse Model

The data warehouse model is an end-to-end solution for extracting source data and consolidating disparate source data models into a consolidated data model. The data organized to reflect this model resides in target tables that become the source for Financial Planning & Analysis.

The data warehouse relies on an external RDBMS to provide daily maintenance and backup support, SAP BusinessObjects Data Services to assist with ETL, an ABC infrastructure of utilities and processes to govern regularly scheduled ETL jobs, and internal data warehouse utilities to create the data warehouse and maintain data integrity.

Figure 4 on page 19 shows the principal data warehouse components and how they interact. Read the following sections for more information about each component, its role, and responsibilities.

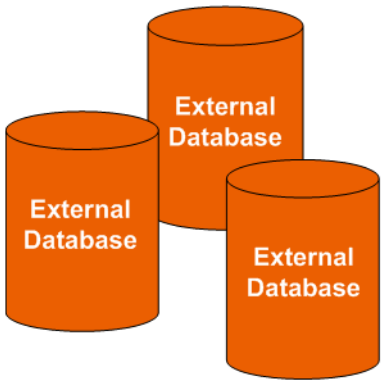
Figure 4 Data Warehouse Overview



Source Data Models

Source data originates in external application repositories. Data generated by an external application can be rich in business information, but unless you can integrate it with equally important business information generated by other applications, it is difficult to get a complete view of operational information.

The source data models describe the source and extraction format so that the data warehouse can consume this data and integrate it into a common view that you can use to populate comprehensive business intelligence reports and dashboards.



Data Integration Interface

The data integration interface (DII) is the access layer that stands between the source database models and the extraction models in the staging database. The DII uses a mapping model that transforms the source data to fit into extraction work tables. The DII can accommodate minor variations in the source model schemas from one version to another.

SAP BusinessObjects Data Services

SAP BusinessObjects Data Services is the access mechanism that performs the physical data extraction from the source repository to the staging database.

Audit, Balance, and Control

Audit, Balance, and Control (ABC) processes ensure that source data is not corrupted in the extraction process, and that the integrity of the extracted data is maintained as it progresses from the initial source extraction through the logical and physical transformation into target tables. SAP BusinessObjects Data Services can move the data but does not evaluate whether the final result is correct. ABC establishes checkpoints and provides feedback on each step to guarantee that each step is valid before the next step begins.

The Audit component ensures consistency during ETL processing. It measures the number of records in and the number of records out for each step and displays these runtime statistics in a collection of audit reports.

Balance verifies that data in the data warehouse matches data in the source system. For example, if the data warehouse stores project dollar amounts then the balance process verifies that the aggregate project dollars in the data warehouse matches the aggregate project dollars in the source application data.

Control governs ETL processes. Control makes sure that there is a proper restart and recovery when a system error occurs. Control also manages job dependencies at runtime.

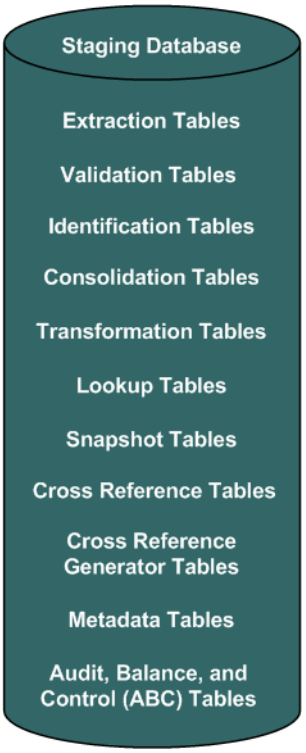
ABC utilities are applications that you can invoke automatically or manually to run ETL, solve problems, and perform ETL-related tasks.

Staging Database

The staging database contains tables and snapshots that are critical to the ETL process. Metadata describes these tables. Financial Planning & Analysis processes data in the staging database before loading it into the final target tables in the target database.

- Extraction (EXT) tables contain the initial version of source data. EXT tables are used during the stage of ETL when Financial Planning & Analysis loads data from the extract flat files into the staging database.
- Validation (VALF) failure tables are used during the data validation process that ensures all of the data is usable. VALF tables store source data that is rejected by the ETL process due to validation failure. Data validation is part of the process to load the EXT tables.
- Identification (SSI and MSI) tables restructure the diverse source system data into a conformed structure. Financial Planning & Analysis uses SSI and MSI tables to standardize the data and add an enterprise key.

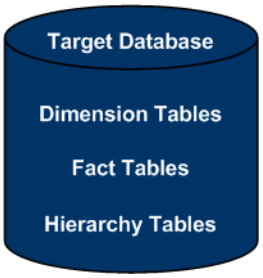
- Consolidation (MSC) tables integrate disparate source data into a consolidated entity. The MSC tables contain the uniform structure that IT Analytics uses to load the data into the target tables.
- Transformation (XFR) tables are load-ready tables that match the internal structure of the target tables. Financial Planning & Analysis uses XFR tables while preparing the data to be loaded into the target tables in the target database.
- Lookup (LOOKUP) tables store durable keys and surrogate keys. Financial Planning & Analysis uses these tables to establish dimension-to-dimension references in dimension tables and foreign key references in fact tables.
- Snapshot (TSNP, SSNP, and CSNP) tables are the persistent storage for ETL staging data. These snapshot tables capture the changed data and support the data warehouse recovery process. The data warehouse uses TSNP tables for source extraction staging, SSNP tables for single source integration staging, and CSNP tables for multiple source consolidation staging. The final ETL stage captures the snapshot data.
- Cross Reference (XREF) tables support the data integration processes that combine records from multiple sources into a single record in the consolidation model.



- Cross Reference Generator (XREFGEN) tables support data matching and cross reference inputs for the consolidation models.
- Metadata tables contain a logical model and describe how to translate that model into the physical implementation of tables and views.
- ABC tables support the ETL workflow and enable job control and sequencing. They also host audit information to ensure data quality.

Target Database

The target data models describe the format of the data that produces business intelligence analytics. The instantiated data models are dimension, fact, and hierarchy tables populated with data obtained through ETL processes.



- Dimension tables contain the data model to be queried and presented by Financial Planning & Analysis in a variety of reports and analytics.
- Fact tables contain data that describes events, transactions, or other granular information.
- Hierarchy tables capture hierarchical relationships among levels of data.

Queries

You can use structured query language (SQL) to create a primary abstraction layer of data from the target tables and use that data to populate reports, dashboards, or resolve business questions. The SAP BusinessObjects Enterprise XI 3.1 suite of business tools simplify accessing this information and storing it in business-oriented views.

Presentation

SAP BusinessObjects Enterprise XI 3.1 uses a universe abstraction layer to organize data for presentation in out-of-box or user-designed analytics. The universe provides a business oriented view of the data that resides in the data warehouse target tables.

Other Data Warehouse Components

The language of the data warehouse includes other database concepts.

Data Models

Data models are the design for the source, extraction, consolidation and final format of the data warehouse entities:

- **Source entity models:** The source entity model is the data produced by an external application, such as Asset Manager or Project and Portfolio Management.
- **Extraction models:** ETL processes obtain the data in native format and stage it in intermediate tables that conform to the extraction data model for that entity. Extraction also validates the data to ensure that it is usable.
- **Consolidation models:** Consolidation transforms the data further by merging extracted data from diverse sources into meaningful data required by Financial Planning & Analysis.
- **Target models:** The target models describe the final version of the data that adheres to the design required by Financial Planning & Analysis.

For more information and to view entity relationship diagrams (ERDs) of the target data models, see the *HP Financial Planning & Analysis ETL Reference Guide*.

Schemas

Logical schemas define entities and attributes. Along with the metadata, schemas become the blueprint for organizing data. This predictable organization enables Financial Planning & Analysis to access and display the data to end users.

Data Warehouse Files

The data warehouse contains these out-of-box .xml files in this directory:

C:\Program Files\HP\FPA\Foundation\conf\

ETL Configuration Files

These two files describe the data sources, passwords, and other configuration information modified by your input to the Configuration Tool during installation.

Table 2 Out-of-box .xml files

File Name	Description
dataSources.xml	A comprehensive collection of data source connection information, including all the parameter values that define the ODBC data source connection (DNS). There is one complete definition for each known external data source. For example, if you access financial planning data, you would have an entry to describe your Asset Manager data source.
dwplatform.properties	A comprehensive set of properties captured during the installation and configuration process. This file contains user-defined paths and passwords, version numbers, data source information, and RDBMS configuration information. Stored passwords are encrypted. If you change a password, you must run the dw-encryptpasswords tool to update the encrypted value.

Configurable Log Files

ABC utilities have customizable log files. For more information, see Configure the Logs on page 115.

3 Audit, Balance, and Control

Audit, Balance, and Control (ABC) is a set of functions based on data warehousing best practices. Although SAP BusinessObjects Data Services (BODS) manages the ETL workflow, ABC ensures work flow integrity. It controls the overall ETL execution, provides error handling, and collects job progress statistics. Other ABC features are:

- Multiple job stream management
- Command line administration tools
- Generated ABC operational system reports
- Generated ABC historical system reports

Audit

ABC Audit collects metric information about the processed data that communicates success, warning, or error statuses. If the audit information shows data loss or inconsistency, an error or warning status tells you that the results of the job are invalid.

When an error occurs, the ABC Audit function locks the subsequent steps in the batch job to prevent possible data corruption and further invalid data processing.

The data warehouse generates audit reports that summarize the number of entities that were extracted from the source systems, processed during ETL and then updated in the data warehouse. You can use these reports to verify that ETL processing works correctly or determine where to make adjustments that improve the work flow.

For more information, see Audit Reports on page 65.

Balance

The ABC Balance component enables the administrator to verify that data is synchronized between the source systems and data warehouse. ABC Balance can obtain external reference data to validate the contents of the data warehouse against other information stores, or enterprise record systems, and generate related reports.

Control

The ABC Control feature consists of a data model that describes ETL job stream design, and run-time executables that monitor the sequencing of each ETL step according to the overall ETL design.

ETL workflow is a complex operation that requires precision in the execution order and specific synchronization points. ABC Control adds value to the ETL process by validating the execution status of each step before launching the next step.

ABC Control also leverages audit information to ensure that the data warehouse content is not corrupted by ETL processes.

ETL Overview

Figure 5 on page 27 shows the phases of a typical job stream that runs using BODS through a BODS web service.

The job stream is a workflow of individual job stream (execution) steps and a description of related dependencies. A job stream can have one or more start steps, one or more end steps, and contain parallel execution branches. Each job stream has an identifier used to reference the job stream.

The job stream step invokes a command line utility or executes a BODS job. Each job stream contains job stream steps that also have unique identifiers.

After importing the out-of-box job stream file (upstream.xml), ABC:

- Creates the execution ready batch.
- Compiles a list of parallel and sequential execution job steps that are ready to run.
- Launches each job step that is ready for execution.
- Monitors job step dependencies by verifying the successful execution of each step before a dependent step begins.
- Stops any running step that exceeds its maximum execution time and sets its status to Max_Execution_Time_Exceeded.
- Finds all steps that block the stream execution and reports them.
- Retries any step that terminates with an error but has not exceeded the maximum number of retries.

ABC Utilities

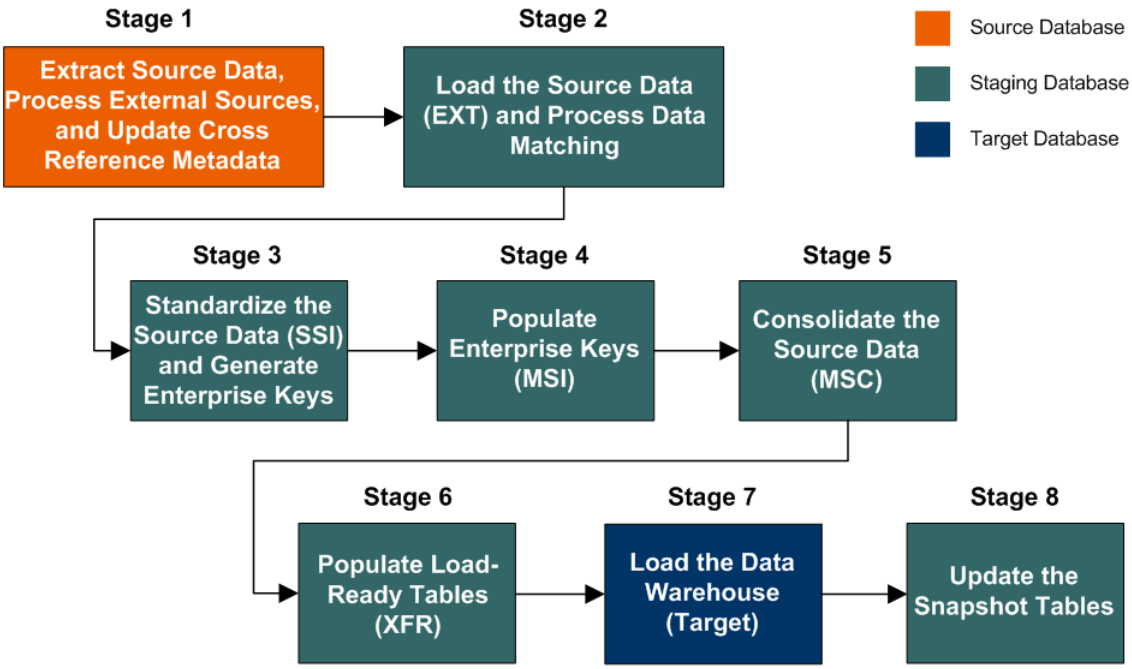
Although BODS runs the jobs that extract, transform, and load data, ABC manages the actual launch, execution, and sequencing of the steps in these jobs. If you run jobs using BODS only, there can be conflicts, sequence errors, and data corruption. Run-time statistics will be lost.

The data warehouse provides the out-of-box file (upstream.xml) that contains the required job steps. The primary ABC tasks are to launch ETL batch jobs at regularly scheduled intervals and ensure that the individual job steps run as soon as they are ready. There are four ABC utilities that govern this process:

- dw_abc_load_batch
- dw_abc_batch_control
- dw_abc_run_steps
- dw_abc_retry_steps

Read the following sections for a description of each utility.

Figure 5 Process overview



dw_abc_load_batch

The dw_abc_load_batch utility loads the executable jobs identified in the catalog file (upstream.xml). You can run this utility manually at the command line, or create a Windows scheduled task to run at scheduled intervals.

Batch job streams can run concurrently if each job stream is independent of other job streams; however, if two concurrent batch jobs invoke the same job stream, they cannot run successfully. If the dw_abc_load_batch utility successfully loads a batch job, as long as that batch job is running, any attempt to load a second instance of the same batch job will fail. Running the out-of-box upstream.xml job stream in overlapping batches produces errors.

For more information, see How Do I Load a Batch Job? on page 36. For more information about the command line syntax options, see dw_abc_load_batch on page 107.

dw_abc_batch_control

The dw_abc_batch_control utility enables you to:

- Suspend an active batch job stream
- Resume a suspended batch job stream
- Abort a running batch job stream

For more information, see How Do I Start and Stop Batch Jobs? on page 38. For more information about the command line syntax options, see dw_abc_batch_control on page 102.

dw_abc_run_steps

The dw_abc_run_steps utility is the ABC engine. You can run this utility manually at the command line, but HP recommends that you create a Windows scheduled task to run at scheduled intervals.

The ABC engine verifies the successful execution of each step before a dependent step begins. It also compiles a list of parallel and sequential execution steps that are ready to run, then launches each step that is ready for execution. The ABC engine:

- Determines which steps are ready to run and starts them.
- Creates processes for each step in a batch job stream.
- Reports execution state for each process, then updates a final execution status for the batch.
- Sets a status of Max_Execution_Time_Exceeded if a step exceeds its maximum execution time.
- If Max_Execution_Time_Exceeded occurs, stops job step execution.
- Finds all steps that are blocking the execution of a job stream and reports them.
- Retries any step that terminates with an error and has not exceeded the specified maximum number of retries.

You can specify a maximum number of retries when an error occurs, and a maximum execution time for each step in the job stream definition file. Because they are optional parameters, they have default values of no retries and unlimited execution time.

For more information, see How Do I Run Job Steps? on page 37. For more information about the command line syntax options, see dw_abc_run_steps on page 109.

dw_abc_retry_step

The dw_abc_retry_step utility re-starts a job step. When you specify a maximum number of retries, the ABC engine blocks the job stream when that number is exceeded.

For more information, see How Do I Restart a Job Step? on page 37. For more information about the command line syntax options, see dw_abc_retry_step on page 108.

Tracking Reports

ABC reports monitor the batch jobs as they run. These reports display execution status, start and end times, error message information, and batch states. You can monitor jobs over time and use the reports to evaluate trends, workload variations, or compare operational data. For more information, see Data Warehouse Reports on page 47.

Scheduling

Although you can load batch job streams and run job steps manually, you should automate the scheduling process on a production system. The ABC engine should run every few minutes, depending on how long ETL job steps take to complete. You should schedule a complete ETL batch job to extract new or updated data from external data sources once or twice each day. The job steps within the ETL batch job should run as soon as they are ready.

Both dw_abc_run_steps and dw_abc_load_batch have syntax options that enable you to register a recurring job as a Windows scheduled task. For more information, see Create a Windows Scheduled Task on page 31.

Out-of-Box Files

The data warehouse provides all the tools, workflows, and related supporting files to run an end-to-end ETL process for each supported data source.

4 ETL Tasks

This section provides instructions for creating a Windows scheduled task to run the ETL process automatically at regular intervals. It also provides information about checking the status of ETL job steps.

Create a Windows Scheduled Task

To avoid manually loading batch jobs or running job streams, register the utilities to run at regular intervals. You can specify a recurrent interval of time for dw_abc_run_steps and both a recurrent interval and a start time for dw_abc_load_batch. HP recommends that you register batch jobs to run automatically no more than two times a day and register job steps to run every few minutes. Do not attempt to schedule one instance of the same batch job to run concurrently with another instance of the same batch job. HP recommends that you schedule the Upstream job to run daily and the AllocationMetric job to run weekly.

To create a Windows scheduled task

1. Open a Windows command line window.
2. Switch to this directory:

   C:\Program Files\HP\FPA\Foundation\bin
3. Run this command:

   dw_abc_run_steps -register -every *nn*

   where Windows runs a task to start dw_abc_run_steps.bat every *nn* minutes.

Examples

- To start a specific batch job (Upstream) at 10:30PM, run this command to create the scheduled task:

  dw_abc_load_batch -streamId Upstream -starttime 22:30
- To register a batch job of steps that run every 5 minutes, run this command to create the scheduled task:

  dw_abc_run_steps -register -every 5
- To schedule the allocation metric job to run once every week:

  dw_abc_load_batch -streamId allocationmetric -register -every 10080

  To schedule a job to run at a specific day and time, you can use the AT command from the Windows command line. For example, to run the allocation metric job every Monday at 8:00PM, use this command:

  at 20:00 /every:M “dw_abc_load_batch -streamId allocationmetric"

For more information, see dw_abc_load_batch on page 107 or dw_abc_run_steps on page 109. To create a more complex Windows task schedule, see the **MSDN** (**http://msdn.microsoft.com/** web site.

Upstream.xml and fpa_allocationmetric.xml

The out-of-box upstream.xml and fpa_allocationmetric.xml files contain all the steps, in the proper sequence, to run a full ETL job. A trigger is performed during the final job within the stream that notifies the engine to recalculate changes. The engine is called on two occasions:

- After the Upstream ETL completes successfully, the allocation engine runs cost based allocations.
- After the AllocationMetric ETL completes successfully and had made updates to the itaapp.allocation_metric table, the allocation engine runs metric-based, or dynamic, allocations.

To view upstream.xml

Navigate to this directory:

C:\Program Files\HP\FPA\ContentPacks\Core\ABC

To view fpa_allocationmetric.xml

Navigate to this directory:

C:\Program Files\HP\FPA\ContentPacks\FPA\ABC

Open these files with a text editor to learn more about the out-of-box sequencing for ETL job steps. You can trace the execution of the ETL process. These files also provide the step IDs that you need if you run job steps separately.

Do not attempt to customize this file. It is the complete template for extracting data from remote sources and storing that data in the data warehouse. HP recommends that you contact HP Services for assistance if you wish to introduce customizing.

Check the Status of the ETL Job Steps

Task 10: Check the Status of the ETL Job Steps

After running initial sync, and after subsequent ETL runs, use the Data Warehouse Administration Operations reports to check the job stream status and make sure there were no job step warnings or errors during batch processing.

To check the status of the ETL job steps

1. Open the operations reports. For more information, see Viewing Reports on page 47.
2. View the Operational Status report. For more information, see ABC - Operational Status on page 76.
3. Check the Status column for any *WARNING* or *ERROR* entries.
   - If the Status column contains *WARNING* for a job, view the Recovery Recommended Action column for instructions about what to change.

- If the Recovery Recommended Action column contains, *Check WARNING metrics*, view the appropriate Audit Report for details. For more information, see Audit Reports on page 65.
- If the Recovery Recommended Action column is empty, log in to the SAP BusinessObjects Data Services Management Console, click **Status**, select the repository, and then select the error to view details.

- If the Status column contains *ERROR* for a job, view the Recovery Recommended Action column for instructions about what to change.
  - If the Recovery Recommended Action column is empty, *NULL*, or *NOT NULL*, log in to the SAP BusinessObjects Data Services Management Console and view the status information for the error.
- If you see a warning in the xref_gen ETL step, view the dw_xref.log file for details. For more information, see XREF_GENERATOR Errors on page 173.

For more information about the Data Warehouse Administration Reports, see Data Warehouse Operational Reports on page 65. For more information about errors, see Error Handling on page 45 and Troubleshooting on page 163.

5 ABC Administrative Tasks

The data warehouse administrator manages the ETL process by using the out-of-box ABC utilities to solve problems and produce reports. Read this chapter for information about typical data warehouse administration tasks.

How Do I Update the Connection to Data Services? (on this page).

How Do I Validate Catalog and Stream Definitions? on page 36.

How Do I Load a Batch Job? on page 36

How Do I Run Job Steps? on page 37

How Do I Restart a Job Step? on page 37.

How Do I Start and Stop Batch Jobs? on page 38

How Do I Change the Number of Retries? on page 38

How Do I Change Data Warehouse Passwords? on page 40.

How Do I Improve Performance? on page 41.

How Do I Check the Runtime Status of Batch Jobs? on page 41.

How Do I Resolve an ETL Error? on page 41

How Do I Monitor and Tune the Data Warehouse? on page 41

How Do I Purge Validation Tables? on page 42.

How Do I Change the Location of External Source Files? on page 42.

How Do I Update the Connection to Data Services?

The initial installation prompts you to configure the required connections. The ABC engine manages BODS jobs using the BODS Web Service interface. If you change the BODS host and port information, you must update the connection information in the dwplatform.properties file.

To update the BODS connection

1. Open this file with a text editor:

   C:\Program Files\HP\FPA\Foundation\conf\dwplatform.properties

2. Navigate to the Business Objects section and locate the URL parameter:

```
## Business Object
############################################################
# Data Services Management Console Address,
# The url looks like: http://<host>:<port>/DataServices
```

```
DataServicesManagementConsoleAddress <url>

DataServicesManagementConsoleUser admin

DataServicesManagementConsolePassword TIoAmgMCVUbvZ_K7rtmqcQ.
```

3 Paste the updated Data Services port information into the **DataServicesManagementConsoleAddress** parameter <url> location. For example:

```
DataServicesManagementConsoleAddress http://localhost:8080/DataServices
```

4 If the user name for the new connection is different, replace the **DataServicesManagementConsoleUser** value. For example:

```
DataServicesManagementConsoleUser admin
```

5 Save and close the file.

6 If the console password is different, run the dw-encryptpasswords utility at the command line to encrypt the new password value and store it in the dwplatform.properties configuration file. For more information, see dw-encryptpasswords on page 200.

How Do I Validate Catalog and Stream Definitions?

ABC utilities automatically validate xml syntax and perform more sophisticated validation, such as loop detection in a job stream and valid catalog references to the job stream (dwid=`Upstream`).

If an error occurs, you can review the ABC Operational Status report to see where the process failed.

How Do I Load a Batch Job?

The dw_abc_load_batch.bat script loads the upstream.xml batch job. When the batch job loads, the job steps within the batch job run as they become ready. The dw_run_steps.bat (the ABC engine) utility looks for these ready steps at scheduled intervals and starts each one individually. The batch job manages the details of extracting entities from source databases like Asset Manager or Project and Portfolio Management.

All the job steps in the batch job reference the same batch ID. The initial state of the batch is Active. The initial state of all of the pending processes (job steps) is Waiting.

To load a batch job

1 Open a Windows command line window.

2 Switch to this directory:

C:\Program Files\HP\FPA\Foundation\bin

3 Run this command:

dw_abc_load_batch -streamId Upstream

where -streamId and its value Upstream are required.

For more information, see dw_abc_load_batch on page 107.

How Do I Run Job Steps?

The dw_abc_run_steps.bat utility is the ABC engine. It assesses the readiness of candidate job steps and runs them at the appropriate time.

To run job steps

1. Open a Windows command line window.
2. Switch to this directory:

   C:\Program Files\HP\FPA\Foundation\bin
3. To run a specific job stream (Upstream), run this command:

   dw_abc_run_steps -streamId Upstream

   where -streamId and its value Upstream are required.

The dw_abc_run_steps utility determines which step to run next. When the current step ends, the job stream waits until dw_abc_run_steps restarts to launch the next sequential step. If the next step does not start when launched, the dw_abc_run_steps utility tries *maxretries* times to run the job step. For example:

```
<ns1:JobStreamStep dwid="EXTERNAL_FILE" businessname="extract External Files"
... maxretries="4"/>
```

HP recommends that you create a scheduled task to run any pending job steps at frequent intervals. For more information, see dw_abc_run_steps on page 109.

How Do I Restart a Job Step?

The dw_abc_retry_step utility manually restarts a job step after the dw_abc_run_steps.bat utility exceeds the *maxretries* value for a job step.

To restart a job step

1. Open a Windows command line window.
2. Switch to this directory:

   C:\Program Files\HP\FPA\Foundation\bin
3. Run this command:

   dw_abc_retry_step -streamId Upstream -stepId *step_id*

   where *step_id* is the job step identifier in the upstream.xml file.

Example

To restart job step EXTERNAL_FILE in the upstream.xml job stream, type this command:

dw_abc_retry_step -streamId Upstream -stepId EXTERNAL_FILE

For more information, see dw_abc_retry_step on page 108.

How Do I Start and Stop Batch Jobs?

Batch jobs can start manually or with a Windows scheduled task. You can control a batch run with commands to suspend, resume, or abort the run.

To start or stop a batch job

1. Open a Windows command line window.
2. Switch to this directory:

   C:\Program Files\HP\FPA\Foundation\bin
3. To suspend a batch run (Upstream), run this command:

   dw_abc_batch_control -suspend -streamid Upstream
4. To resume a batch run (Upstream), run this command:

   dw_abc_batch_control -resume -streamid Upstream
5. To terminate a batch run (Upstream), run this command:

   dw_abc_batch_control -abort -streamid Upstream

For more information, see dw_abc_batch_control on page 102.

How Do I Change the Number of Retries?

The job stream batch file has a job stream step for each required task in the end-to-end ETL process and for each data source. Each job stream step has a parameter value that specifies the number of retries allowable before the job step terminates with an error. You can manually edit this value to increase or decrease the number of retries.

To change the number of retries

1. Navigate to the installation directory structure to locate this file:

   C:\Program Files\HP\FPA\ContentPacks\Core\ABC\upstream.xml
2. Save a backup copy of the file before you proceed.
3. Open upstream.xml with a text editor. There is a sequential list of job stream steps that manage the entire ETL process.

```
<ns1:JobStreamSteps>
   <ns1:JobStreamStep dwid="SYS_READY" businessname="ckeck ETL pre
   conditions" ...  maxretries="4"/>
   <ns1:JobStreamStep dwid="EXTERNAL_FILE" businessname="extract External
   Files" ...  maxretries="4"/>
   <ns1:JobStreamStep dwid="PPM_SOURCE_EXTRACT" businessname="extract PPM
   to FF"... " maxretries="4"/>
   <ns1:JobStreamStep dwid="AM_SOURCE_EXTRACT" businessname="extract AM to
   FF" ... maxretries="4"/>
   <ns1:JobStreamStep dwid="ENTERPRISE_XREF" businessname="load Xref
   table" ...  maxretries="4"/>
   <ns1:JobStreamStep dwid="PPM_EXT" businessname="load PPM FF" ...
   maxretries="4"/>
   <ns1:JobStreamStep dwid="AM_EXT" businessname="load AM FF" ...
   maxretries="4"/>
```

```
<ns1:JobStreamStep dwid="PPM_SSI" businessname="PPM Single Source
Identity" ... maxretries="4"/>
<ns1:JobStreamStep dwid="AM_SSI" businessname="AM Single Source
Identity" ...  maxretries="12"/>
<ns1:JobStreamStep dwid="PPM_SSI_XREF" businessname="PPM SSI Xref" ...
maxretries="4"/>
<ns1:JobStreamStep dwid="AM_SSI_XREF" businessname="AM SSI Xref" ...
maxretries="4"/>
<ns1:JobStreamStep dwid="PPM_MSI" businessname="PPM Mutiple Source
Identity"...  maxretries="4"/>
<ns1:JobStreamStep dwid="AM_MSI" businessname="AM Mutiple Source
Identity" ...  maxretries="4"/>
<ns1:JobStreamStep dwid="PPM_BACKFILL_CTRL" businessname="PPM backfill
keys" ... maxretries="4"/>
<ns1:JobStreamStep dwid="AM_BACKFILL_CTRL" businessname="AM backfill
keys" ..." maxretries="4"/>
<ns1:JobStreamStep dwid="XREF_BACKFILL_CTRL" businessname="Xref
backfill" ... maxretries="4"/>
<ns1:JobStreamStep dwid="PPM_BACKFILL" businessname="PPM backfill" ...
maxretries="4"/>
<ns1:JobStreamStep dwid="AM_BACKFILL" businessname="AM backfill" ...
maxretries="4"/>
<ns1:JobStreamStep dwid="PPM_CON" businessname="PPM Consolidation" ...
maxretries="4"/>
<ns1:JobStreamStep dwid="AM_CON" businessname="AM Consolidation"
...maxretries="4"/>
<ns1:JobStreamStep dwid="MS_CON" businessname="Multi Source
Consolidation" ... maxretries="4"/>
<ns1:JobStreamStep dwid="XFR_DIM" businessname="prepare load" .../
maxretries="4">
<ns1:JobStreamStep dwid="XFR_FACT" businessname="prepare load"
...maxretries="4"/>
 <ns1:JobStreamStep dwid="DW" businessname="load from staging to
target" ...maxretries="4"/>
 <ns1:JobStreamStep dwid="CSNP" businessname="consolidated snapshot"
...maxretries="4"/>
<ns1:JobStreamStep dwid="SSNP" businessname="single source snapshot"
...maxretries="4"/>
<ns1:JobStreamStep dwid="TSNP" businessname="transactional snapshot"
.../maxretries="4">
<ns1:JobStreamStep dwid="SYS_CLOSE" businessname="check ETL post
condition"...maxretries="4"/>
</ns1:JobStreamSteps>
```

4 Locate the job stream step that you want to modify and change maxretries="4" to maxretries="*nn*" where "*nn*" is the number of retries before the job step terminates.

5 Save and close the file.

6 You must re-load the updated job stream file. Open a Windows command line window.

7 Switch to this directory:

C:\Program Files\HP\FPA\ContentPacks\Core\ABC\

8 Run this command:

dw_abc_importdefs -xmlfile Upstream.xml

How Do I Change Data Warehouse Passwords?

The installation and configuration process gathers all data warehouse and SAP Business Objects passwords, encrypts them, and stores them in the dwplatform.properties file. If you need to update these passwords, you must re-encrypt them. The encryption utility stores the new encrypted password in the dwplatform.properties file.

To change a password

1. Open a Windows command line window.
2. Switch to this directory:

   C:\Program Files\HP\FPA\Foundation\bin
3. To change the ABC database administrator password, type this command:

   dw-encryptpasswords **-**AbcDBAdminPwd *newPassword*

   where *newPassword* is the updated password value.

The existing value in the dwplatform.properties file is automatically replaced by an encrypted version of the *paSSw0rd* value.

Example

Type this command to change the existing password to “paSSw0rd.”

dw-encryptpasswords **-**AbcDBAdminPwd paSSw0rd

where *paSSw0rd* is the new password value.

The existing value in the dwplatform.properties file is automatically replaced by an encrypted version of “paSSw0rd.”

AbcDBAdminPwd *smkOULucWUdLAa6Qupd2fQ*..

Password Types

The dwplatform.properties or datasources.xml file contains the encrypted password values. Use the same dw-encryptpasswords syntax to change and encrypt these passwords:

- -AbcDBAdminPwd *password*
- -AbcDBOwnerPwd *password*
- -AllSchemasAdminPwd *password*
- -AllSchemasOwnerPwd *password*
- -DSManagementConsolePwd *password*
- -DSRepositoryPwd *password*
- -MetadataDBAdminPwd *password*
- -MetadataDBOwnerPwd *password*
- -RDSTargetDBAdminPwd *password*
- -RDSTargetDBOwnerPwd *password*
- -StagingDBAdminPwd *password*
- -StagingDBOwnerPwd *password*

- -StagingTargetDBOwnerPwd *password*
- -AMPwd *password*
- -PPMPwd *password*
- -SMPwd *password*

How Do I Improve Performance?

Normal procedures require database administrators to set up aggregation, indices, and partitions that can enhance performance. Enhancing and tuning overall database performance will also improve the data warehouse performance.

Because the end-to-end ETL process involves accessing remote source databases and network connections, you may want to evaluate where performance degradation occurs and apply tuning strategies to these external connections.

How Do I Check the Runtime Status of Batch Jobs?

The data warehouse produces operational and administrative reports that contain information about job status and other critical data warehouse activities. When you view the ABC Operational Status report, you can see the global status and state of each ETL job stream and a snapshot of the runtime status of each job stream step.

For more information, see ABC - Operational Status on page 76.

How Do I Resolve an ETL Error?

ETL jobs contain stream steps that you can restart. If the stream step is ready for processing, the next scheduled execution of abc_run_steps.bat will restart the stream step automatically. If there is another impediment, such as source database or connection issues, you must resolve that issue before the step can complete successfully. If there is an obvious error with an executing step, you can terminate the process by following the steps in Chapter 6, Error Handling on page 45.

For more information, see dw_abc_retry_step on page 108.

How Do I Monitor and Tune the Data Warehouse?

The overall health of the data warehouse depends on the administrative skill of the RDBMS administrator. The Microsoft SQL Server 2005 database administrator uses standard operating procedures for daily database operations. The data warehouse is governed by these same processes and procedures. For monitoring and tuning information, consult the Microsoft SQL Server 2005 documentation.

How Do I Purge Validation Tables?

There is no automated process to purge these tables on a regular schedule. Because organizations require audit and validation information to be retained for varying amounts of time, you should verify what the appropriate retention period is in your organization. Use the following SQL script to delete all records in each of the validation tables that are older than the defined retention period.

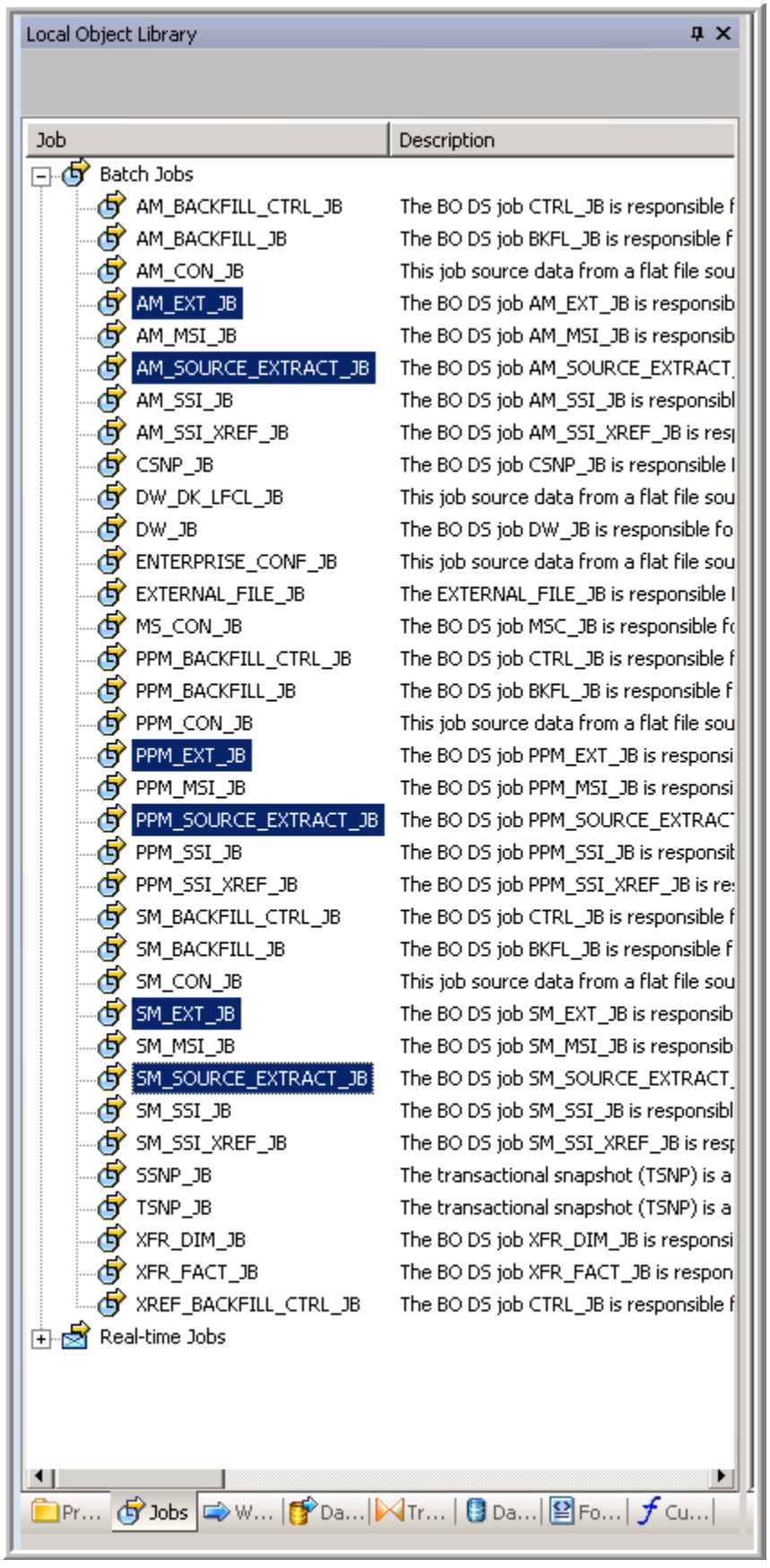
```
<
CREATE OR REPLACE PROCEDURE sp_del_valf_info AS
--declare variables
BEGIN
--Delete All Required records in selection
   DELETE FROM *.VALF
   WHERE --trunc(Date) < '09-FEB-06'
);
   COMMIT;
END sp_del_valf_info    >
```

How Do I Change the Location of External Source Files?

To create the required directories

1. Use Windows Explorer to create these folders. The folder names must match, and be in upper case. Create them at the location of your choice. For example:
   - D:\EXTERNAL
   - E:\EXTRACTIONS\AM
   - E:\EXTRACTIONS\PPM
2. From the Windows **Start** menu, click **All Programs** > **BusinessObjects Enterprise XI 3.1** > **BusinessObjects Data Services** > **Data Services Designer**.
3. Login with the server, database, and authentication information.
4. In the Local Object Library section in the lower left pane, expand **Batch Jobs**.
5. Right-click an extraction job. For example, *xx*_EXT_JB or *xx*_SOURCE_EXTRACT_JB shown in Figure 6 on page 43.
6. Select **Properties**.
7. On the **Global Variable** tab, locate the $G_*xx*_FILELOCATION variable. For example, an Asset Manager job has a global variable named $G_AM_FILELOCATION.
8. In the **Value** column, type the path to the directory that contains the external source file spreadsheet. For this example, you would type D:\EXTRACTIONS\AM.
9. For each relevant *xx*_EXT_JB or *xx*_SOURCE_EXTRACT_JB, repeat step 5 through step 8.
10. Save all jobs and exit Data Services Designer.

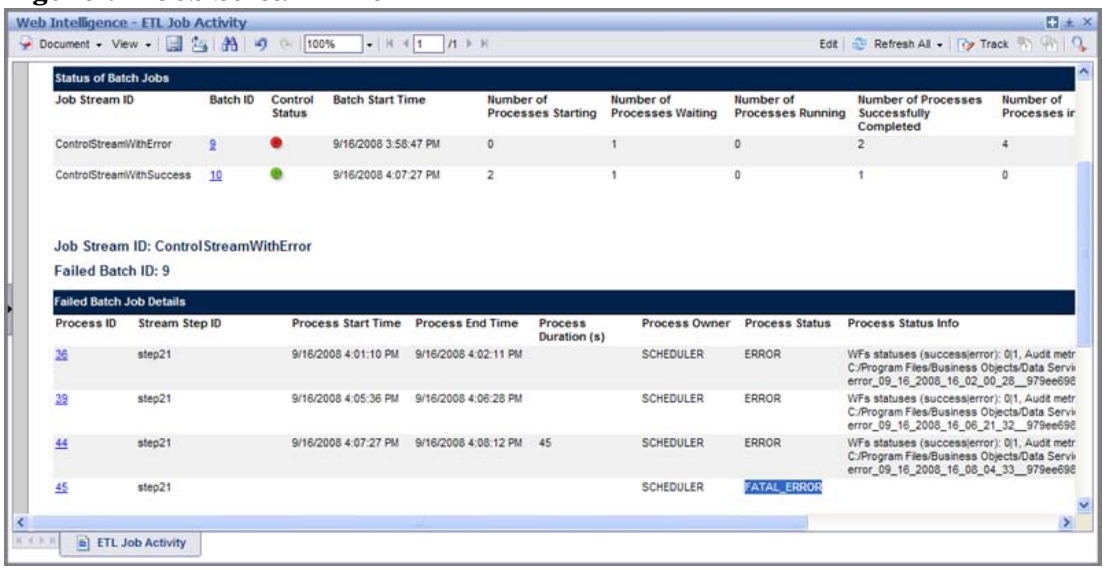
Figure 6 Local Object Library



6 Error Handling

If an error occurs when you run ABC through SAP BusinessObjects Data Services (BODS), the job stream is blocked. In this example, the list of batch jobs shows an error control status for the job stream ID ControlStreamWithError.

Figure 7 Job Stream Error



When an error occurs, the Failed Batch Job Details section shows the status of each step and the Process Status Info column provides more detailed information.

Retry Handling

The automatic retry restarts the step up to the *maxretries* limit specified in the job step definition in the upstream.xml file. Thereafter, you can switch to a manual retry method.

Automatic Step Retry

When a step has an error status, ABC automatically attempts to restart the step the next time dw_abc_run_steps.bat runs using a new process ID. Each time dw_abc_run_steps.bat runs, it automatically restarts the failed step until it reaches the *maxretries* value. The step status passes into a final state in the next run. In the example shown in Figure 7 on page 45, step21, with a *maxretries* value of 3, ends with a status of ERROR three times and then has a final FATAL_ERROR status after the last retry.

Manual Step Retry

After you correct the step error, you can retry the step manually with the dw_abc_retry_step.bat script.

- To put the batch into a suspended state

  From the Windows command line interface, navigate to the installation directory that contains data warehouse scripts:

  C:\Program Files\HP\FPA\Foundation\bin

- To suspend the batch

  Run this command:

  dw_abc_batch_control.bat -suspend ControlStreamWithError

- To restart the step

  Run this command:

  dw_abc_retry_step.bat -stepId *stepid* -streamId Upstream

You can repeat the manual retry as many times as necessary to obtain a status of SUCCESS.

7 Data Warehouse Reports

The data warehouse delivers different types of reports in a SAP BusinessObjects Enterprise XI 3.1 Web Intelligence format that report on administrative or Audit, Balance, and Control (ABC) activities.

Viewing Reports

BOE InfoView displays data warehouse reports as Web Intelligence (WebI) reports.

To view a report

1. From the Windows **Start** menu, click **Programs** > **BusinessObjects XI 3.1** > **BusinessObjects Enterprise** > **BusinessObjects Enterprise Java InfoView**.
2. Type valid user credentials.
3. Click **Log On**.
4. Click **Document List**.
5. In the navigation pane, expand **Public Folders**. There are two folders that contain reports: **DW *xx* Administration** and **DW *xx* Operations**, where ***xx*** represents the localization abbreviation. For example, **DW EN Administration** if the selected language is English.
6. Expand these directories to see the sub-directories for **Data Model Reports**, **Audit Reports**, or **Control Reports**. The Platform Configuration report is at the root level of the **DW *xx* Administration** directory.
7. To print the report, or save it for future reference, you can click **Document** > **Save to my computer as** (or **Save report to my computer as**) > **PDF**.

Some reports contain more than one page. You can use the toolbar at the top of the InfoView window to advance through multiple pages or jump to the last page of the reports. Other toolbar buttons enable you to customize the display mode, save the reports, print, and complete other editing tasks.

Data Warehouse Administration Reports

The objective of the Administration reports is to provide:

- An overview of the current status of the data warehouse configuration.
- Detailed model definition descriptions.
- Generated schema descriptions.

Read the following sections for information about each report.

Data Model Reports

The typical user of data model reports is the data warehouse administrator, data warehouse developer, or an HP Support representative who is gathering information about the current state of the data warehouse.

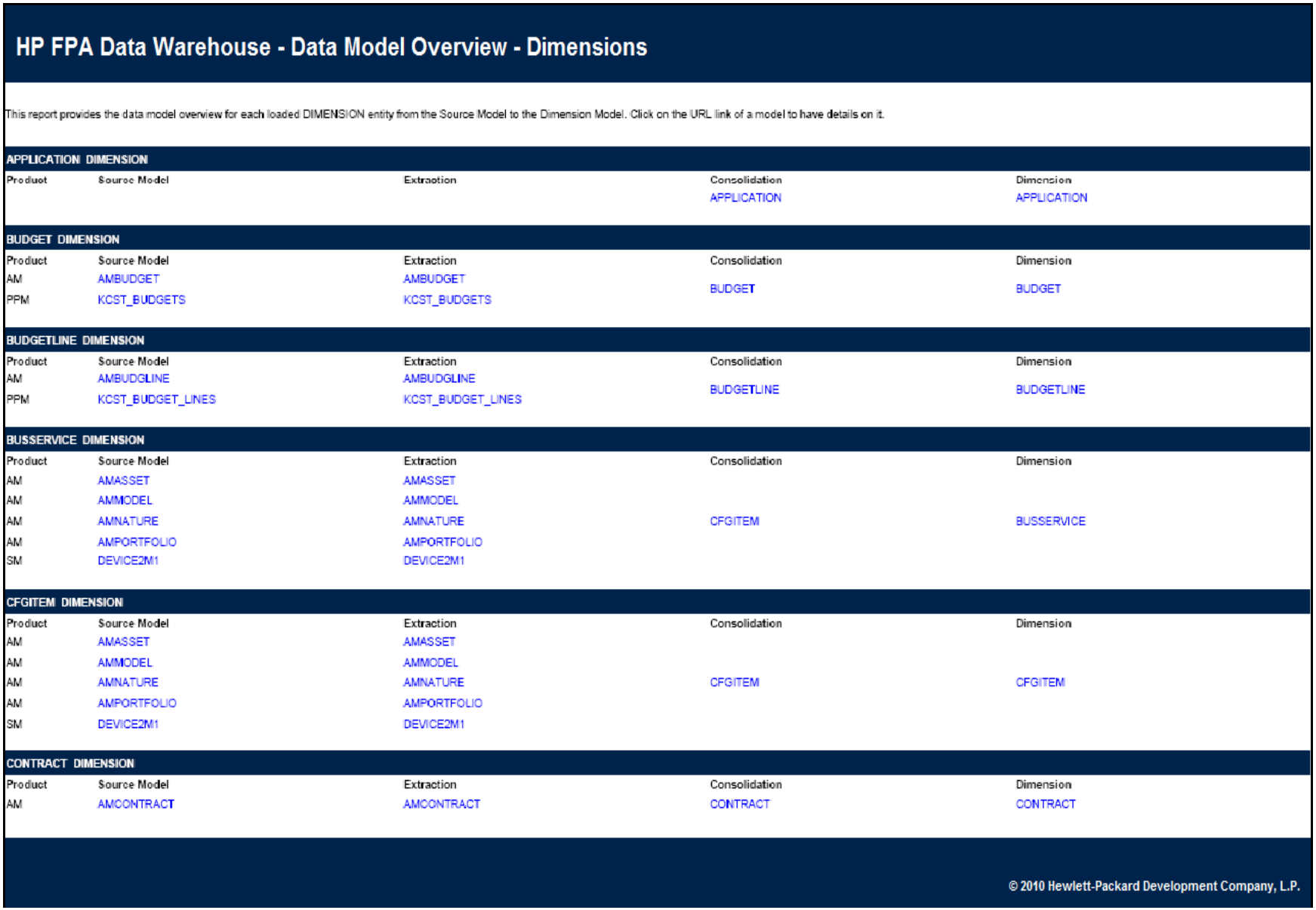
Data Model Overview

This query produces a complete view of extraction path for every fact and dimension entity. Run this report after you deploy a new application. It is the entry point for all data model reports. The links in the report enable you to link to reports that provide more detail.

To view the report

1. Click **Public Folders** > **DW *xx* Administration** > **Data Model Overview**.
2. Click **Run Query**.
3. On the **Data Model Overview - Dimension**s tab, click the drop-down list to choose an entity. For example, choose the PERSON entity. Figure 8 on page 49 shows the dimension data model for the PERSON entity when extracted from multiple sources and consolidated into a target dimension.
4. On the **Data Model Overview - Facts** tab, shown in Figure 9 on page 50, click the drop-down list to choose a view of the data, **ACTUALCOST**, **PLANNEDCOST**, or **Facts (All values)**. For example, choose ACTUALCOST.

Figure 8 Data Model Overview - Dimensions report



HP FPA Data Warehouse - Data Model Overview - Dimensions

This report provides the data model overview for each loaded DIMENSION entity from the Source Model to the Dimension Model. Click on the URL link of a model to have details on it.

APPLICATION DIMENSION

Product	Source Model	Extraction	Consolidation	Dimension
			APPLICATION	APPLICATION

BUDGET DIMENSION

Product	Source Model	Extraction	Consolidation	Dimension
AM	AMBUDGET	AMBUDGET	BUDGET	BUDGET
PPM	KCST_BUDGETS	KCST_BUDGETS		

BUDGETLINE DIMENSION

Product	Source Model	Extraction	Consolidation	Dimension
AM	AMBUDGLINE	AMBUDGLINE	BUDGETLINE	BUDGETLINE
PPM	KCST_BUDGET_LINES	KCST_BUDGET_LINES		

BUSSERVICE DIMENSION

Product	Source Model	Extraction	Consolidation	Dimension
AM	AMASSET	AMASSET		
AM	AMMODEL	AMMODEL		
AM	AMNATURE	AMNATURE	CFGITEM	BUSSERVICE
AM	AMPORTFOLIO	AMPORTFOLIO		
SM	DEVICE2M1	DEVICE2M1		

CFGITEM DIMENSION

Product	Source Model	Extraction	Consolidation	Dimension
AM	AMASSET	AMASSET		
AM	AMMODEL	AMMODEL		
AM	AMNATURE	AMNATURE	CFGITEM	CFGITEM
AM	AMPORTFOLIO	AMPORTFOLIO		
SM	DEVICE2M1	DEVICE2M1		

CONTRACT DIMENSION

Product	Source Model	Extraction	Consolidation	Dimension
AM	AMCONTRACT	AMCONTRACT	CONTRACT	CONTRACT

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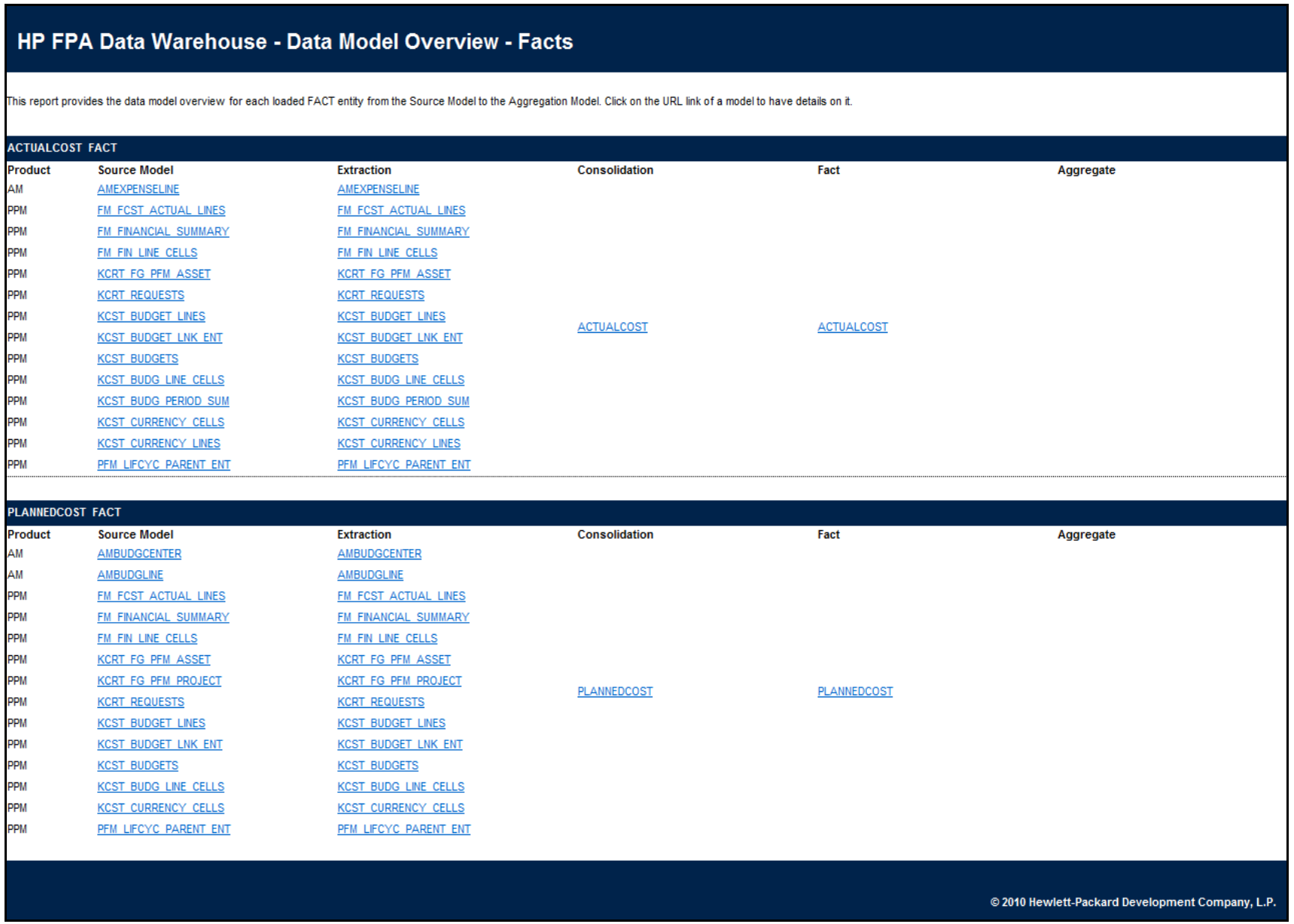
Figure 9 Data Model Overview Facts report



HP FPA Data Warehouse - Data Model Overview - Facts

This report provides the data model overview for each loaded FACT entity from the Source Model to the Aggregation Model. Click on the URL link of a model to have details on it.

ACTUALCOST FACT

Product	Source Model	Extraction	Consolidation	Fact	Aggregate
AM	AMEXPENSELINE	AMEXPENSELINE			
PPM	FM_FCST_ACTUAL_LINES	FM_FCST_ACTUAL_LINES			
PPM	FM_FINANCIAL_SUMMARY	FM_FINANCIAL_SUMMARY			
PPM	FM_FIN_LINE_CELLS	FM_FIN_LINE_CELLS			
PPM	KCRT_FG_PFM_ASSET	KCRT_FG_PFM_ASSET			
PPM	KCRT_REQUESTS	KCRT_REQUESTS			
PPM	KCST_BUDGET_LINES	KCST_BUDGET_LINES	ACTUALCOST	ACTUALCOST	
PPM	KCST_BUDGET_LNK_ENT	KCST_BUDGET_LNK_ENT			
PPM	KCST_BUDGETS	KCST_BUDGETS			
PPM	KCST_BUDG_LINE_CELLS	KCST_BUDG_LINE_CELLS			
PPM	KCST_BUDG_PERIOD_SUM	KCST_BUDG_PERIOD_SUM			
PPM	KCST_CURRENCY_CELLS	KCST_CURRENCY_CELLS			
PPM	KCST_CURRENCY_LINES	KCST_CURRENCY_LINES			
PPM	PFM_LIFCYC_PARENT_ENT	PFM_LIFCYC_PARENT_ENT			

PLANNEDCOST FACT

Product	Source Model	Extraction	Consolidation	Fact	Aggregate
AM	AMBUDGCENTER	AMBUDGCENTER			
AM	AMBUDGLINE	AMBUDGLINE			
PPM	FM_FCST_ACTUAL_LINES	FM_FCST_ACTUAL_LINES			
PPM	FM_FINANCIAL_SUMMARY	FM_FINANCIAL_SUMMARY			
PPM	FM_FIN_LINE_CELLS	FM_FIN_LINE_CELLS			
PPM	KCRT_FG_PFM_ASSET	KCRT_FG_PFM_ASSET			
PPM	KCRT_FG_PFM_PROJECT	KCRT_FG_PFM_PROJECT	PLANNEDCOST	PLANNEDCOST	
PPM	KCRT_REQUESTS	KCRT_REQUESTS			
PPM	KCST_BUDGET_LINES	KCST_BUDGET_LINES			
PPM	KCST_BUDGET_LNK_ENT	KCST_BUDGET_LNK_ENT			
PPM	KCST_BUDGETS	KCST_BUDGETS			
PPM	KCST_BUDG_LINE_CELLS	KCST_BUDG_LINE_CELLS			
PPM	KCST_CURRENCY_CELLS	KCST_CURRENCY_CELLS			
PPM	PFM_LIFCYC_PARENT_ENT	PFM_LIFCYC_PARENT_ENT			

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Extraction Model Details

The report shows the extraction model for a selected extraction model.

To view the report

1. Click **Public Folders** > **DW *xx* Administration** > **Extraction Model Details**.
2. Select one or more **Extraction Ids** from the left list box.
   You can also type an **Extraction Id** value and click the **Search** icon.
3. Click the **Right arrow** (>) to move it into the **Select Extraction Model** list. For example, select AMBUDGET.
4. Click **Run Query**.

Figure 10 on page 52 shows the extraction model details for the source AMBUDGET entity.

Consolidation Model Details

Consolidation Model Details shows the final attributes for the selected entity, including the data type, length, and whether null values are permitted.

To view the report

1. Click **Public Folders** > **DW *xx* Administration** > **Consolidation Model Details**.
2. Select one or more **Consolidation Ids** from the left list box.
   You can also type a **Consolidation Id** value and click the **Search** icon.
3. Click the **Right arrow** (>) to move it into the **Select Consolidation Model** list. For example, select PERSON.
4. Click **Run Query**.

Figure 11 on page 53 shows the Consolidation Model details for the PERSON entity.

Dimension Model Details

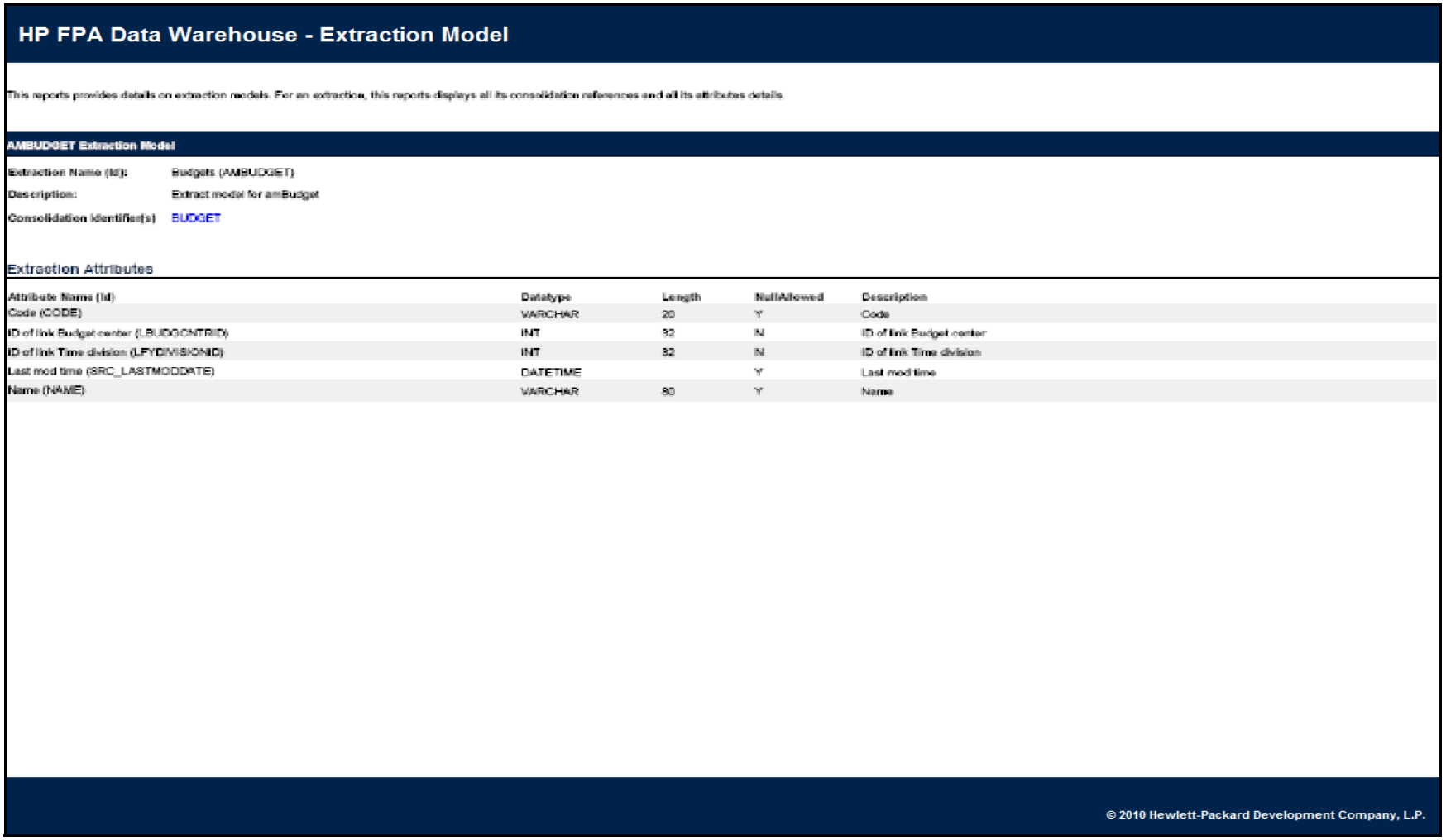
When you select a dimension, the Dimension Model Details report displays the dimension attributes, hierarchies, and associated dimensions.

To view the report

1. Click **Public Folders** > **DW *xx* Administration** > **Dimension Model Details**.
2. Select one or more **Dimension Ids** from the left list box.
   You can also type a **Dimension Id** value and click the **Search** icon.
3. Click the **Right arrow** (>) to move it into the **Select Dimension Model** list. For example, select PERSON.
4. Click **Run Query**.

Figure 12 on page 54 shows the Dimension Model details for the PERSON entity.

Figure 10 Extraction Model Details report



HP FPA Data Warehouse - Extraction Model

This reports provides details on extraction models. For an extraction, this reports displays all its consolidation references and all its attributes details.

AMBUDGET Extraction Model

Extraction Name (Id): Budgets (AMBUDGET)

Description: Extract model for amBudget

Consolidation Identifier(s) BUDGET

Extraction Attributes

Attribute Name (Id)	Datatype	Length	NullAllowed	Description
Code (CODE)	VARCHAR	20	Y	Code
ID of link Budget center (LBUDGCNTRID)	INT	32	N	ID of link Budget center
ID of link Time division (LFYDIVISIONID)	INT	32	N	ID of link Time division
Last mod time (SRC_LASTMODDATE)	DATETIME		Y	Last mod time
Name (NAME)	VARCHAR	80	Y	Name

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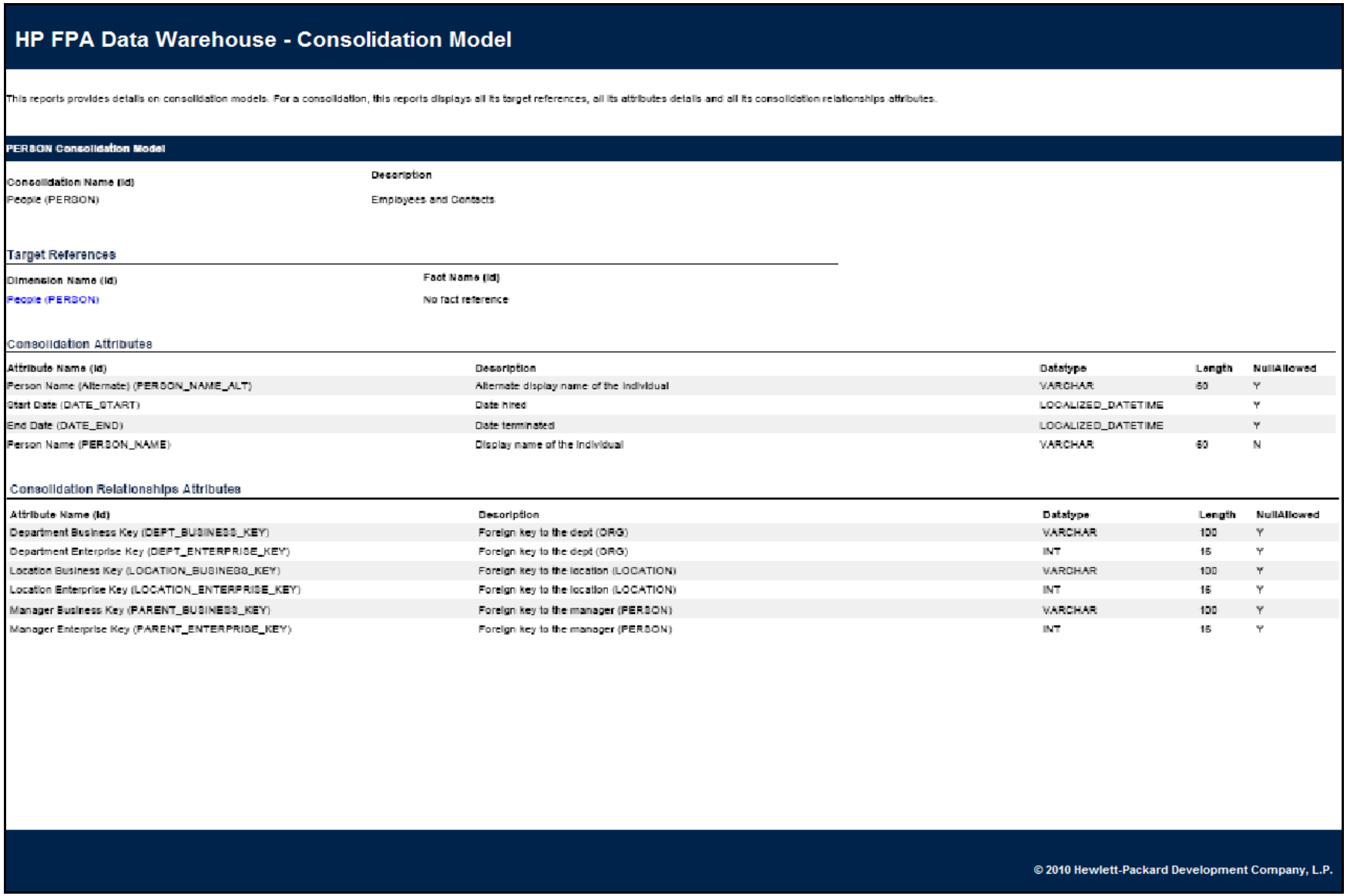
Figure 11 Consolidation Model Details report



HP FPA Data Warehouse - Consolidation Model

This reports provides details on consolidation models. For a consolidation, this reports displays all its target references, all its attributes details and all its consolidation relationships attributes.

PERSON Consolidation Model

Consolidation Name (Id)	Description
People (PERSON)	Employees and Contacts

Target References

Dimension Name (Id)	Fact Name (Id)
People (PERSON)	No fact reference

Consolidation Attributes

Attribute Name (Id)	Description	Datatype	Length	NullAllowed
Person Name (Alternate) (PERSON_NAME_ALT)	Alternate display name of the individual	VARCHAR	60	Y
Start Date (DATE_START)	Date hired	LOCALIZED_DATETIME		Y
End Date (DATE_END)	Date terminated	LOCALIZED_DATETIME		Y
Person Name (PERSON_NAME)	Display name of the individual	VARCHAR	60	N

Consolidation Relationships Attributes

Attribute Name (Id)	Description	Datatype	Length	NullAllowed
Department Business Key (DEPT_BUSINESS_KEY)	Foreign key to the dept (ORG)	VARCHAR	100	Y
Department Enterprise Key (DEPT_ENTERPRISE_KEY)	Foreign key to the dept (ORG)	INT	15	Y
Location Business Key (LOCATION_BUSINESS_KEY)	Foreign key to the location (LOCATION)	VARCHAR	100	Y
Location Enterprise Key (LOCATION_ENTERPRISE_KEY)	Foreign key to the location (LOCATION)	INT	15	Y
Manager Business Key (PARENT_BUSINESS_KEY)	Foreign key to the manager (PERSON)	VARCHAR	100	Y
Manager Enterprise Key (PARENT_ENTERPRISE_KEY)	Foreign key to the manager (PERSON)	INT	15	Y

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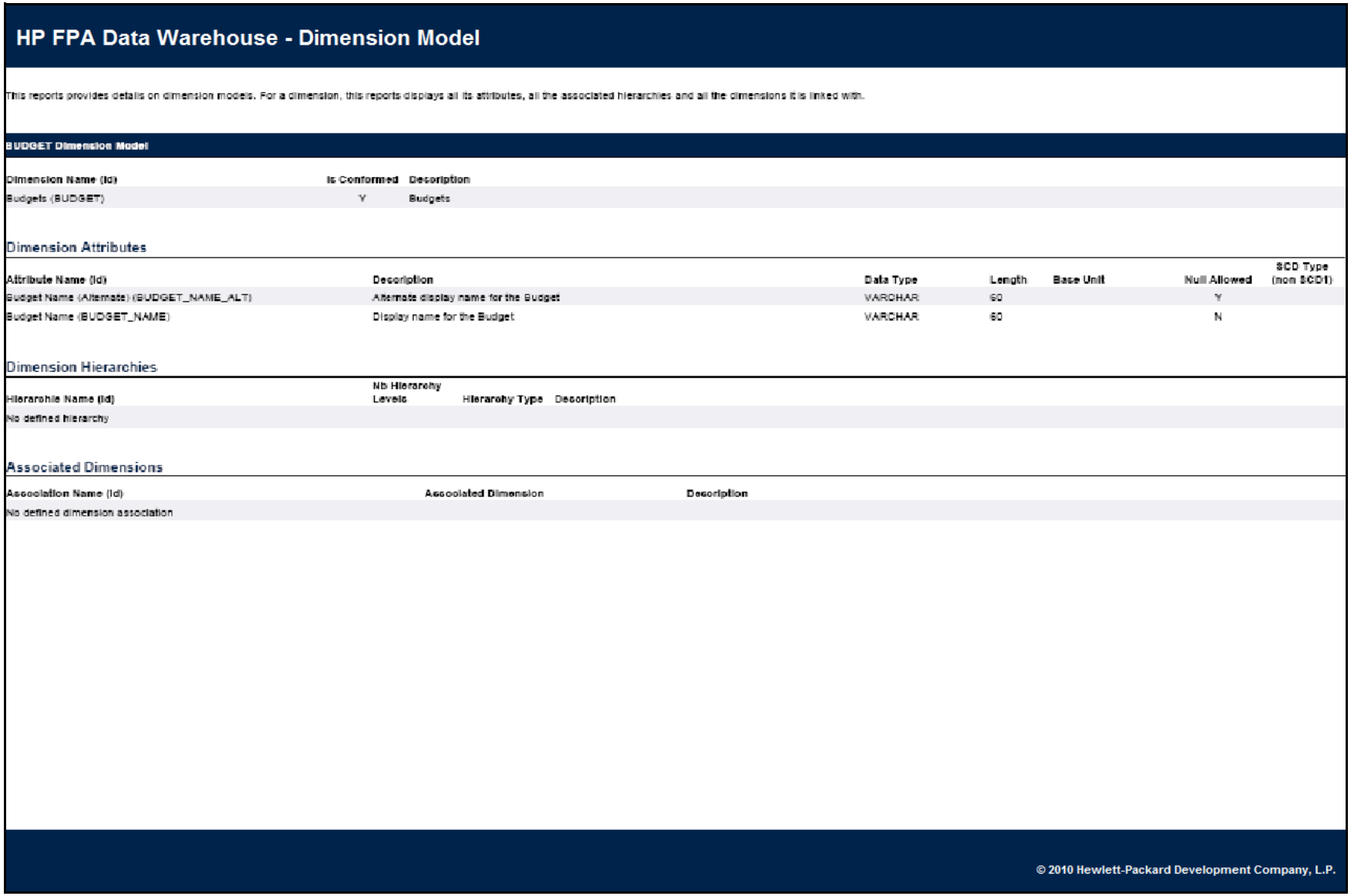
Figure 12 Dimension Model Details report



HP FPA Data Warehouse - Dimension Model

This reports provides details on dimension models. For a dimension, this reports displays all its attributes, all the associated hierarchies and all the dimensions it is linked with.

BUDGET Dimension Model

Dimension Name (Id)	Is Conformed	Description
Budgets (BUDGET)	Y	Budgets

Dimension Attributes

Attribute Name (Id)	Description	Data Type	Length	Base Unit	Null Allowed	SCD Type (non SCD1)
Budget Name (Alternate) (BUDGET_NAME_ALT)	Alternate display name for the Budget	VARCHAR	60		Y	
Budget Name (BUDGET_NAME)	Display name for the Budget	VARCHAR	60		N	

Dimension Hierarchies

Hierarchie Name (Id)	Nb Hierarchy Levels	Hierarchy Type	Description
No defined hierarchy			

Associated Dimensions

Association Name (Id)	Associated Dimension	Description
No defined dimension association		

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Fact Model Report

The report shows the details for a selected fact model.

To view the report

1. Click **Public Folders** > **DW *xx* Administration** > **Fact Model Details**.
2. Select one or more **Fact Ids** from the left list box.
   You can also type a **Fact Id** value and click the **Search** icon.
3. Click the **Right arrow** (>) to move it into the **Select Fact Model** list. For example, select ACTUALCOST.
4. Click **Run Query**. Figure 13 on page 56 shows the fact model details for ACTUALCOST.

Source Model Details

When you run this report, you must choose one or more **Source Model IDs** from the list of available models and click the **Right arrow** (>) to move it into the **Select Source Model** list. Click **Run Query**.

The report shows the names of each column, how it was derived, the source table information, and other related information.

To view the report

1. Click **Public Folders** > **DW *xx* Administration** > **Source Model Details**.
2. Select one or more **Source Model Ids** from the left list box.
   You can also type a **Source Model Id** value and click the **Search** icon.
3. Click the **Right arrow** (>) to move it into the **Select Source Model** list. For example, select AMBUDGET.
4. Click **Run Query**. Figure 14 on page 57 shows the data source model details for AMBUDGET.

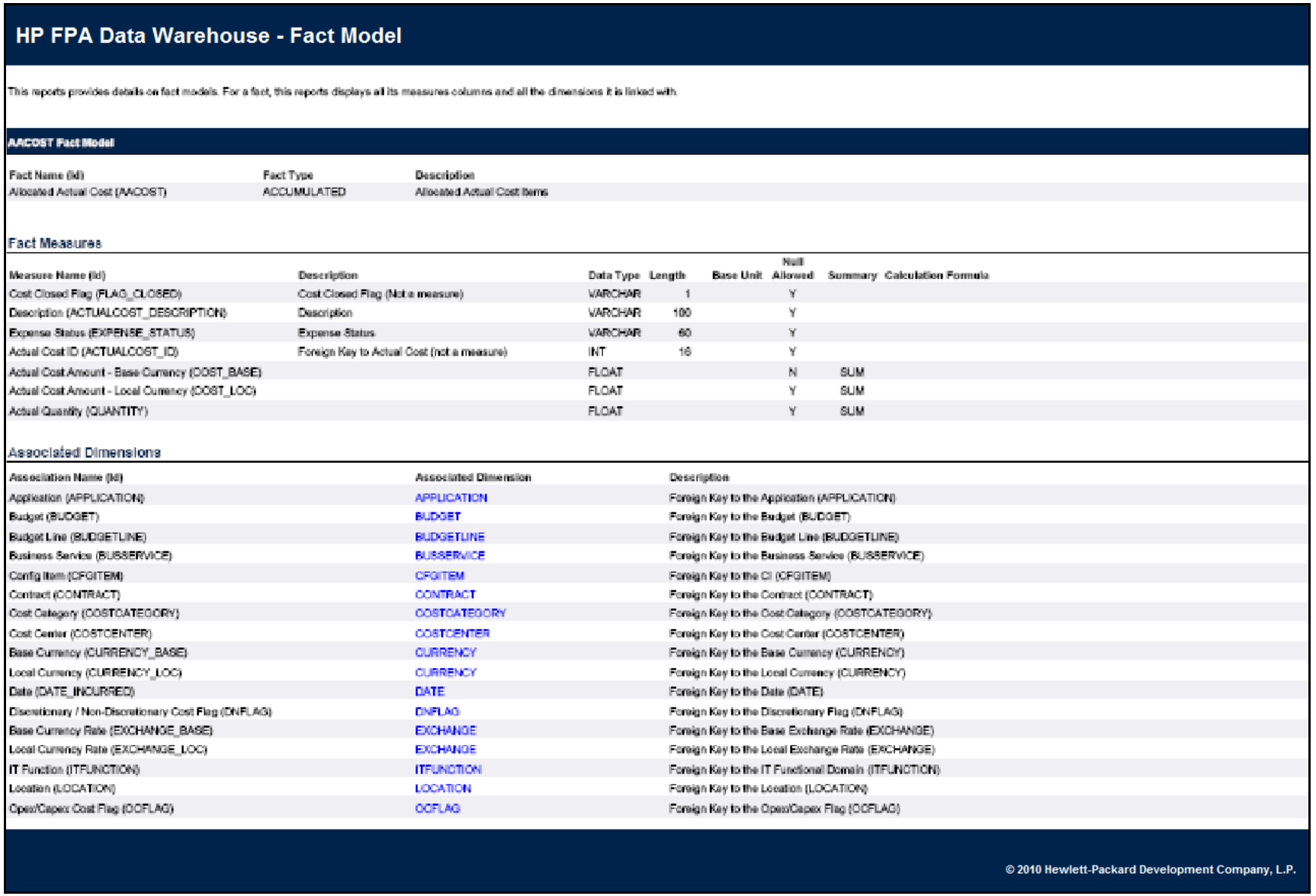
Aggregation Model Details

To view the report

1. Click **Public Folders** > **DW *xx* Administration** > **Aggregation Model Details**.
2. Choose one or more **Aggregate IDs** from the left list box.
   You can also type an **Aggregate ID** value and click the **Search** icon.
3. Click the **Right arrow** (>) to move it into the **Select Aggregate ID** list.
4. Click **Run Query**.

Figure 15 on page 58 shows aggregation model details in a summary format that is organized by aggregate name.

Figure 13 Fact Model Details report



HP FPA Data Warehouse - Fact Model

This reports provides details on fact models. For a fact, this reports displays all its measures columns and all the dimensions it is linked with.

AACOST Fact Model

Fact Name (Id)	Fact Type	Description
Allocated Actual Cost (AACOST)	ACCUMULATED	Allocated Actual Cost Items

Fact Measures

Measure Name (Id)	Description	Data Type	Length	Base Unit	Null Allowed	Summary	Calculation Formula
Cost Closed Flag (FLAG_CLOSED)	Cost Closed Flag (Not a measure)	VARCHAR	1		Y		
Description (ACTUALCOST_DESCRIPTION)	Description	VARCHAR	100		Y		
Expense Status (EXPENSE_STATUS)	Expense Status	VARCHAR	60		Y		
Actual Cost ID (ACTUALCOST_ID)	Foreign Key to Actual Cost (not a measure)	INT	16		Y		
Actual Cost Amount - Base Currency (COST_BASE)		FLOAT			N	SUM	
Actual Cost Amount - Local Currency (COST_LOC)		FLOAT			Y	SUM	
Actual Quantity (QUANTITY)		FLOAT			Y	SUM	

Associated Dimensions

Association Name (Id)	Associated Dimension	Description
Application (APPLICATION)	APPLICATION	Foreign Key to the Application (APPLICATION)
Budget (BUDGET)	BUDGET	Foreign Key to the Budget (BUDGET)
Budget Line (BUDGETLINE)	BUDGETLINE	Foreign Key to the Budget Line (BUDGETLINE)
Business Service (BUSSERVICE)	BUSSERVICE	Foreign Key to the Business Service (BUSSERVICE)
Config Item (CFGITEM)	CFGITEM	Foreign Key to the CI (CFGITEM)
Contract (CONTRACT)	CONTRACT	Foreign Key to the Contract (CONTRACT)
Cost Category (COSTCATEGORY)	COSTCATEGORY	Foreign Key to the Cost Category (COSTCATEGORY)
Cost Center (COSTCENTER)	COSTCENTER	Foreign Key to the Cost Center (COSTCENTER)
Base Currency (CURRENCY_BASE)	CURRENCY	Foreign Key to the Base Currency (CURRENCY)
Local Currency (CURRENCY_LOC)	CURRENCY	Foreign Key to the Local Currency (CURRENCY)
Date (DATE_INCURRED)	DATE	Foreign Key to the Date (DATE)
Discretionary / Non-Discretionary Cost Flag (DNFLAG)	DNFLAG	Foreign Key to the Discretionary Flag (DNFLAG)
Base Currency Rate (EXCHANGE_BASE)	EXCHANGE	Foreign Key to the Base Exchange Rate (EXCHANGE)
Local Currency Rate (EXCHANGE_LOC)	EXCHANGE	Foreign Key to the Local Exchange Rate (EXCHANGE)
IT Function (ITFUNCTION)	ITFUNCTION	Foreign Key to the IT Functional Domain (ITFUNCTION)
Location (LOCATION)	LOCATION	Foreign Key to the Location (LOCATION)
Opex/Capex Cost Flag (OCFLAG)	OCFLAG	Foreign Key to the Opex/Capex Flag (OCFLAG)

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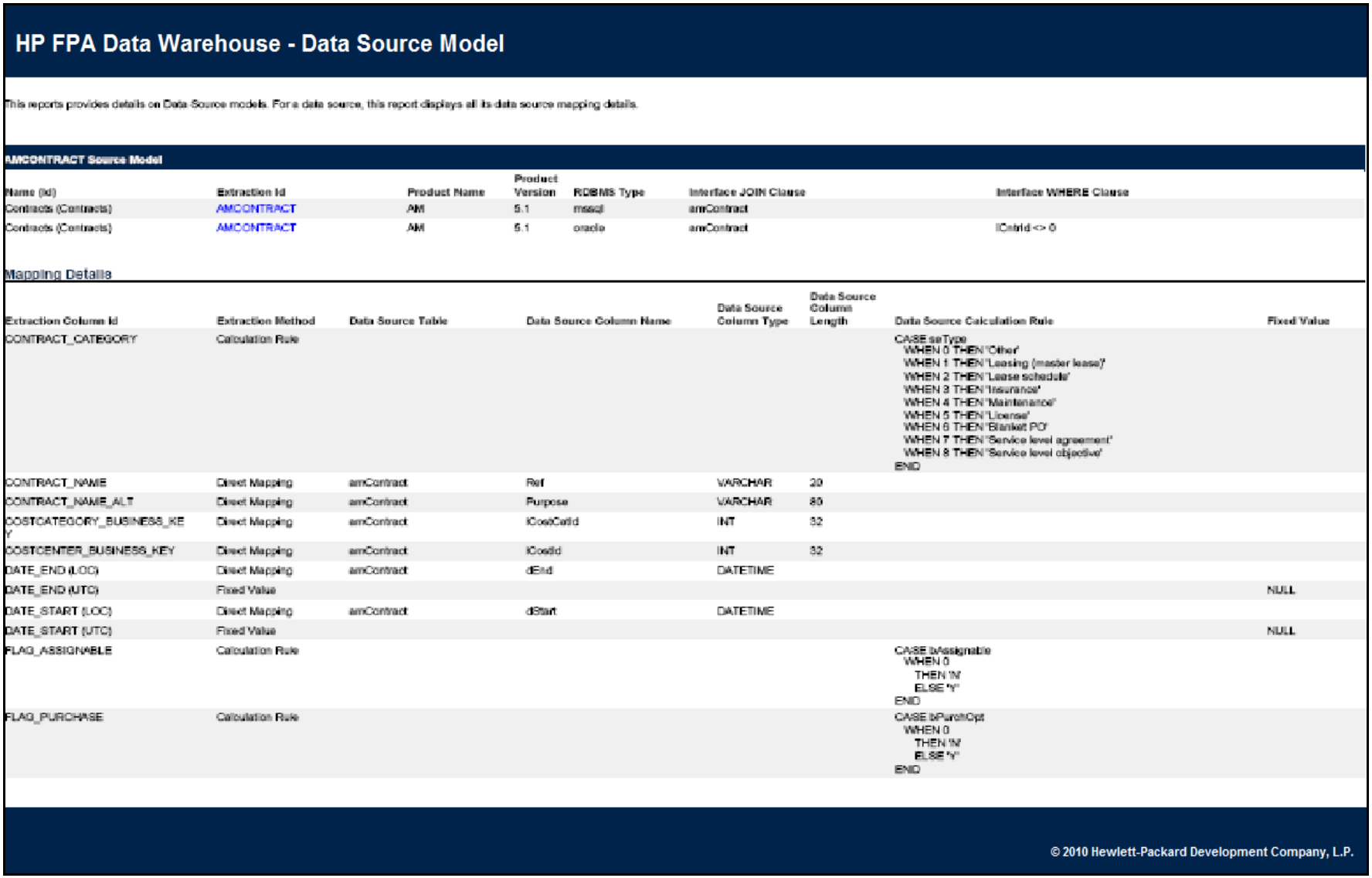
Figure 14 Source Model Details report



HP FPA Data Warehouse - Data Source Model

This reports provides details on Data Source models. For a data source, this report displays all its data source mapping details.

AMCONTRACT Source Model

Name (Id)	Extraction Id	Product Name	Product Version	RDBMS Type	Interface JOIN Clause	Interface WHERE Clause
Contracts (Contracts)	AMCONTRACT	AM	5.1	mssql	amContract	
Contracts (Contracts)	AMCONTRACT	AM	5.1	oracle	amContract	lCntrId <> 0

Mapping Details

Extraction Column Id	Extraction Method	Data Source Table	Data Source Column Name	Data Source Column Type	Data Source Column Length	Data Source Calculation Rule	Fixed Value
CONTRACT_CATEGORY	Calculation Rule					CASE srcType WHEN 0 THEN 'Other' WHEN 1 THEN 'Leasing (master lease)' WHEN 2 THEN 'Lease schedule' WHEN 3 THEN 'Insurance' WHEN 4 THEN 'Maintenance' WHEN 5 THEN 'License' WHEN 6 THEN 'Blanket PO' WHEN 7 THEN 'Service level agreement' WHEN 8 THEN 'Service level objective' END	
CONTRACT_NAME	Direct Mapping	amContract	Ref	VARCHAR	20		
CONTRACT_NAME_ALT	Direct Mapping	amContract	Purpose	VARCHAR	80		
COSTCATEGORY_BUSINESS_KEY	Direct Mapping	amContract	lCostCatId	INT	32		
COSTCENTER_BUSINESS_KEY	Direct Mapping	amContract	lCostId	INT	32		
DATE_END (LOC)	Direct Mapping	amContract	dEnd	DATETIME			
DATE_END (UTC)	Fixed Value						NULL
DATE_START (LOC)	Direct Mapping	amContract	dStart	DATETIME			
DATE_START (UTC)	Fixed Value						NULL
FLAG_ASSIGNABLE	Calculation Rule					CASE bAssignable WHEN 0 THEN 'N' ELSE 'Y' END	
FLAG_PURCHASE	Calculation Rule					CASE bPurchOpt WHEN 0 THEN 'N' ELSE 'Y' END	

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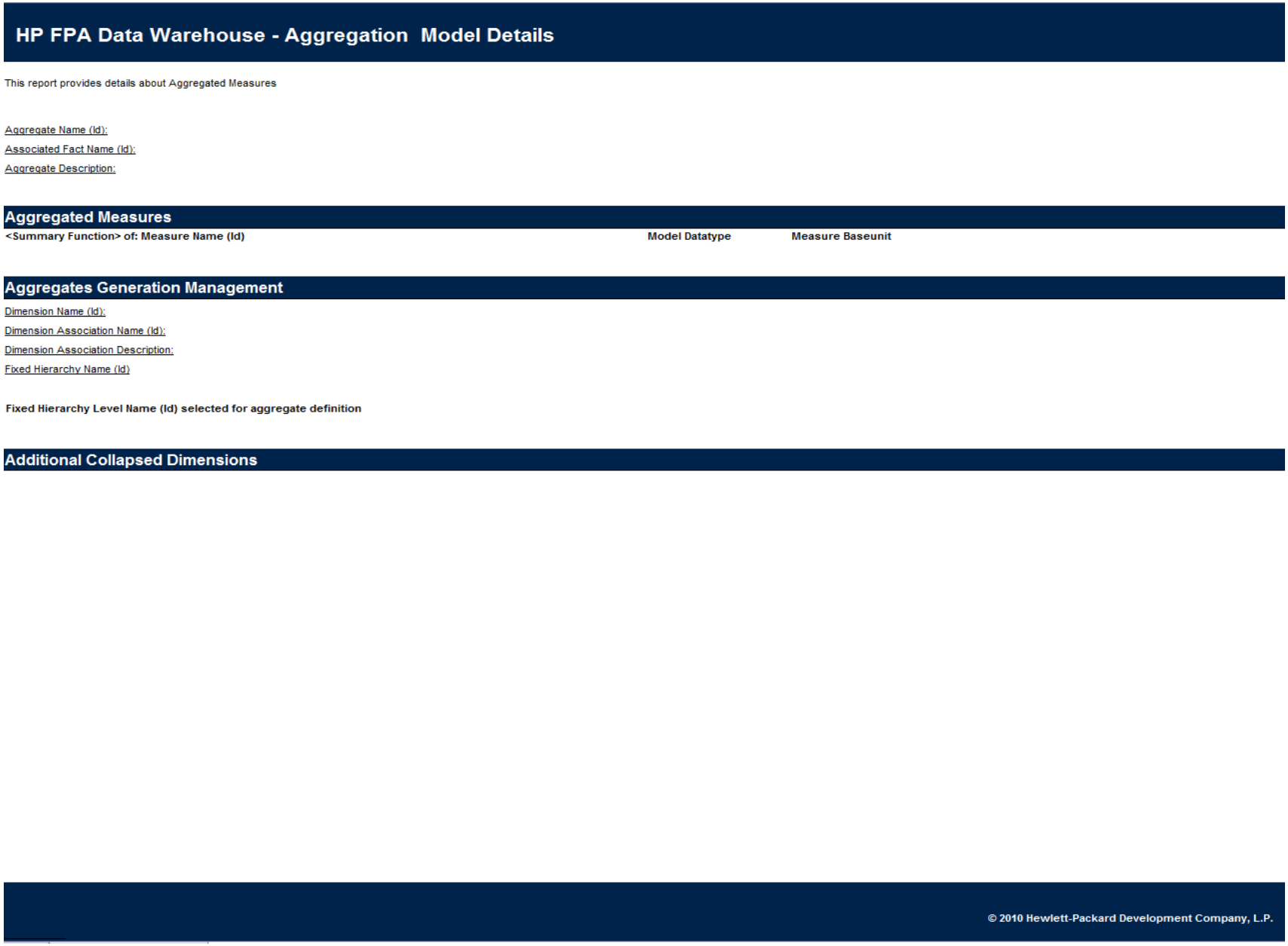
Figure 15 Aggregation Model Details report



HP FPA Data Warehouse - Aggregation Model Details

This report provides details about Aggregated Measures

Aggregate Name (Id):
Associated Fact Name (Id):
Aggregate Description:

Aggregated Measures

<Summary Function> of: Measure Name (Id)	Model Datatype	Measure Baseunit

Aggregates Generation Management

Dimension Name (Id):
Dimension Association Name (Id):
Dimension Association Description:
Fixed Hierarchy Name (Id)

Fixed Hierarchy Level Name (Id) selected for aggregate definition

Additional Collapsed Dimensions

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Platform Physical Schemas

This report enables you to diagnose whether the ETL staging or target models are aligned with the metadata. The Platform Physical Schemas report has five information tabs:

- **Data Integration Interface (DII)**. Shows connection information for the data sources and status of the generated views.
- **Staging Source - Extract Identity**. For each data source, shows the status of the extraction process, including the number of extraction tables created and defined.
- **Staging Source - Consolidation**. Shows the status of the consolidation tables by application.
- **Staging Target**. Shows the status of the data warehouse target staging tables organized by application.
- **DW Target**. Shows the status of the target data warehouse tables and views.

Red and green color cues help you locate problems and issues quickly. Run this report after you deploy a new application. An HP Support engineer can diagnose the platform state after a model customization.

To view the report

1. Click **Public Folders** > **DW *xx* Administration** > **Data Model Overview**.
2. Click **Run Query**.
3. On the **Data Model Overview - Dimension**s tab, click the drop-down list to choose an entity. For example, choose the PERSON entity.

Figure 16 on page 60 shows the dimension data model for the PERSON entity when extracted from multiple sources and consolidated into a target dimension.

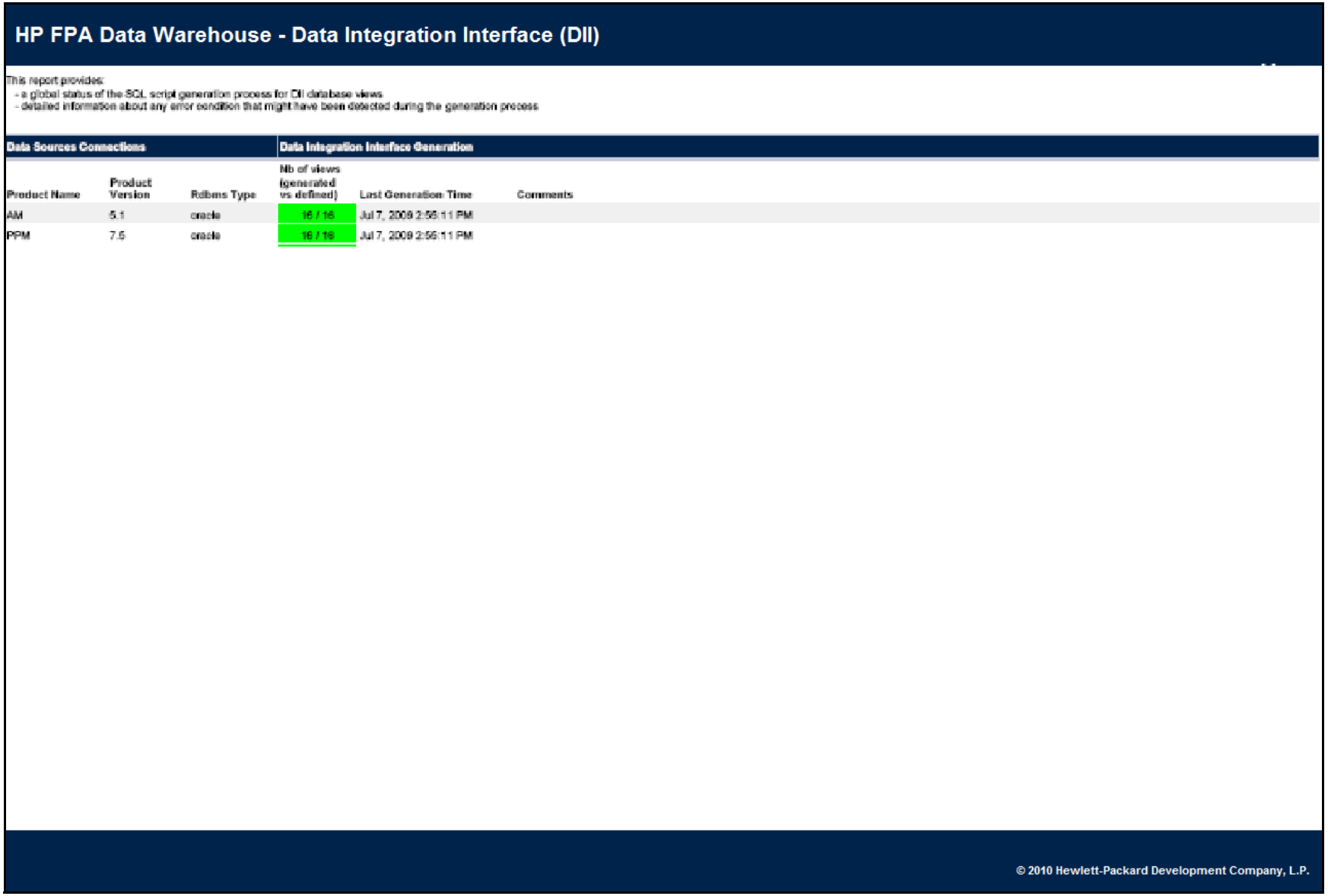
Figure 17 on page 61 shows the number of extraction tables created and defined for each data source and whether table errors occurred during the ETL process.

Figure 18 on page 62 shows the status of all consolidation related tables and any error conditions.

Figure 19 on page 63 shows the Staging Target tab that reports on the status of ETL staging tables.

Figure 20 on page 64 shows the Data Warehouse Target tab that shows the status of ETL target tables.

Figure 16 Platform Physical Schemas report - DII tab



HP FPA Data Warehouse - Data Integration Interface (DII)

This report provides:
- a global status of the SQL script generation process for DII database views
- detailed information about any error condition that might have been detected during the generation process

Data Sources Connections			Data Integration Interface Generation		
Product Name	Product Version	Rdbms Type	Nb of views (generated vs defined)	Last Generation Time	Comments
AM	5.1	oracle	16 / 16	Jul 7, 2009 2:56:11 PM	
PPM	7.5	oracle	16 / 16	Jul 7, 2009 2:56:11 PM	

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Figure 17 Staging Source for Extraction and Identity report

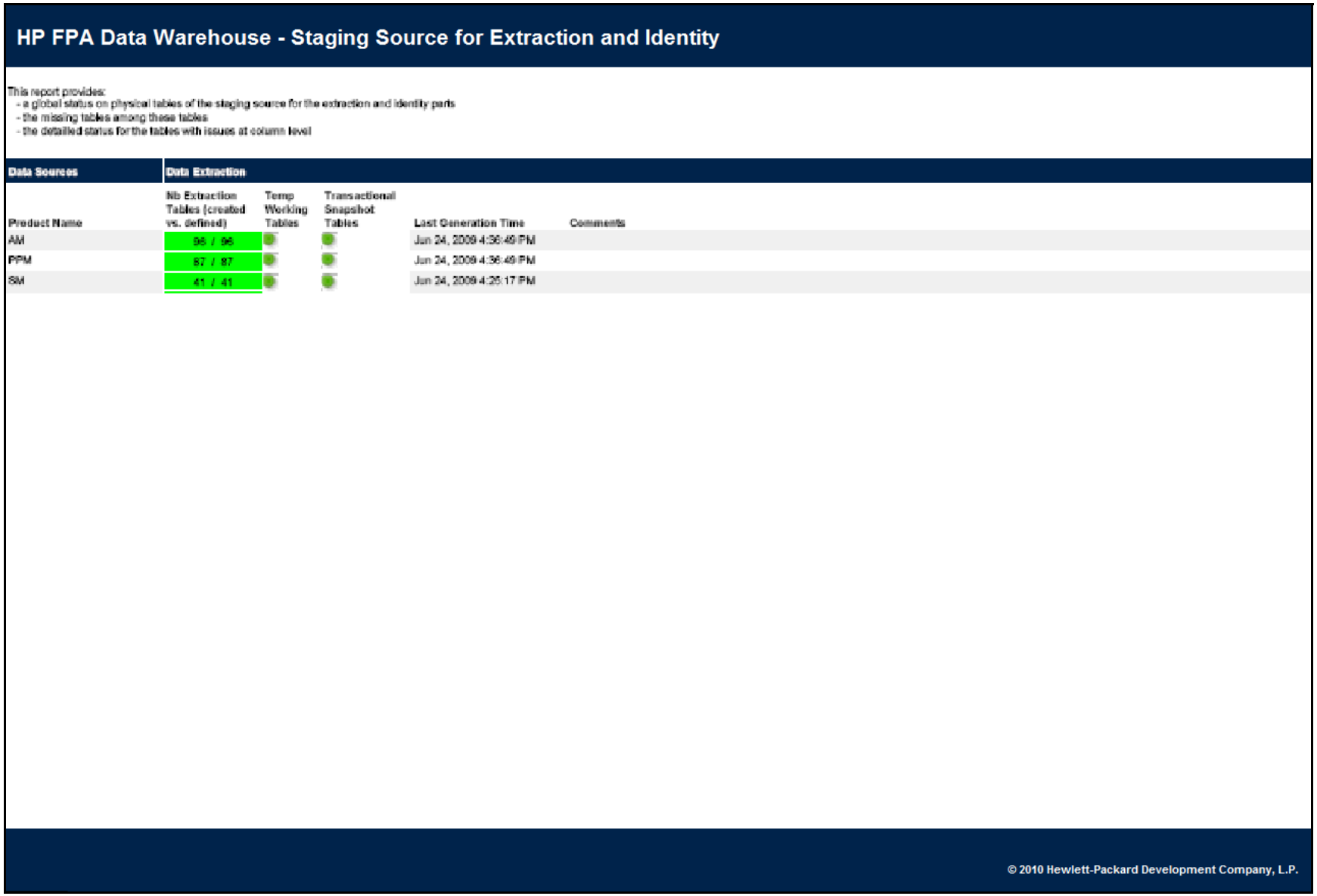
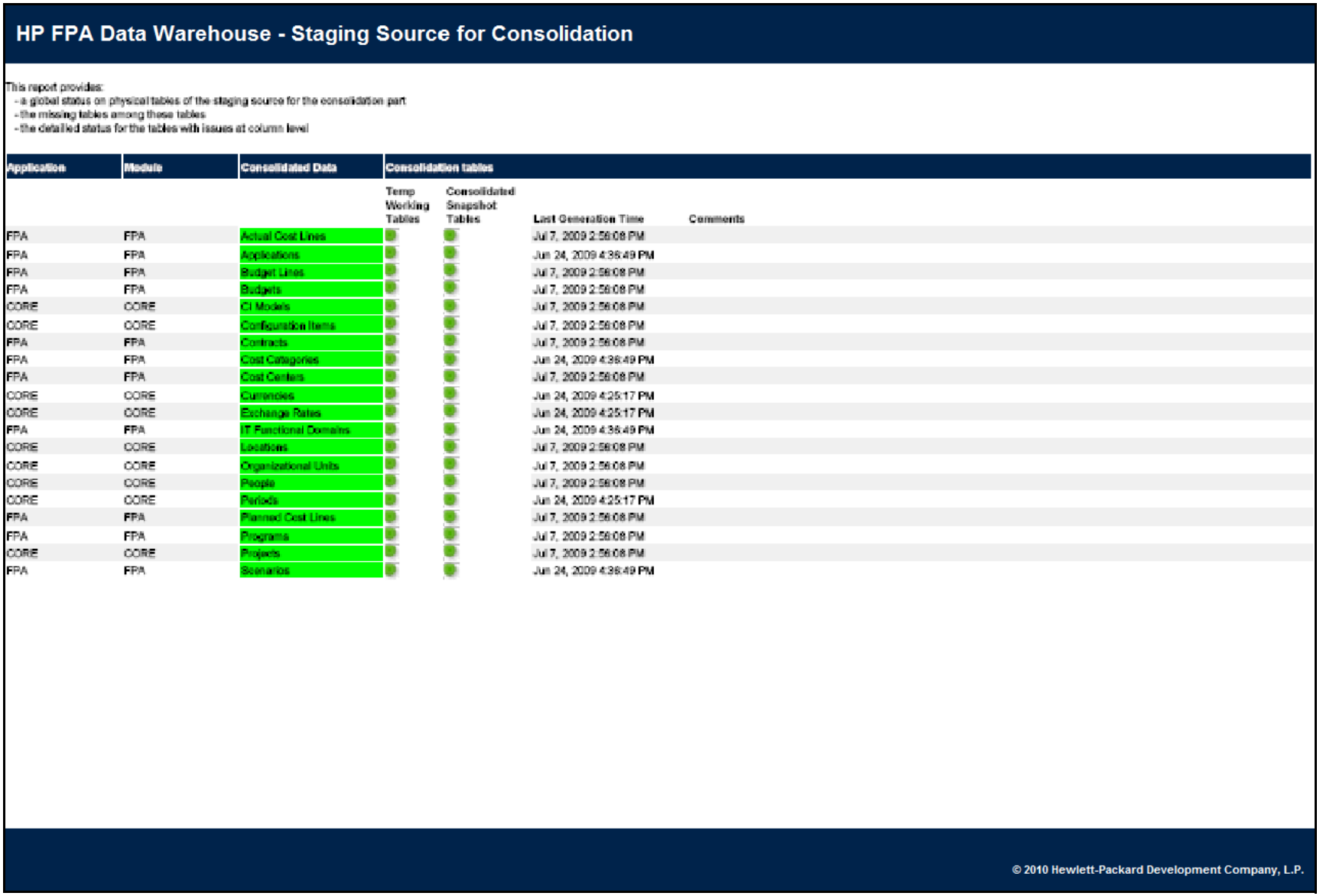


Figure 18 Staging Source for Consolidation report



HP FPA Data Warehouse - Staging Source for Consolidation

This report provides:
- a global status on physical tables of the staging source for the consolidation part
- the missing tables among these tables
- the detailed status for the tables with issues at column level

Application	Module	Consolidated Data	Consolidation tables			
			Temp Working Tables	Consolidated Snapshot Tables	Last Generation Time	Comments
FPA	FPA	Actual Cost Lines			Jul 7, 2009 2:56:08 PM	
FPA	FPA	Applications			Jun 24, 2009 4:36:49 PM	
FPA	FPA	Budget Lines			Jul 7, 2009 2:56:08 PM	
FPA	FPA	Budgets			Jul 7, 2009 2:56:08 PM	
CORE	CORE	CI Models			Jul 7, 2009 2:56:08 PM	
CORE	CORE	Configuration Items			Jul 7, 2009 2:56:08 PM	
FPA	FPA	Contracts			Jul 7, 2009 2:56:08 PM	
FPA	FPA	Cost Categories			Jun 24, 2009 4:36:49 PM	
FPA	FPA	Cost Centers			Jul 7, 2009 2:56:08 PM	
CORE	CORE	Currencies			Jun 24, 2009 4:25:17 PM	
CORE	CORE	Exchange Rates			Jun 24, 2009 4:25:17 PM	
FPA	FPA	IT Functional Domains			Jun 24, 2009 4:36:49 PM	
CORE	CORE	Locations			Jul 7, 2009 2:56:08 PM	
CORE	CORE	Organizational Units			Jul 7, 2009 2:56:08 PM	
CORE	CORE	People			Jul 7, 2009 2:56:08 PM	
CORE	CORE	Periods			Jun 24, 2009 4:25:17 PM	
FPA	FPA	Planned Cost Lines			Jul 7, 2009 2:56:08 PM	
FPA	FPA	Programs			Jul 7, 2009 2:56:08 PM	
CORE	CORE	Projects			Jul 7, 2009 2:56:08 PM	
FPA	FPA	Scenarios			Jun 24, 2009 4:36:49 PM	

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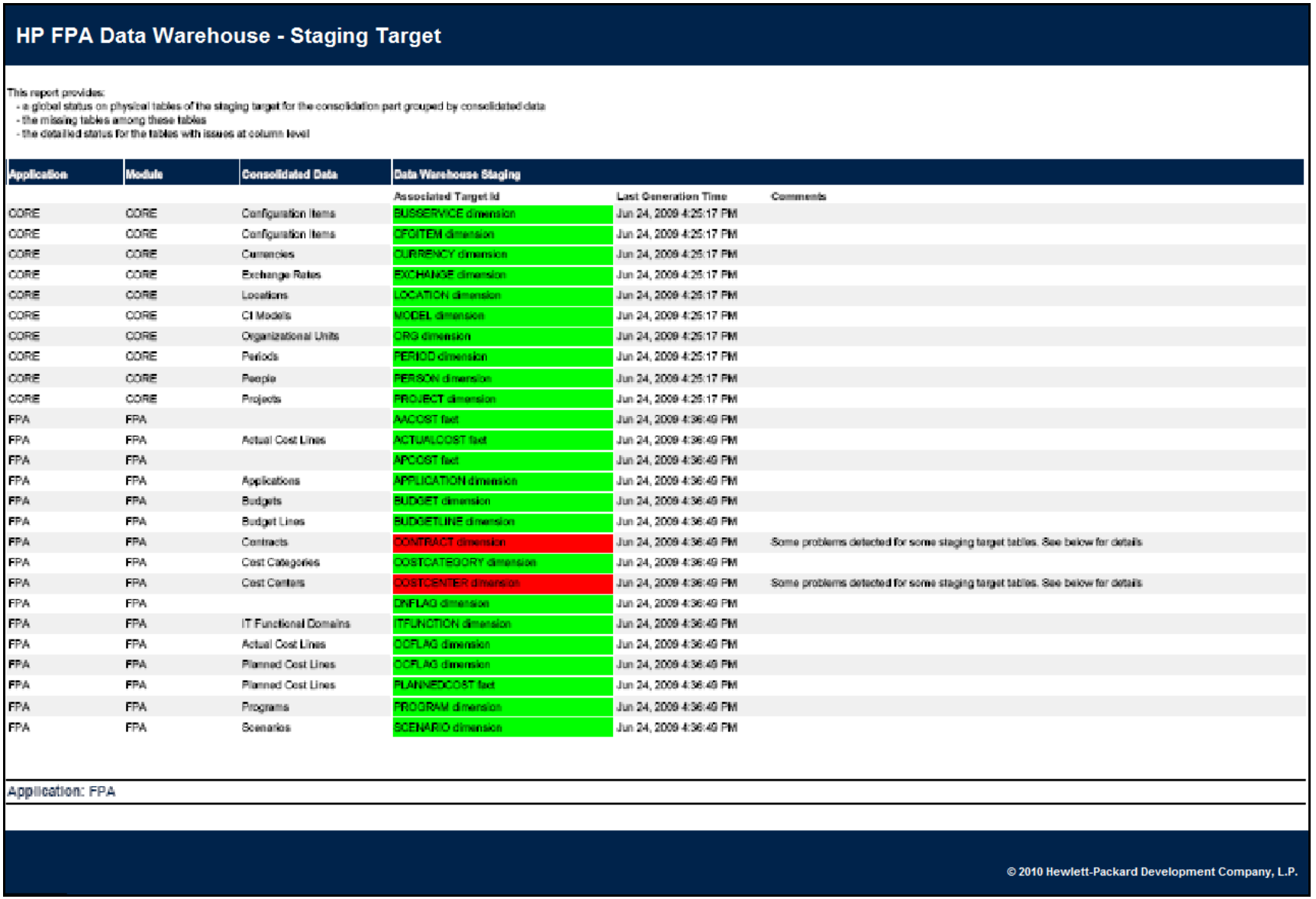
Figure 19 Staging Target report



HP FPA Data Warehouse - Staging Target

This report provides:
- a global status on physical tables of the staging target for the consolidation part grouped by consolidated data
- the missing tables among these tables
- the detailed status for the tables with issues at column level

Application	Module	Consolidated Data	Data Warehouse Staging		
			Associated Target Id	Last Generation Time	Comments
CORE	CORE	Configuration Items	BUSSERVICE dimension	Jun 24, 2009 4:25:17 PM	
CORE	CORE	Configuration Items	CFGITEM dimension	Jun 24, 2009 4:25:17 PM	
CORE	CORE	Currencies	CURRENCY dimension	Jun 24, 2009 4:25:17 PM	
CORE	CORE	Exchange Rates	EXCHANGE dimension	Jun 24, 2009 4:25:17 PM	
CORE	CORE	Locations	LOCATION dimension	Jun 24, 2009 4:25:17 PM	
CORE	CORE	CI Models	MODEL dimension	Jun 24, 2009 4:25:17 PM	
CORE	CORE	Organizational Units	ORG dimension	Jun 24, 2009 4:25:17 PM	
CORE	CORE	Periods	PERIOD dimension	Jun 24, 2009 4:25:17 PM	
CORE	CORE	People	PERSON dimension	Jun 24, 2009 4:25:17 PM	
CORE	CORE	Projects	PROJECT dimension	Jun 24, 2009 4:25:17 PM	
FPA	FPA		AACOST fact	Jun 24, 2009 4:36:49 PM	
FPA	FPA	Actual Cost Lines	ACTUALCOST fact	Jun 24, 2009 4:36:49 PM	
FPA	FPA		APCOST fact	Jun 24, 2009 4:36:49 PM	
FPA	FPA	Applications	APPLICATION dimension	Jun 24, 2009 4:36:49 PM	
FPA	FPA	Budgets	BUDGET dimension	Jun 24, 2009 4:36:49 PM	
FPA	FPA	Budget Lines	BUDGETLINE dimension	Jun 24, 2009 4:36:49 PM	
FPA	FPA	Contracts	CONTRACT dimension	Jun 24, 2009 4:36:49 PM	Some problems detected for some staging target tables. See below for details
FPA	FPA	Cost Categories	COSTCATEGORY dimension	Jun 24, 2009 4:36:49 PM	
FPA	FPA	Cost Centers	COSTCENTER dimension	Jun 24, 2009 4:36:49 PM	Some problems detected for some staging target tables. See below for details
FPA	FPA		DNFLAG dimension	Jun 24, 2009 4:36:49 PM	
FPA	FPA	IT Functional Domains	ITFUNCTION dimension	Jun 24, 2009 4:36:49 PM	
FPA	FPA	Actual Cost Lines	OCFLAG dimension	Jun 24, 2009 4:36:49 PM	
FPA	FPA	Planned Cost Lines	OCFLAG dimension	Jun 24, 2009 4:36:49 PM	
FPA	FPA	Planned Cost Lines	PLANNEDCOST fact	Jun 24, 2009 4:36:49 PM	
FPA	FPA	Programs	PROGRAM dimension	Jun 24, 2009 4:36:49 PM	
FPA	FPA	Scenarios	SCENARIO dimension	Jun 24, 2009 4:36:49 PM	

Application: FPA

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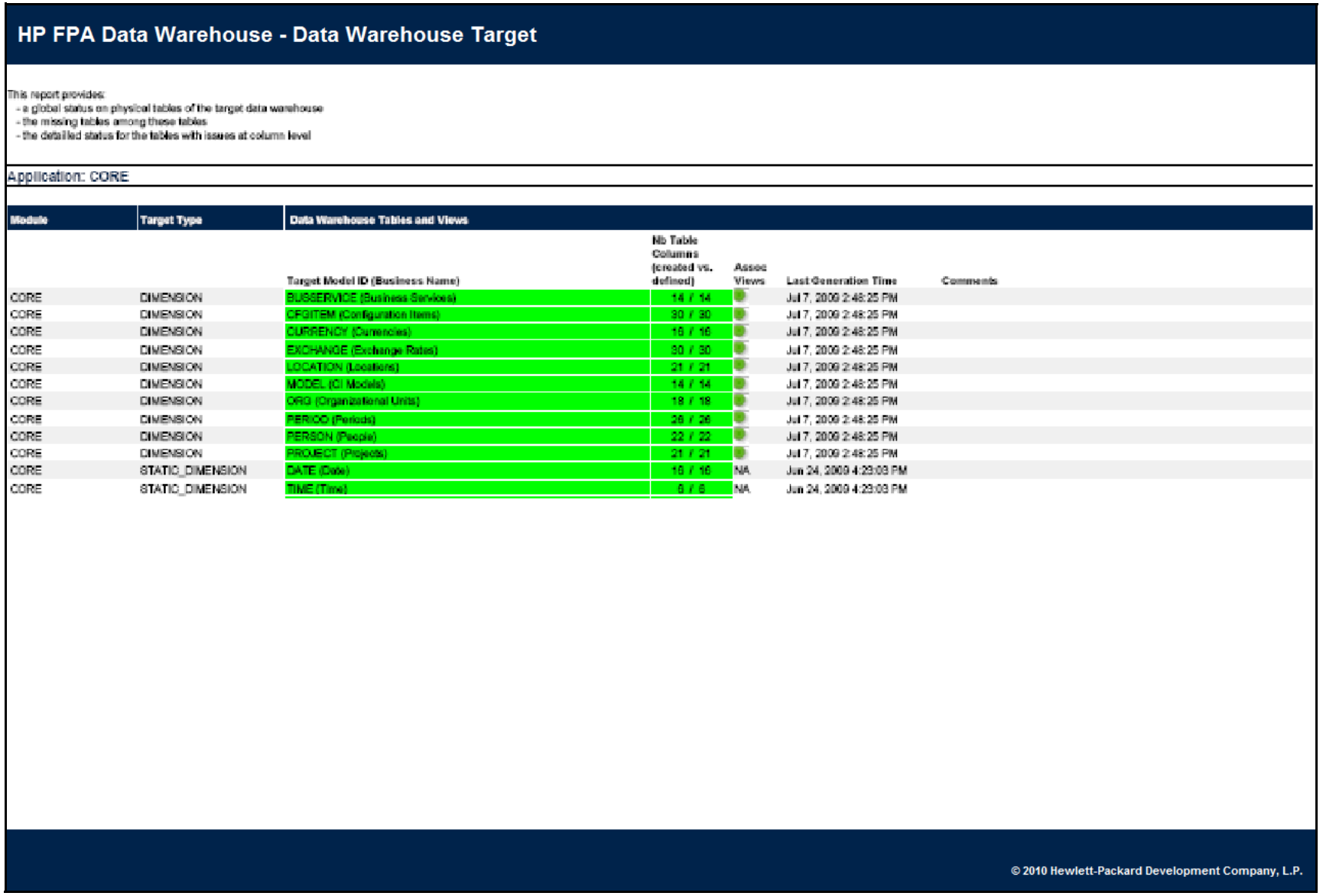
Figure 20 Data Warehouse Target report



HP FPA Data Warehouse - Data Warehouse Target

This report provides:
- a global status on physical tables of the target data warehouse
- the missing tables among these tables
- the detailed status for the tables with issues at column level

Application: CORE

Module	Target Type	Data Warehouse Tables and Views				
		Target Model ID (Business Name)	Nb Table Columns (created vs. defined)	Assoc Views	Last Generation Time	Comments
CORE	DIMENSION	BUSSERVICE (Business Services)	14 / 14		Jul 7, 2009 2:48:25 PM	
CORE	DIMENSION	CFGITEM (Configuration Items)	30 / 30		Jul 7, 2009 2:48:25 PM	
CORE	DIMENSION	CURRENCY (Currencies)	16 / 16		Jul 7, 2009 2:48:25 PM	
CORE	DIMENSION	EXCHANGE (Exchange Rates)	30 / 30		Jul 7, 2009 2:48:25 PM	
CORE	DIMENSION	LOCATION (Locations)	21 / 21		Jul 7, 2009 2:48:25 PM	
CORE	DIMENSION	MODEL (CI Models)	14 / 14		Jul 7, 2009 2:48:25 PM	
CORE	DIMENSION	ORG (Organizational Units)	18 / 18		Jul 7, 2009 2:48:25 PM	
CORE	DIMENSION	PERIOD (Periods)	26 / 26		Jul 7, 2009 2:48:25 PM	
CORE	DIMENSION	PERSON (People)	22 / 22		Jul 7, 2009 2:48:25 PM	
CORE	DIMENSION	PROJECT (Projects)	21 / 21		Jul 7, 2009 2:48:25 PM	
CORE	STATIC_DIMENSION	DATE (Date)	16 / 16	NA	Jun 24, 2009 4:23:03 PM	
CORE	STATIC_DIMENSION	TIME (Time)	6 / 6	NA	Jun 24, 2009 4:23:03 PM	

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Platform Configuration Report

The Platform Configuration report shows the names of configured data sources and the connection information about those data sources. The report contains:

— A list of data sources

— Connectivity status

The information in this report should match the connection configuration information in the dataSources.xml file. Run this report after you deploy a new application.

To view the report

1 Click **Public Folders** > **DW *xx* Administration** > **Platform Configuration**.

2 Click **Run Query**. Figure 21 on page 66 shows connection information for the Asset Manager and Project and Portfolio Management source data servers.

Data Warehouse Operational Reports

ABC operational reports report different aspects of ABC governance of ETL job streams. The objectives of these reports are to display:

- ETL stream definitions, such as catalogs, stream, and stream step information.
- Operational information about ETL batch jobs and processes.

Audit Reports

ABC Audit reports display ETL audit measure and metric information. You can define the length of time included in the audit history by specifying the number of days in the **Batch run history** field. The typical user is the data warehouse administrator or an HP Support engineer. Run the reports after multiple ETL runs produce historical results.

ABC - Consolidation Tables Activity

The Job Streams Consolidations Activity report displays volume information ETL consolidation. To view the report

1 Click **Public Folders** > **DW *xx* Operations** > **Audit Reports** > **ABC - Consolidation Tables Activity**.

2 Type the number of days of history to appear in the report. The default value is 1 day.

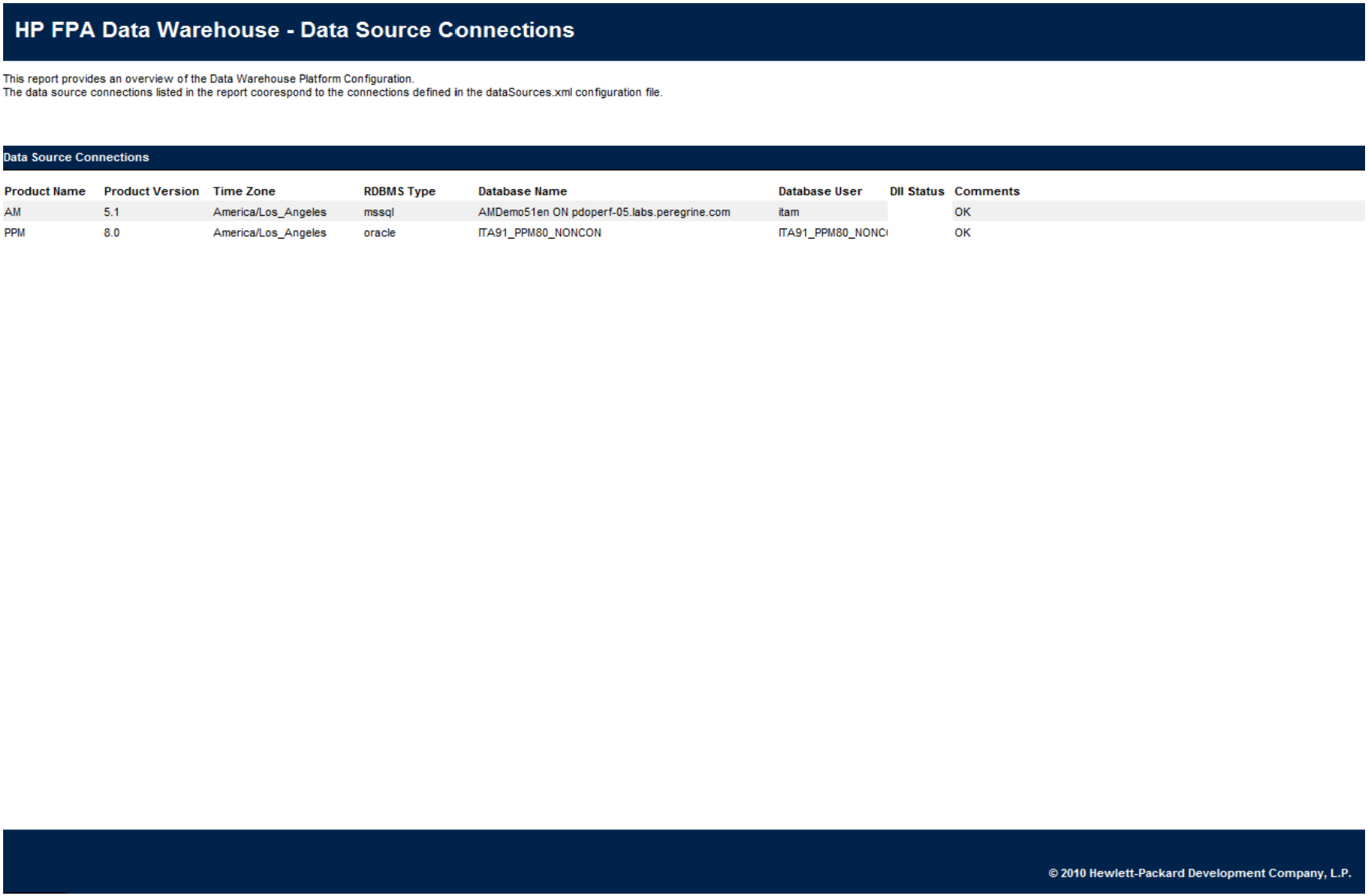
3 Click **Run Query**.

Figure 22 on page 67 shows the Measure/Batch per Measure Name tab that displays a bar chart view of the number of input rows and output rows for each affected consolidation table by batch ID and start time over the specified duration.

Figure 23 on page 68 shows the Measure/Measure Name per Entity tab that displays a bar chart view of the number of input rows and output rows by entity over the specified duration.

You can navigate between the tabs and select a view of the data by entity if you click the drop-down list box at the top of the report and select All values, or a single entity.

Figure 21 Platform Configuration - Data Source Connections report



HP FPA Data Warehouse - Data Source Connections

This report provides an overview of the Data Warehouse Platform Configuration.
The data source connections listed in the report coorespond to the connections defined in the dataSources.xml configuration file.

Data Source Connections

Product Name	Product Version	Time Zone	RDBMS Type	Database Name	Database User	Dll Status	Comments
AM	5.1	America/Los_Angeles	mssql	AMDemo51en ON pdoperf-05.labs.peregrine.com	itam		OK
PPM	8.0	America/Los_Angeles	oracle	ITA91_PPM80_NONCON	ITA91_PPM80_NONC		OK

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Figure 22 Job Streams Consolidations Activity report

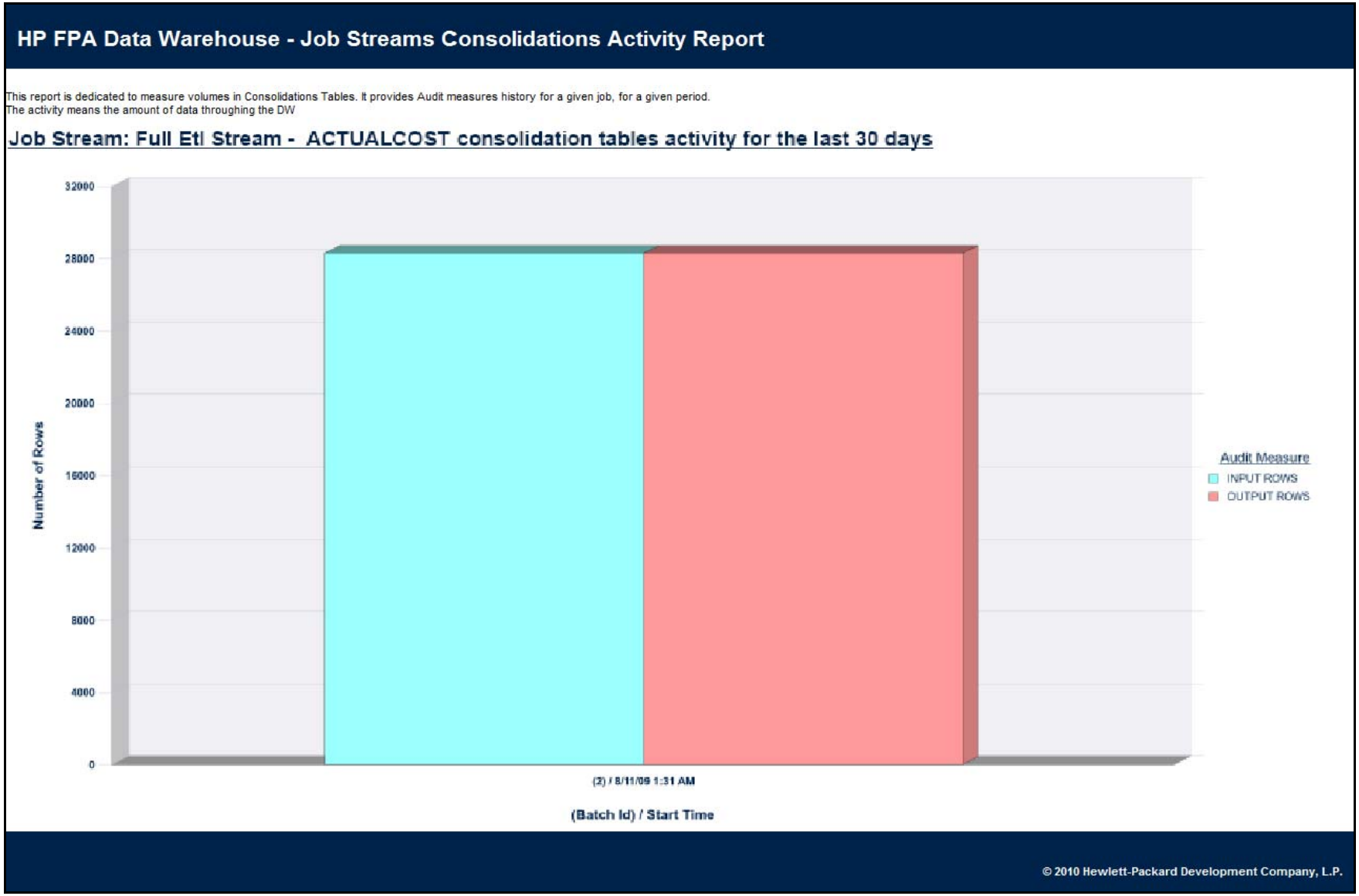
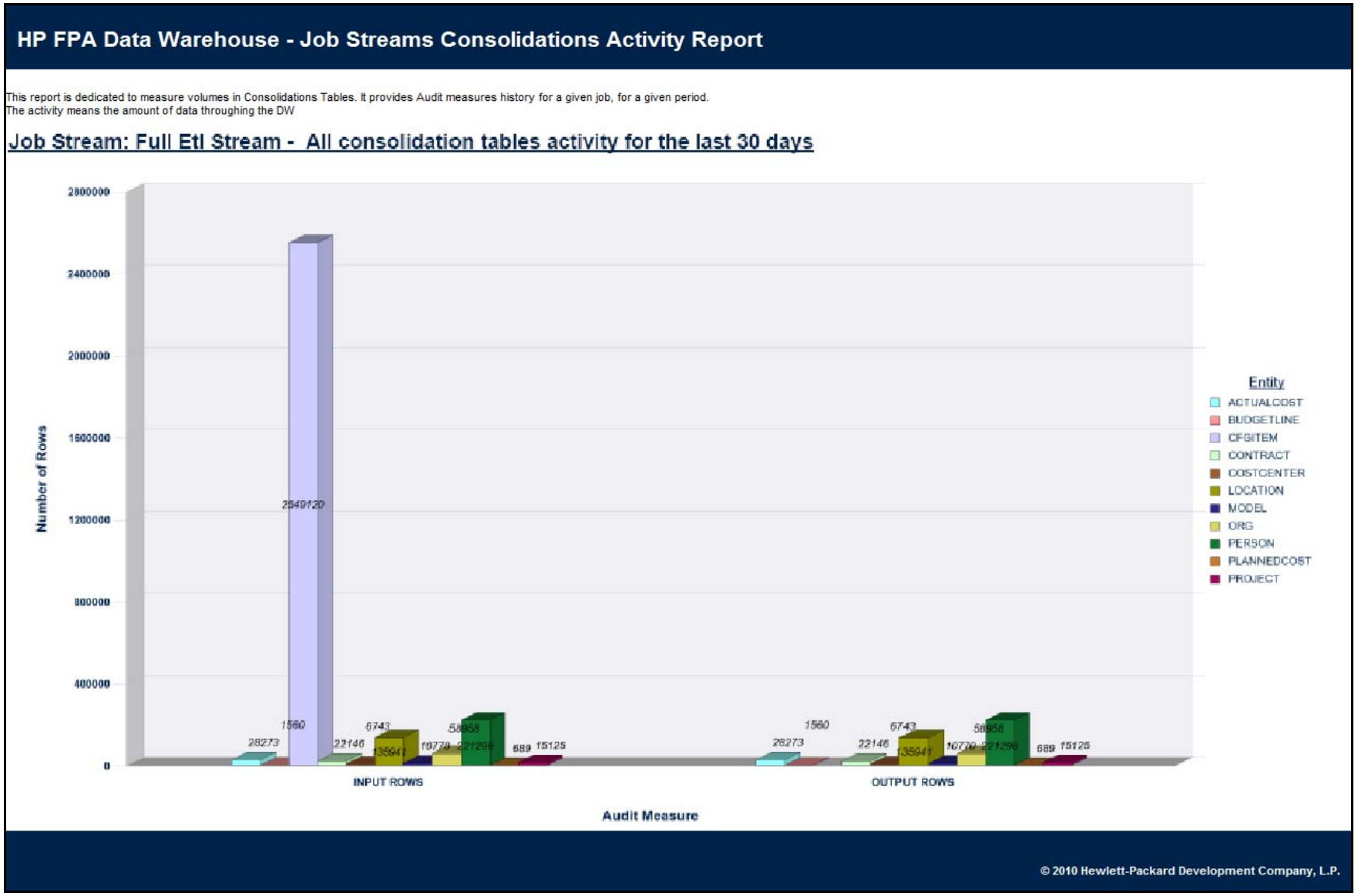


Figure 23 Job Streams Consolidations Activity report



ABC - Dimension Tables Activity

This report measures the volume of data processed by the data warehouse.

To view the report

1. Click **Public Folders** > **DW *xx* Operations** > **Audit Reports** > **ABC - Dimension Tables Activity**.
2. Type the number of days of history to appear in the report. The default value is 2 days.
3. Click **Run Query**.

Figure 24 on page 70 shows the Measure/Batch per Measure Name tab that displays a bar chart view of the number of rows processed for each dimension table by batch ID and start time over the specified duration.

Figure 25 on page 71 shows the Measure/Measure Name per Entity tab that displays a bar chart view of the number of rows processed by entity over the specified duration.

You can navigate between the tabs and select a view of the data by the number of sources or the entity. Click the drop-down list box at the top of the report and select **All values**, or a specific entity.

ABC - Source Extraction Tables Activity

This report shows the ETL activity on the source data tables.

To view the report

1. Click **Public Folders** > **DW *xx* Operations** > **Audit Reports** > **ABC - Source Extraction Tables Activity**.
2. Type the number of days of history to appear in the report. The default value is 2 days.
3. Click **Run Query**.

Figure 26 on page 72 shows the Measure/Batch per Measure Name tab that displays a bar chart view of the measures processed from source tables over the specified duration.

Figure 27 on page 73 shows the Measure/Batch per Source Table tab that displays a bar chart view of the number of data rows in source tables processed over the specified duration.

Figure 28 on page 74 shows the Measure/Measure Name per Source product tab that displays a bar chart view of the extraction activity by source over the specified duration.

Figure 29 on page 75 shows the Measure/Measure Name per Source Table tab that displays a bar chart view of the extraction activity by source table over the specified duration.

You can navigate between the tabs and select a view of the data by the number of sources. Click the drop-down list box at the top of the report and select **All values**, or a specific number of sources.

Figure 24 ABC - Dimension Tables Activity report

HP FPA Data Warehouse - Job Streams Dimensions Activity Report

This report is dedicated to measure volumes in Dimensions Tables. It provides Audit measures history for a given job, for a given period.
The activity means the amount of data throughing the DW

Job Stream: Full Etl Stream - All dimension tables activity for the last 10 days

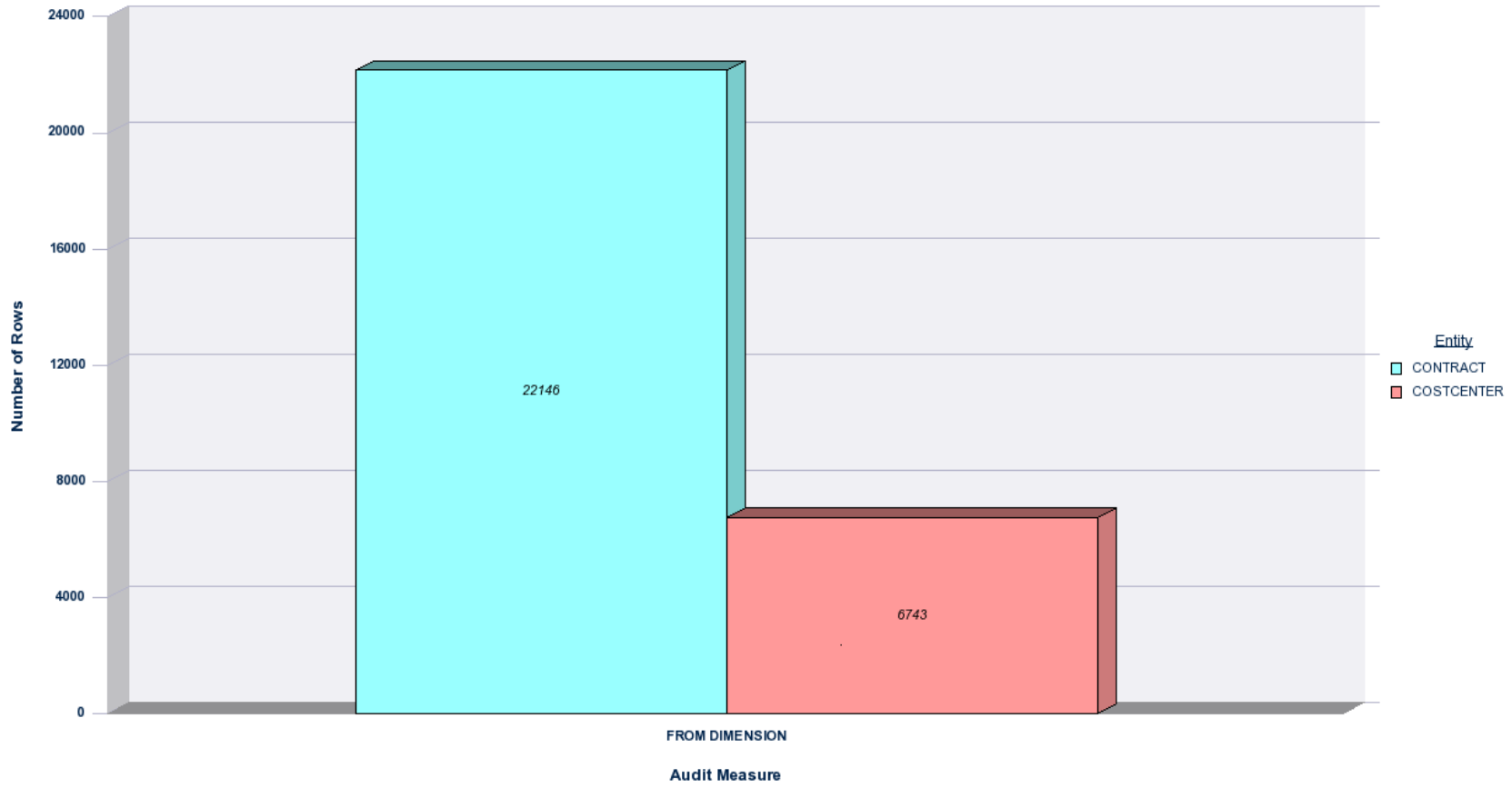


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Figure 25 ABC - Dimension Tables Activity - report

HP FPA Data Warehouse - Job Streams Dimensions Activity Report

This report is dedicated to measure volumes in Dimensions Tables. It provides Audit measures history for a given job, for a given period.
The activity means the amount of data throughing the DW

Job Stream: Full Etl Stream - All dimension tables activity for the last 10 days

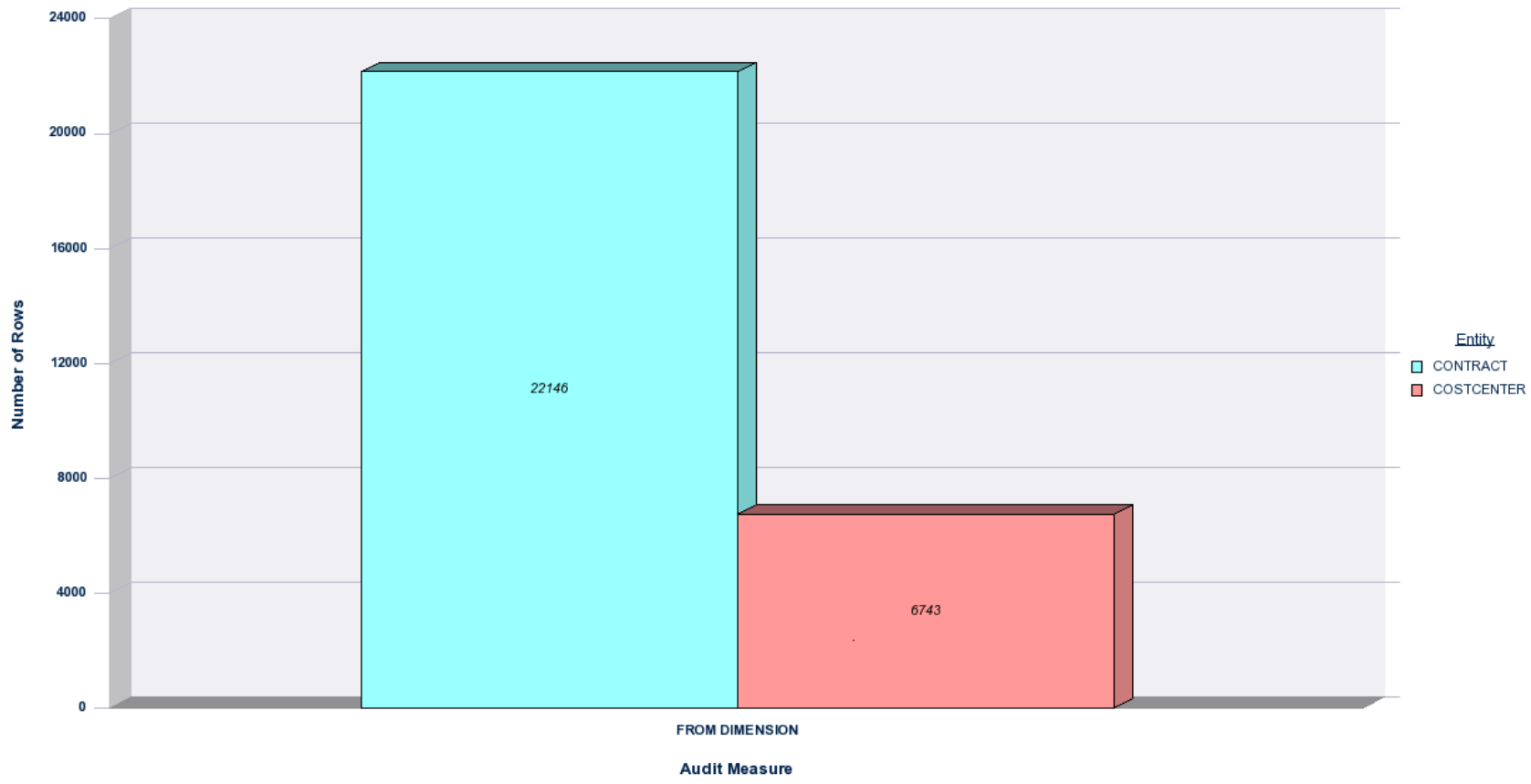

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Figure 26 Measure/Batch per Measure Name report

Figure 27 Measure/Batch per Source Table report

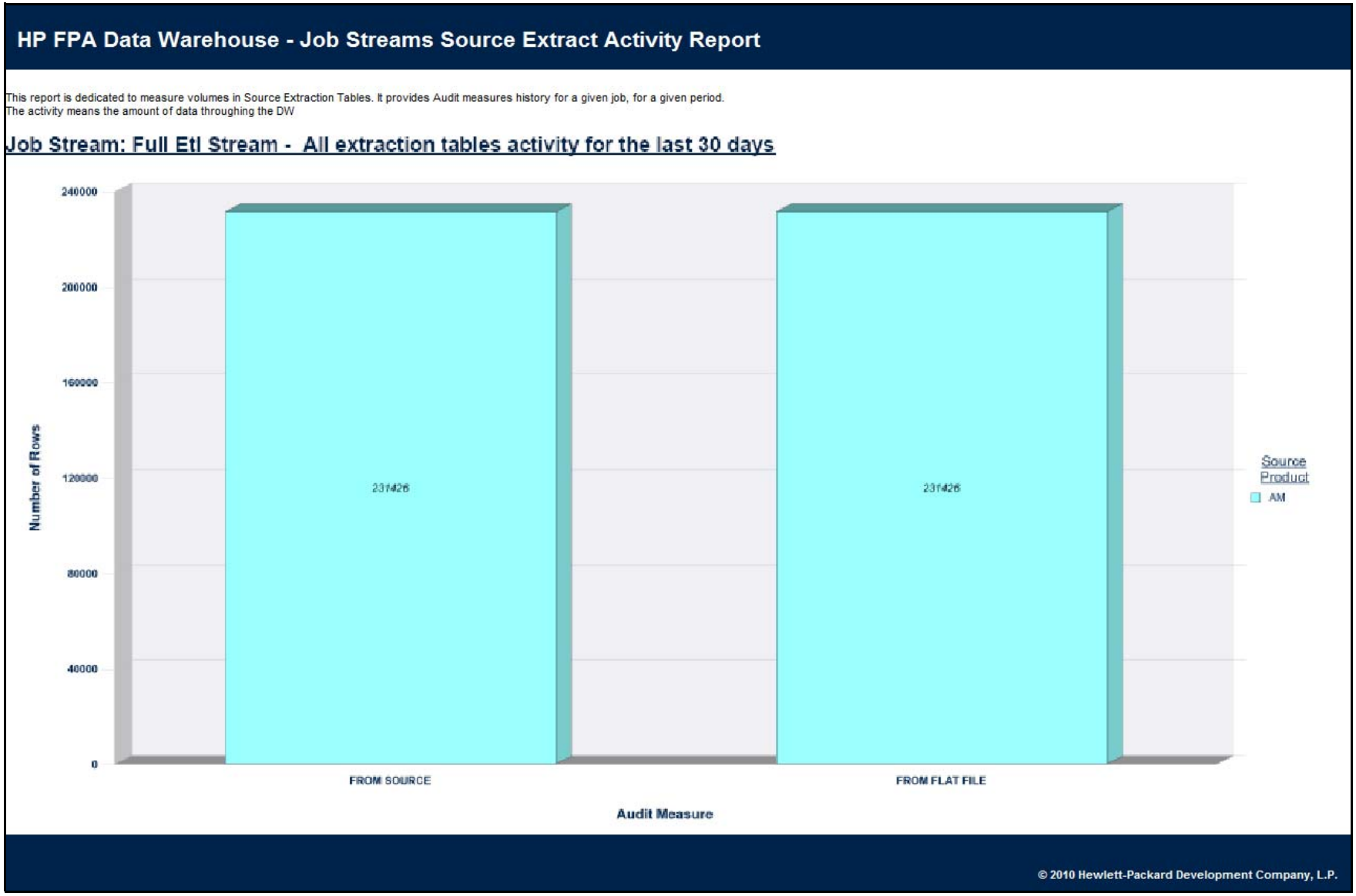
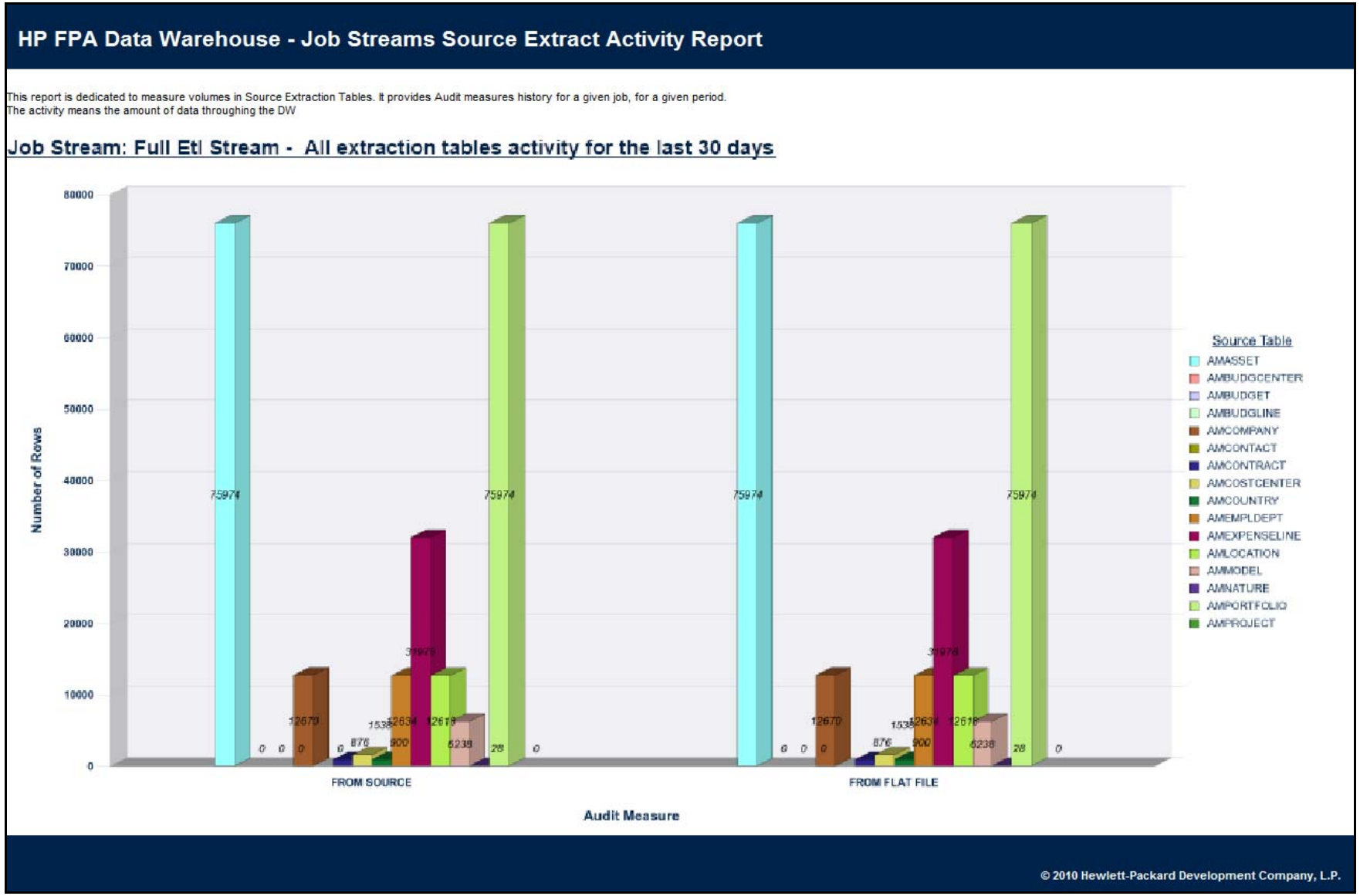


Figure 28 Measure/Measure Name per Source product report

Figure 29 Measure/Measure Name per Source Table report



Control Reports

Control reports describe historic or operational aspects of the data warehouse. Historic reports contain status information gathered over time for the purpose of analysis and performance improvements. Operational reports contain snapshot information about current jobs and other data warehouse activity. You can edit, save, or export the following ABC Control reports.

If the ABC database runs on a different system than SAP® Business Objects Data Services, and these two systems run in different timezones, you may see a discrepancy in the Duration column on the Control reports. For example, if you check a Control report while a step is processing, the report might show that the step has been processing for several hours even though the step has actually been running for only minutes. Once the step terminates, however, the duration becomes accurate.

ABC - Operational Status

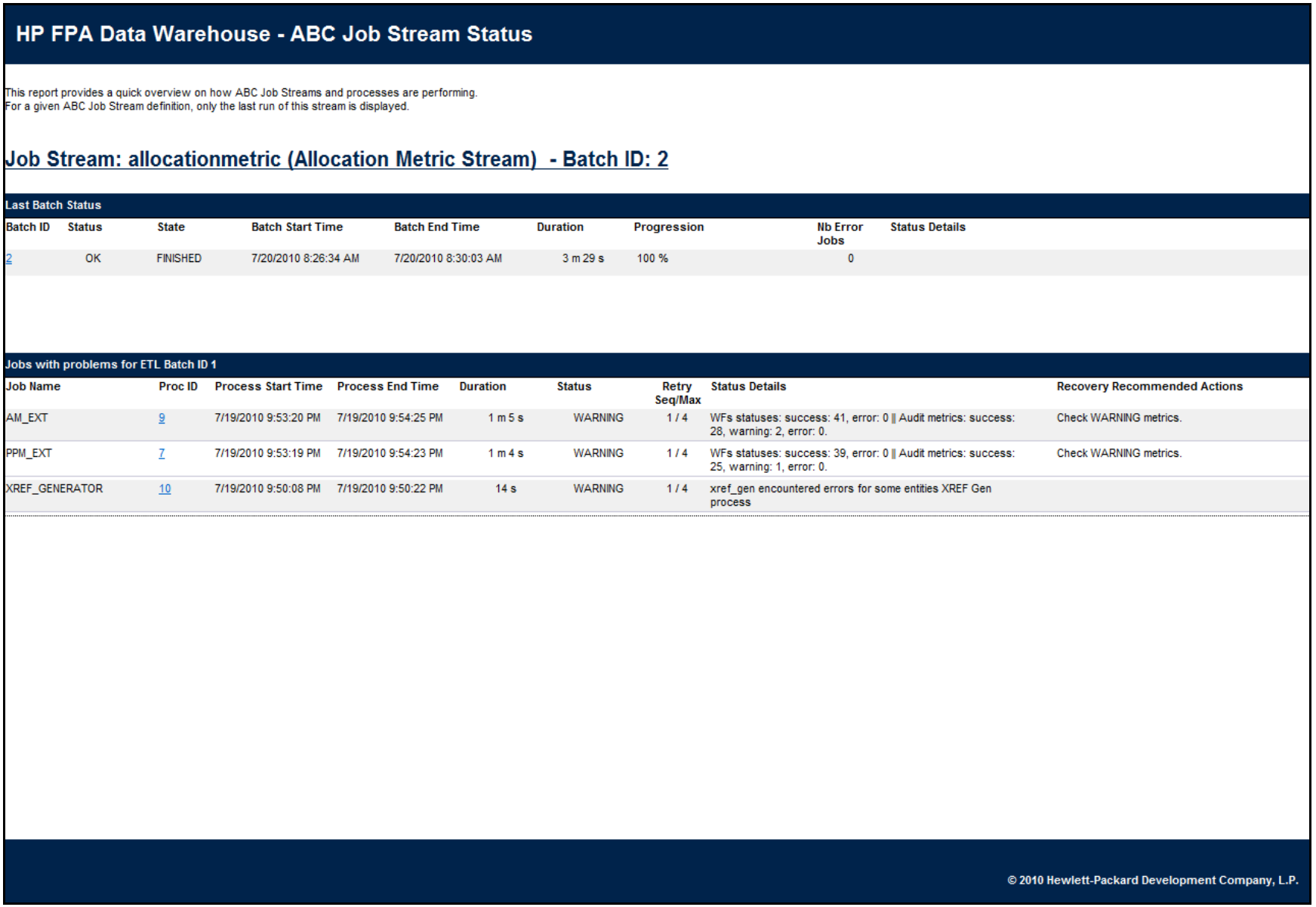
The ABC Operational Status report displays the runtime information about the out-of-box Upstream.xml file, which contains all the job stream steps for a complete ETL run.

To view the report

1. Click **Public Folders** > **DW *xx* Operations** > **Control Reports** > **ABC - Operational Status**. Figure 30 on page 77 shows the Job Stream Status tab of the ABC Job Stream Status report.
2. On the **Job Stream Status** tab, click the **Batch ID** value in the first column. In this example, the batch ID value is 2. A new window and dialog box appear.
3. In the **Prompts** dialog box, type the number of the Process ID that you want to review in the job stream.
4. Click **Run Query.** The new window displays the ABC Batch Control report for the Batch ID that you selected in step 2. Figure 31 on page 78 shows an example of the ABC Batch Control report.

   If you click any **Process ID** value in the ABC Batch Control report, the ABC Job Process Audit report, shown in Figure 32 on page 79, appears to display all audit measures and metrics associated with that Process ID.
5. On the original Job Stream Status report, click the **Job Stream Progress** tab to display a snapshot of the runtime status of each job stream step in a graphic format, as shown in Figure 33 on page 80.
6. On the Job Stream Progress tab, click any ETL job name to display the ETL Job Process Audit report, shown in Figure 34 on page 81, which shows all audit measures and metrics associated with that Process ID.

Figure 30 ABC - Operational Status report (Job Stream Status tab)



HP FPA Data Warehouse - ABC Job Stream Status

This report provides a quick overview on how ABC Job Streams and processes are performing.
For a given ABC Job Stream definition, only the last run of this stream is displayed.

Job Stream: allocationmetric (Allocation Metric Stream) - Batch ID: 2

Last Batch Status

Batch ID	Status	State	Batch Start Time	Batch End Time	Duration	Progression	Nb Error Jobs	Status Details
2	OK	FINISHED	7/20/2010 8:26:34 AM	7/20/2010 8:30:03 AM	3 m 29 s	100 %	0	

Jobs with problems for ETL Batch ID 1

Job Name	Proc ID	Process Start Time	Process End Time	Duration	Status	Retry Seq/Max	Status Details	Recovery Recommended Actions
AM_EXT	9	7/19/2010 9:53:20 PM	7/19/2010 9:54:25 PM	1 m 5 s	WARNING	1 / 4	WFs statuses: success: 41, error: 0 ‖ Audit metrics: success: 28, warning: 2, error: 0.	Check WARNING metrics.
PPM_EXT	7	7/19/2010 9:53:19 PM	7/19/2010 9:54:23 PM	1 m 4 s	WARNING	1 / 4	WFs statuses: success: 39, error: 0 ‖ Audit metrics: success: 25, warning: 1, error: 0.	Check WARNING metrics.
XREF_GENERATOR	10	7/19/2010 9:50:08 PM	7/19/2010 9:50:22 PM	14 s	WARNING	1 / 4	xref_gen encountered errors for some entities XREF Gen process	

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Figure 31 ABC - Operational Status report (Job Stream Status tab) - ABC Batch Control report

HP FPA Data Warehouse - ABC Batch Control

This report displays Control information pertaining to the Batch ID: 2

Operational Batch Information for the Batch ID: 2

Job Stream Id (Name)	State	Status	Duration	Start Time	End Time	Nb Processes Starting	Nb Processes Waiting	Nb Processes Running	Nb Processes Finished Success	Nb Processes Finished Warning	Nb Processes Finished Error
Upstream (Full EII Stream)	ACTIVE	OK	22 h 50 m 23 s	8/11/2009 1:31:46 AM		0	8	1	25	4	0

Associated Job Processes

Stream Step Id	Process Id	State	Status	Duration	Start Time	End Time	Owner	Status Info
SYS_READY	40	FINISHED	SUCCESS	3 s	8/11/2009 1:32:05 AM	8/11/2009 1:32:08 AM	SCHEDULER	sys_check_start OK
AM_SOURCE_EXTRACT	43	FINISHED	SUCCESS	7 m 14 s	8/11/2009 1:33:31 AM	8/11/2009 1:40:45 AM	SCHEDULER	WFs statuses: success: 32, error: 0 || Audit metrics: success: 0, warning: 0, error: 0.
ENTERPRISE_CONF	44	FINISHED	SUCCESS	2 m 27 s	8/11/2009 1:33:28 AM	8/11/2009 1:35:53 AM	SCHEDULER	WFs statuses: success: 6, error: 0 || Audit metrics: success: 0, warning: 0, error: 0.
EXTERNAL_FILE	45	FINISHED	SUCCESS	5 m 58 s	8/11/2009 1:33:48 AM	8/11/2009 1:39:46 AM	SCHEDULER	WFs statuses: success: 32, error: 0 || Audit metrics: success: 0, warning: 0, error: 0.
PPM_SOURCE_EXTRACT	41	FINISHED	SUCCESS	3 m 16 s	8/11/2009 1:33:30 AM	8/11/2009 1:36:46 AM	SCHEDULER	WFs statuses: success: 28, error: 0 || Audit metrics: success: 0, warning: 0, error: 0.
SM_SOURCE_EXTRACT	42	FINISHED	SUCCESS	1 s	8/11/2009 1:33:22 AM	8/11/2009 1:33:23 AM	SCHEDULER	WFs statuses: success: 0, error: 0 || Audit metrics: success: 0, warning: 0, error: 0.
AM_EXT	48	FINISHED	WARNING	[illegible]	8/11/2009 1:42:18 AM	8/11/2009 4:40:35 AM	SCHEDULER	WFs statuses: success: 41, error: 0 || Audit metrics: success: 28, warning: 2, error: 0.
PPM_EXT	46	FINISHED	WARNING	4 m 33 s	8/11/2009 1:40:33 AM	8/11/2009 1:45:06 AM	SCHEDULER	WFs statuses: success: 39, error: 0 || Audit metrics: success: 22, warning: 4, error: 0.
SM_EXT	47	FINISHED	SUCCESS	1 s	8/11/2009 1:40:24 AM	8/11/2009 1:40:25 AM	SCHEDULER	WFs statuses: success: 0, error: 0 || Audit metrics: success: 0, warning: 0, error: 0.
XREF_GENERATOR	49	FINISHED	SUCCESS	[illegible]	8/11/2009 1:36:58 AM	8/11/2009 7:47:35 AM	SCHEDULER	xref_gen OK
AM_SSI	52	FINISHED	WARNING	[illegible]	8/11/2009 4:41:15 AM	8/11/2009 10:46:56 AM	SCHEDULER	WFs statuses: success: 6, error: 0 || Audit metrics: success: 0, warning: 43184, error: 0.
ENTERPRISE_XREF	53	FINISHED	SUCCESS	12 s	8/11/2009 7:48:06 AM	8/11/2009 7:48:18 AM	SCHEDULER	etl_xref_end OK
PPM_SSI	50	FINISHED	SUCCESS	44 s	8/11/2009 1:46:09 AM	8/11/2009 1:46:53 AM	SCHEDULER	WFs statuses: success: 5, error: 0 || Audit metrics: success: 0, warning: 0, error: 0.
SM_SSI	51	FINISHED	SUCCESS	3 s	8/11/2009 1:41:56 AM	8/11/2009 1:41:59 AM	SCHEDULER	WFs statuses: success: 0, error: 0 || Audit metrics: success: 0, warning: 0, error: 0.
AM_SSI_XREF	56	FINISHED	SUCCESS	7 m 53 s	8/11/2009 10:46:23 AM	8/11/2009 10:54:16 AM	SCHEDULER	WFs statuses: success: 11, error: 0 || Audit metrics: success: 0, warning: 0, error: 0.
PPM_SSI_XREF	54	FINISHED	SUCCESS	52 s	8/11/2009 7:49:37 AM	8/11/2009 7:50:29 AM	SCHEDULER	WFs statuses: success: 7, error: 0 || Audit metrics: success: 0, warning: 0, error: 0.
SM_SSI_XREF	55	FINISHED	SUCCESS	2 s	8/11/2009 7:49:32 AM	8/11/2009 7:49:34 AM	SCHEDULER	WFs statuses: success: 0, error: 0 || Audit metrics: success: 0, warning: 0, error: 0.
AM_MSI	59	FINISHED	WARNING	5 m 55 s	8/11/2009 10:55:34 AM	8/11/2009 11:04:29 AM	SCHEDULER	WFs statuses: success: 11, error: 0 || Audit metrics: success: 0, warning: 2705, error: 0.
PPM_MSI	57	FINISHED	SUCCESS	33 s	8/11/2009 7:51:34 AM	8/11/2009 7:52:07 AM	SCHEDULER	WFs statuses: success: 7, error: 0 || Audit metrics: success: 0, warning: 0, error: 0.
SM_MSI	58	FINISHED	SUCCESS	4 s	8/11/2009 7:50:18 AM	8/11/2009 7:50:22 AM	SCHEDULER	WFs statuses: success: 0, error: 0 || Audit metrics: success: 0, warning: 0, error: 0.
AM_BACKFILL_CTRL	62	FINISHED	SUCCESS	1 m 54 s	8/11/2009 11:05:48 AM	8/11/2009 11:07:42 AM	SCHEDULER	WFs statuses: success: 8, error: 0 || Audit metrics: success: 0, warning: 0, error: 0.
AM_CON	68	FINISHED	SUCCESS	14 m 10 s	8/11/2009 11:05:30 AM	8/11/2009 11:19:40 AM	SCHEDULER	WFs statuses: success: 2, error: 0 || Audit metrics: success: 2, warning: 0, error: 0.
PPM_BACKFILL_CTRL	60	FINISHED	SUCCESS	48 s	8/11/2009 11:05:47 AM	8/11/2009 11:06:35 AM	SCHEDULER	WFs statuses: success: 6, error: 0 || Audit metrics: success: 0, warning: 0, error: 0.
PPM_CON	66	FINISHED	SUCCESS	0 s	8/11/2009 7:52:23 AM	8/11/2009 7:52:23 AM	SCHEDULER	WFs statuses: success: 0, error: 0 || Audit metrics: success: 0, warning: 0, error: 0.
SM_BACKFILL_CTRL	61	FINISHED	SUCCESS	1 s	8/11/2009 11:05:27 AM	8/11/2009 11:05:28 AM	SCHEDULER	WFs statuses: success: 0, error: 0 || Audit metrics: success: 0, warning: 0, error: 0.

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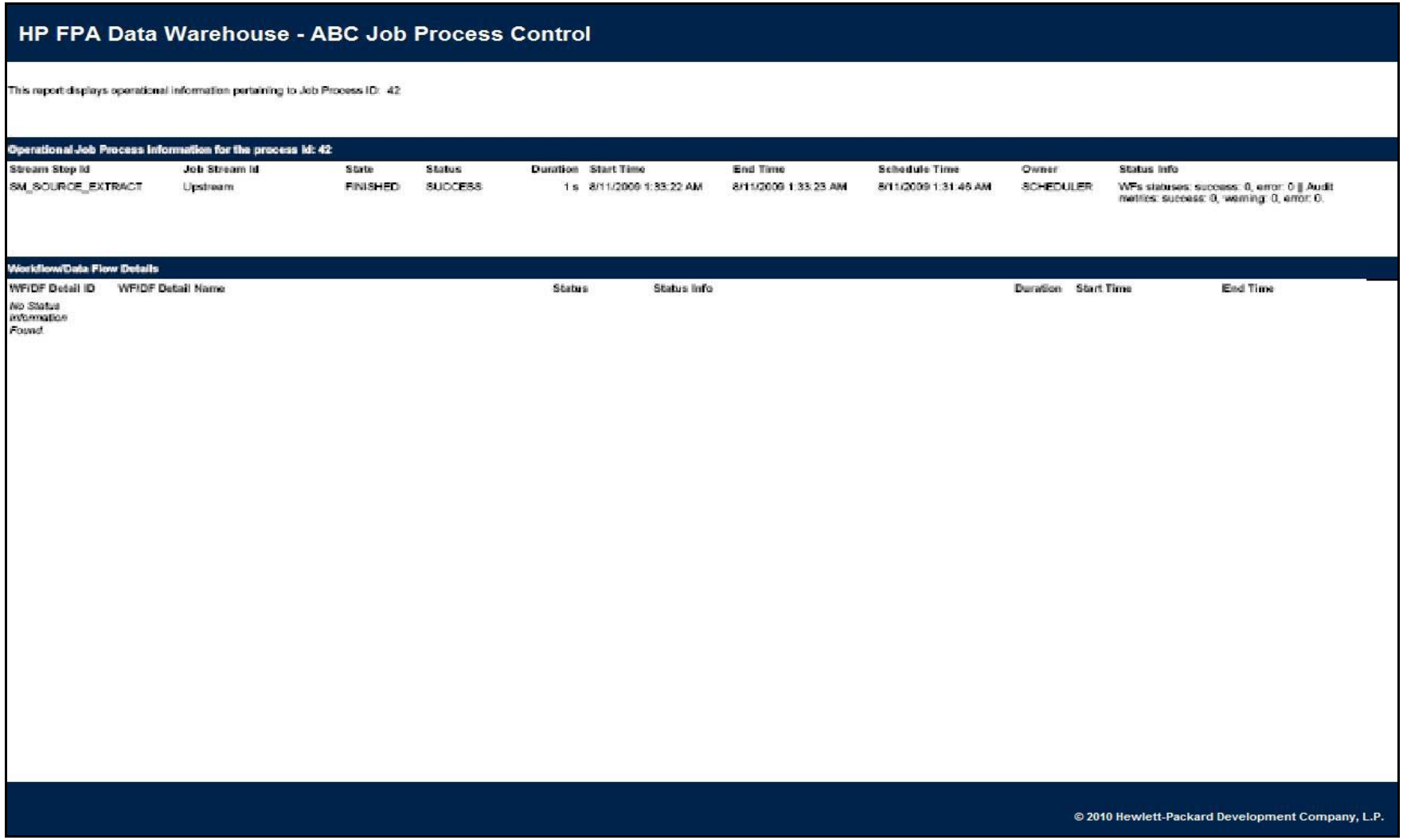
Figure 32 ABC Job Process Audit report



HP FPA Data Warehouse - ABC Job Process Control

This report displays operational information pertaining to Job Process ID: 42

Operational Job Process Information for the process Id: 42

Stream Step Id	Job Stream Id	State	Status	Duration	Start Time	End Time	Schedule Time	Owner	Status Info
SM_SOURCE_EXTRACT	Upstream	FINISHED	SUCCESS	1 s	8/11/2009 1:33:22 AM	8/11/2009 1:33:23 AM	8/11/2009 1:31:46 AM	SCHEDULER	WFs statuses: success: 0, error: 0 || Audit metrics: success: 0, warning: 0, error: 0.

Workflow/Data Flow Details

WF/DF Detail ID	WF/DF Detail Name	Status	Status Info	Duration	Start Time	End Time
No Status Information Found.						

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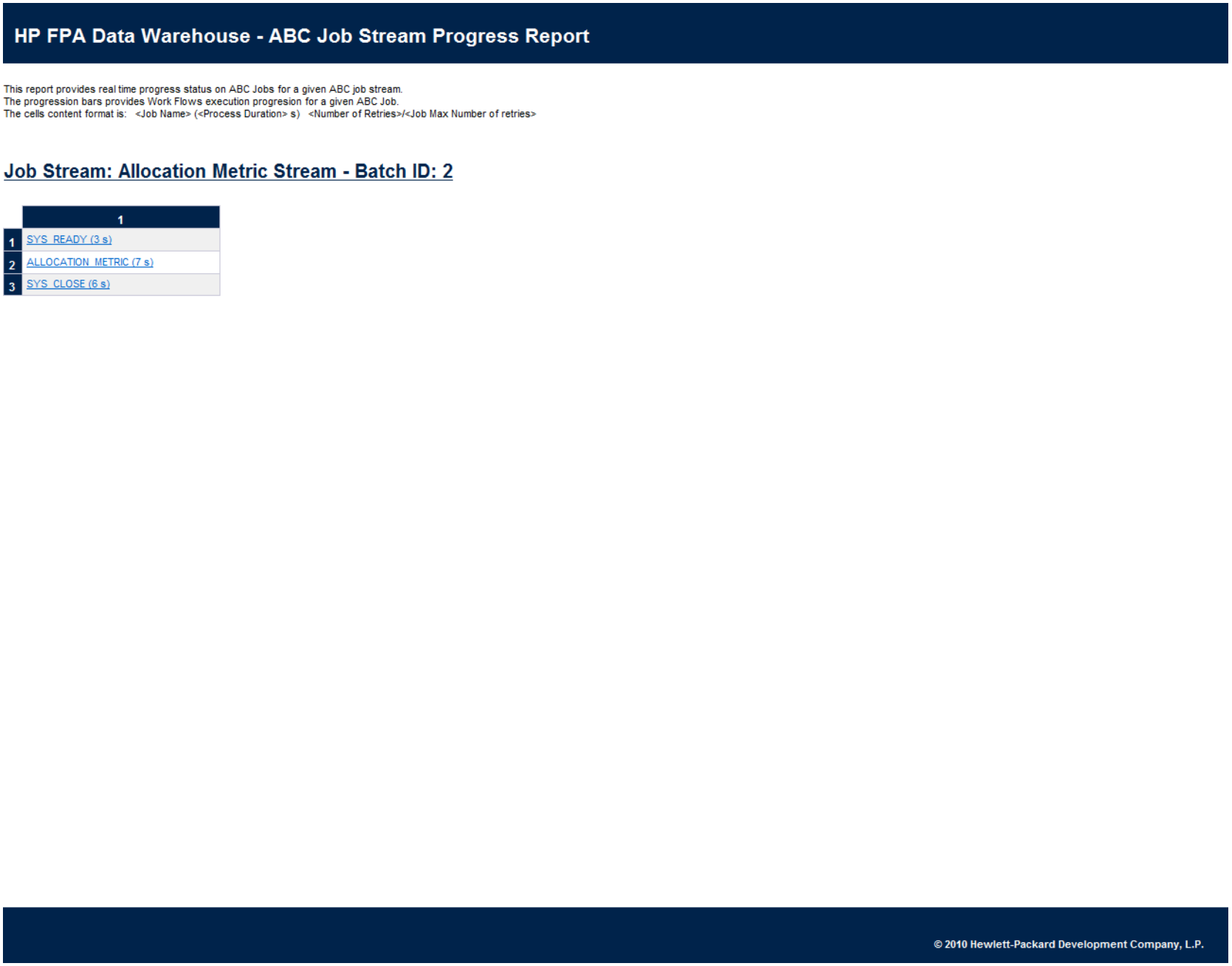
Figure 33 ABC Job Stream Progress report



HP FPA Data Warehouse - ABC Job Stream Progress Report

This report provides real time progress status on ABC Jobs for a given ABC job stream.
The progression bars provides Work Flows execution progresion for a given ABC Job.
The cells content format is: <Job Name> (<Process Duration> s) <Number of Retries>/<Job Max Number of retries>

Job Stream: Allocation Metric Stream - Batch ID: 2

	1
1	SYS_READY (3 s)
2	ALLOCATION_METRIC (7 s)
3	SYS_CLOSE (6 s)

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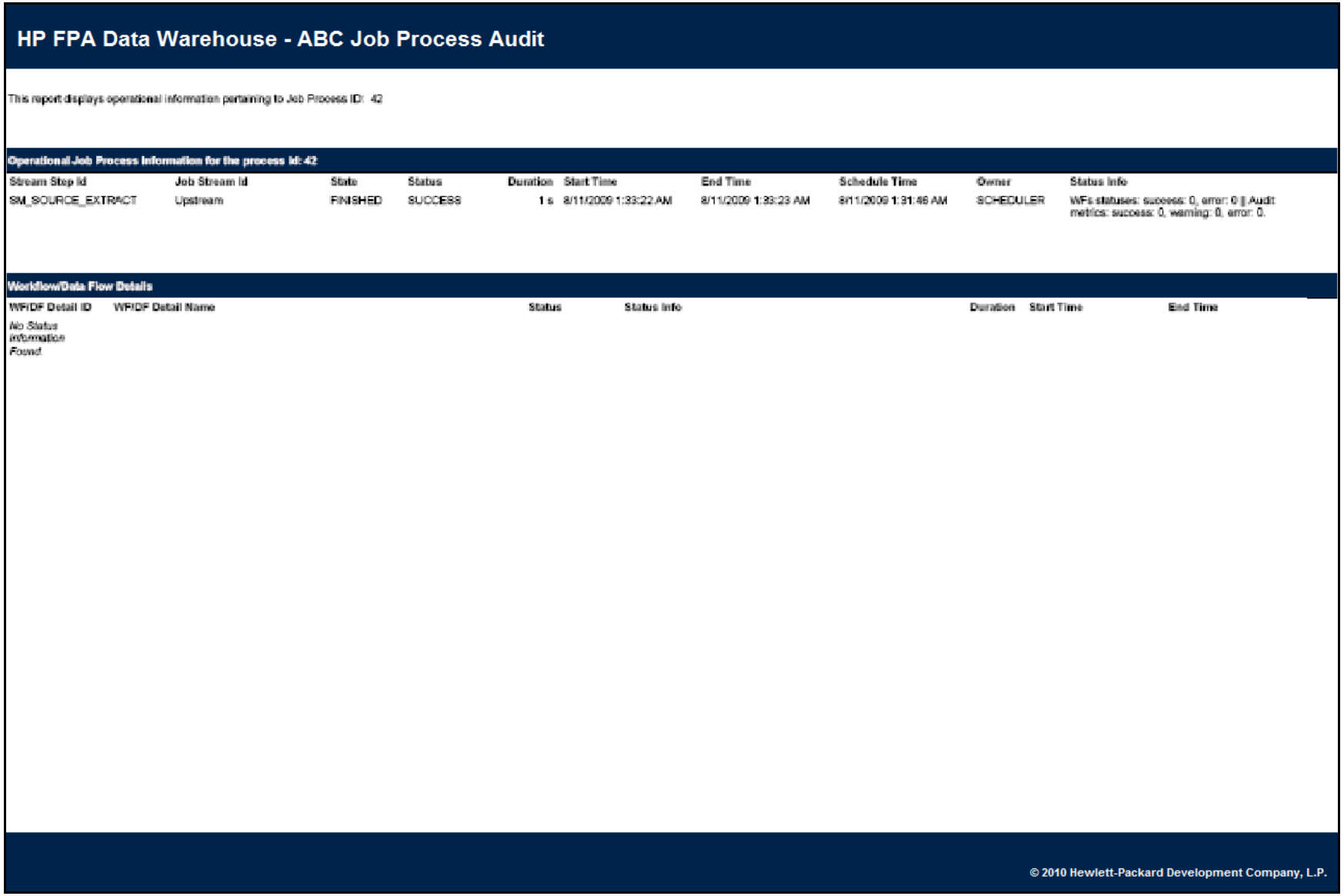
Figure 34 ABC Job Process Audit report



HP FPA Data Warehouse - ABC Job Process Audit

This report displays operational information pertaining to Job Process ID: 42

Operational Job Process Information for the process id: 42

Stream Step Id	Job Stream Id	State	Status	Duration	Start Time	End Time	Schedule Time	Owner	Status Info
SM_SOURCE_EXTRACT	Upstream	FINISHED	SUCCESS	1 s	8/11/2009 1:33:22 AM	8/11/2009 1:33:23 AM	8/11/2009 1:31:46 AM	SCHEDULER	WFs statuses: success: 0, error: 0 || Audit metrics: success: 0, warning: 0, error: 0.

Workflow/Data Flow Details

WFDF Detail ID	WFDF Detail Name	Status	Status Info	Duration	Start Time	End Time
No Status Information Found						

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ABC - Batch Details

This report displays control information for a batch job. It reports the defined Upstream and allocationmetric job streams.

To view the report

1. Click **Public Folders** > **DW *xx* Operations** > **Control Reports** > **ABC - Batch Details**. By default, **Upstream** and **allocationmetric** are selected.
2. Click the **Left arrow** (<) to remove one of the values from the **Enter value(s) for Job Stream ID** list.
3. Click **Run Query**.

Figure 35 on page 83 shows the ABC Batch Control report.

ABC - Job Details

The ABC Job Details report displays operation information, such as the Stream Step ID and workflow information.

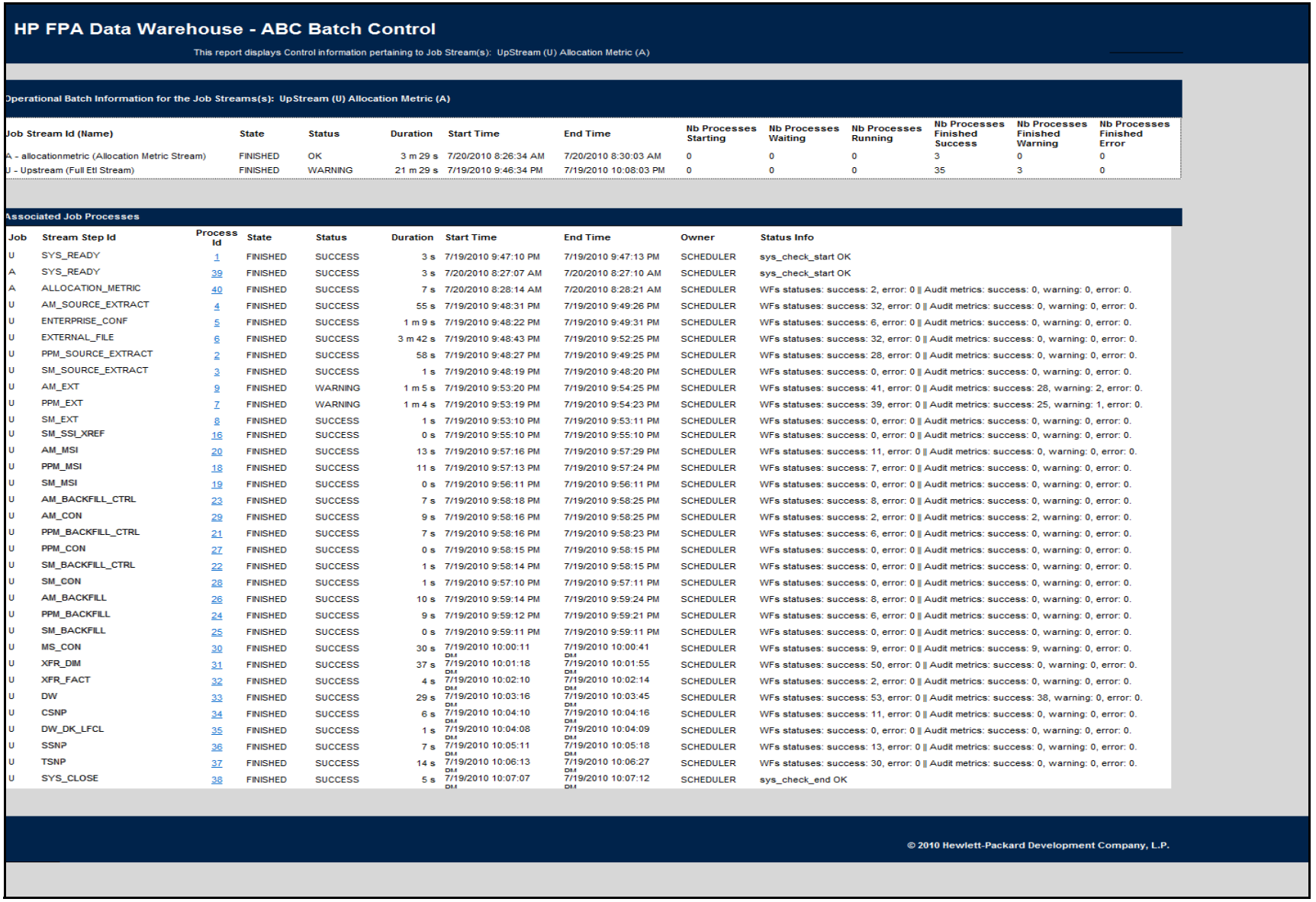
To view the report

1. Click **Public Folders** > **DW *xx* Operations** > **Control Reports** > **ABC - Job Details**. You can also view by clicking the link in the batch detail report or the ABC - Operational Status report.
2. Select a **Process ID** from the left list box.
   You can also type a **Process Id** value and click the **Search** icon.
3. Click the **Right arrow** (>) to move it into the **Enter the Process ID** list.
4. Click **Run Query**.

Figure 36 on page 84 shows the Job Process Control (Control Details tab) information for the selected process ID.

Figure 37 on page 85 shows the Job Process Audit (Audit Details tab) information for the same process ID.

Figure 35 ABC Batch Control report



HP FPA Data Warehouse - ABC Batch Control

This report displays Control information pertaining to Job Stream(s): UpStream (U) Allocation Metric (A)

Operational Batch Information for the Job Streams(s): UpStream (U) Allocation Metric (A)

Job Stream Id (Name)	State	Status	Duration	Start Time	End Time	Nb Processes Starting	Nb Processes Waiting	Nb Processes Running	Nb Processes Finished Success	Nb Processes Finished Warning	Nb Processes Finished Error
A - allocationmetric (Allocation Metric Stream)	FINISHED	OK	3 m 29 s	7/20/2010 8:26:34 AM	7/20/2010 8:30:03 AM	0	0	0	3	0	0
U - Upstream (Full Etl Stream)	FINISHED	WARNING	21 m 29 s	7/19/2010 9:46:34 PM	7/19/2010 10:08:03 PM	0	0	0	35	3	0

Associated Job Processes

Job	Stream Step Id	Process Id	State	Status	Duration	Start Time	End Time	Owner	Status Info
U	SYS_READY	1	FINISHED	SUCCESS	3 s	7/19/2010 9:47:10 PM	7/19/2010 9:47:13 PM	SCHEDULER	sys_check_start OK
A	SYS_READY	39	FINISHED	SUCCESS	3 s	7/20/2010 8:27:07 AM	7/20/2010 8:27:10 AM	SCHEDULER	sys_check_start OK
A	ALLOCATION_METRIC	40	FINISHED	SUCCESS	7 s	7/20/2010 8:28:14 AM	7/20/2010 8:28:21 AM	SCHEDULER	WFs statuses: success: 2, error: 0 ‖ Audit metrics: success: 0, warning: 0, error: 0.
U	AM_SOURCE_EXTRACT	4	FINISHED	SUCCESS	55 s	7/19/2010 9:48:31 PM	7/19/2010 9:49:26 PM	SCHEDULER	WFs statuses: success: 32, error: 0 ‖ Audit metrics: success: 0, warning: 0, error: 0.
U	ENTERPRISE_CONF	5	FINISHED	SUCCESS	1 m 9 s	7/19/2010 9:48:22 PM	7/19/2010 9:49:31 PM	SCHEDULER	WFs statuses: success: 6, error: 0 ‖ Audit metrics: success: 0, warning: 0, error: 0.
U	EXTERNAL_FILE	6	FINISHED	SUCCESS	3 m 42 s	7/19/2010 9:48:43 PM	7/19/2010 9:52:25 PM	SCHEDULER	WFs statuses: success: 32, error: 0 ‖ Audit metrics: success: 0, warning: 0, error: 0.
U	PPM_SOURCE_EXTRACT	2	FINISHED	SUCCESS	58 s	7/19/2010 9:48:27 PM	7/19/2010 9:49:25 PM	SCHEDULER	WFs statuses: success: 28, error: 0 ‖ Audit metrics: success: 0, warning: 0, error: 0.
U	SM_SOURCE_EXTRACT	3	FINISHED	SUCCESS	1 s	7/19/2010 9:48:19 PM	7/19/2010 9:48:20 PM	SCHEDULER	WFs statuses: success: 0, error: 0 ‖ Audit metrics: success: 0, warning: 0, error: 0.
U	AM_EXT	9	FINISHED	WARNING	1 m 5 s	7/19/2010 9:53:20 PM	7/19/2010 9:54:25 PM	SCHEDULER	WFs statuses: success: 41, error: 0 ‖ Audit metrics: success: 28, warning: 2, error: 0.
U	PPM_EXT	7	FINISHED	WARNING	1 m 4 s	7/19/2010 9:53:19 PM	7/19/2010 9:54:23 PM	SCHEDULER	WFs statuses: success: 39, error: 0 ‖ Audit metrics: success: 25, warning: 1, error: 0.
U	SM_EXT	8	FINISHED	SUCCESS	1 s	7/19/2010 9:53:10 PM	7/19/2010 9:53:11 PM	SCHEDULER	WFs statuses: success: 0, error: 0 ‖ Audit metrics: success: 0, warning: 0, error: 0.
U	SM_SSI_XREF	16	FINISHED	SUCCESS	0 s	7/19/2010 9:55:10 PM	7/19/2010 9:55:10 PM	SCHEDULER	WFs statuses: success: 0, error: 0 ‖ Audit metrics: success: 0, warning: 0, error: 0.
U	AM_MSI	20	FINISHED	SUCCESS	13 s	7/19/2010 9:57:16 PM	7/19/2010 9:57:29 PM	SCHEDULER	WFs statuses: success: 11, error: 0 ‖ Audit metrics: success: 0, warning: 0, error: 0.
U	PPM_MSI	18	FINISHED	SUCCESS	11 s	7/19/2010 9:57:13 PM	7/19/2010 9:57:24 PM	SCHEDULER	WFs statuses: success: 7, error: 0 ‖ Audit metrics: success: 0, warning: 0, error: 0.
U	SM_MSI	19	FINISHED	SUCCESS	0 s	7/19/2010 9:56:11 PM	7/19/2010 9:56:11 PM	SCHEDULER	WFs statuses: success: 0, error: 0 ‖ Audit metrics: success: 0, warning: 0, error: 0.
U	AM_BACKFILL_CTRL	23	FINISHED	SUCCESS	7 s	7/19/2010 9:58:18 PM	7/19/2010 9:58:25 PM	SCHEDULER	WFs statuses: success: 8, error: 0 ‖ Audit metrics: success: 0, warning: 0, error: 0.
U	AM_CON	29	FINISHED	SUCCESS	9 s	7/19/2010 9:58:16 PM	7/19/2010 9:58:25 PM	SCHEDULER	WFs statuses: success: 2, error: 0 ‖ Audit metrics: success: 2, warning: 0, error: 0.
U	PPM_BACKFILL_CTRL	21	FINISHED	SUCCESS	7 s	7/19/2010 9:58:16 PM	7/19/2010 9:58:23 PM	SCHEDULER	WFs statuses: success: 6, error: 0 ‖ Audit metrics: success: 0, warning: 0, error: 0.
U	PPM_CON	27	FINISHED	SUCCESS	0 s	7/19/2010 9:58:15 PM	7/19/2010 9:58:15 PM	SCHEDULER	WFs statuses: success: 0, error: 0 ‖ Audit metrics: success: 0, warning: 0, error: 0.
U	SM_BACKFILL_CTRL	22	FINISHED	SUCCESS	1 s	7/19/2010 9:58:14 PM	7/19/2010 9:58:15 PM	SCHEDULER	WFs statuses: success: 0, error: 0 ‖ Audit metrics: success: 0, warning: 0, error: 0.
U	SM_CON	28	FINISHED	SUCCESS	1 s	7/19/2010 9:57:10 PM	7/19/2010 9:57:11 PM	SCHEDULER	WFs statuses: success: 0, error: 0 ‖ Audit metrics: success: 0, warning: 0, error: 0.
U	AM_BACKFILL	26	FINISHED	SUCCESS	10 s	7/19/2010 9:59:14 PM	7/19/2010 9:59:24 PM	SCHEDULER	WFs statuses: success: 8, error: 0 ‖ Audit metrics: success: 0, warning: 0, error: 0.
U	PPM_BACKFILL	24	FINISHED	SUCCESS	9 s	7/19/2010 9:59:12 PM	7/19/2010 9:59:21 PM	SCHEDULER	WFs statuses: success: 6, error: 0 ‖ Audit metrics: success: 0, warning: 0, error: 0.
U	SM_BACKFILL	25	FINISHED	SUCCESS	0 s	7/19/2010 9:59:11 PM	7/19/2010 9:59:11 PM	SCHEDULER	WFs statuses: success: 0, error: 0 ‖ Audit metrics: success: 0, warning: 0, error: 0.
U	MS_CON	30	FINISHED	SUCCESS	30 s	7/19/2010 10:00:11 PM	7/19/2010 10:00:41 PM	SCHEDULER	WFs statuses: success: 9, error: 0 ‖ Audit metrics: success: 9, warning: 0, error: 0.
U	XFR_DIM	31	FINISHED	SUCCESS	37 s	7/19/2010 10:01:18 PM	7/19/2010 10:01:55 PM	SCHEDULER	WFs statuses: success: 50, error: 0 ‖ Audit metrics: success: 0, warning: 0, error: 0.
U	XFR_FACT	32	FINISHED	SUCCESS	4 s	7/19/2010 10:02:10 PM	7/19/2010 10:02:14 PM	SCHEDULER	WFs statuses: success: 2, error: 0 ‖ Audit metrics: success: 0, warning: 0, error: 0.
U	DW	33	FINISHED	SUCCESS	29 s	7/19/2010 10:03:16 PM	7/19/2010 10:03:45 PM	SCHEDULER	WFs statuses: success: 53, error: 0 ‖ Audit metrics: success: 38, warning: 0, error: 0.
U	CSNP	34	FINISHED	SUCCESS	6 s	7/19/2010 10:04:10 PM	7/19/2010 10:04:16 PM	SCHEDULER	WFs statuses: success: 11, error: 0 ‖ Audit metrics: success: 0, warning: 0, error: 0.
U	DW_DK_LFCL	35	FINISHED	SUCCESS	1 s	7/19/2010 10:04:08 PM	7/19/2010 10:04:09 PM	SCHEDULER	WFs statuses: success: 0, error: 0 ‖ Audit metrics: success: 0, warning: 0, error: 0.
U	SSNP	36	FINISHED	SUCCESS	7 s	7/19/2010 10:05:11 PM	7/19/2010 10:05:18 PM	SCHEDULER	WFs statuses: success: 13, error: 0 ‖ Audit metrics: success: 0, warning: 0, error: 0.
U	TSNP	37	FINISHED	SUCCESS	14 s	7/19/2010 10:06:13 PM	7/19/2010 10:06:27 PM	SCHEDULER	WFs statuses: success: 30, error: 0 ‖ Audit metrics: success: 0, warning: 0, error: 0.
U	SYS_CLOSE	38	FINISHED	SUCCESS	5 s	7/19/2010 10:07:07 PM	7/19/2010 10:07:12 PM	SCHEDULER	sys_check_end OK

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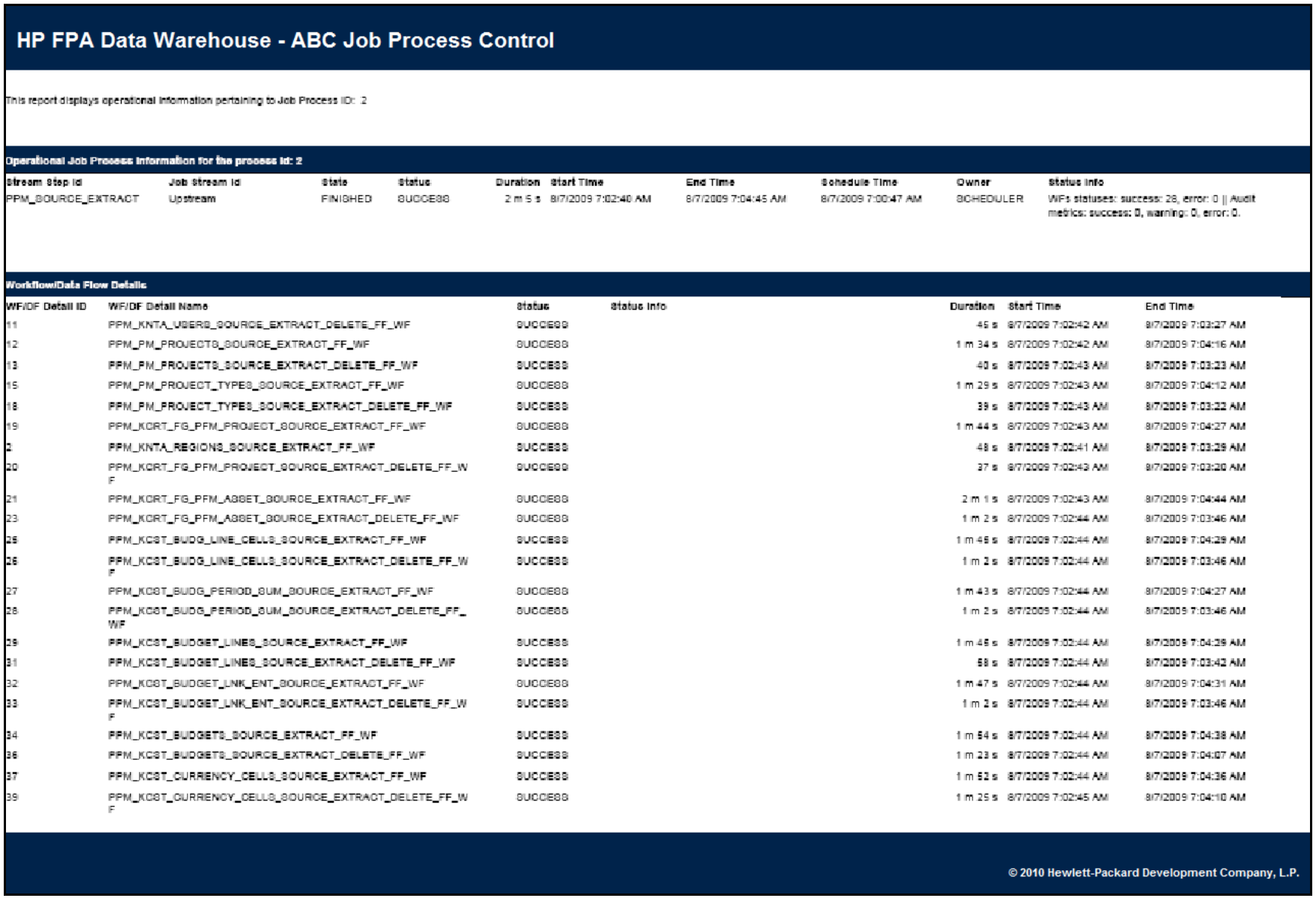
Figure 36 ABC - Job Details - Job Process Control report



HP FPA Data Warehouse - ABC Job Process Control

This report displays operational information pertaining to Job Process ID: 2

Operational Job Process Information for the process id: 2

Stream Step Id	Job Stream Id	State	Status	Duration	Start Time	End Time	Schedule Time	Owner	Status Info
PPM_SOURCE_EXTRACT	Upstream	FINISHED	SUCCESS	2 m 5 s	8/7/2009 7:02:40 AM	8/7/2009 7:04:45 AM	8/7/2009 7:00:47 AM	SCHEDULER	WFs statuses: success: 28, error: 0 || Audit metrics: success: 0, warning: 0, error: 0.

Workflow/Data Flow Details

WF/DF Detail ID	WF/DF Detail Name	Status	Status Info	Duration	Start Time	End Time
11	PPM_KNTA_USERS_SOURCE_EXTRACT_DELETE_FF_WF	SUCCESS		45 s	8/7/2009 7:02:42 AM	8/7/2009 7:03:27 AM
12	PPM_PM_PROJECTS_SOURCE_EXTRACT_FF_WF	SUCCESS		1 m 34 s	8/7/2009 7:02:42 AM	8/7/2009 7:04:16 AM
13	PPM_PM_PROJECTS_SOURCE_EXTRACT_DELETE_FF_WF	SUCCESS		40 s	8/7/2009 7:02:43 AM	8/7/2009 7:03:23 AM
15	PPM_PM_PROJECT_TYPES_SOURCE_EXTRACT_FF_WF	SUCCESS		1 m 29 s	8/7/2009 7:02:43 AM	8/7/2009 7:04:12 AM
18	PPM_PM_PROJECT_TYPES_SOURCE_EXTRACT_DELETE_FF_WF	SUCCESS		39 s	8/7/2009 7:02:43 AM	8/7/2009 7:03:22 AM
19	PPM_KCRT_FG_PFM_PROJECT_SOURCE_EXTRACT_FF_WF	SUCCESS		1 m 44 s	8/7/2009 7:02:43 AM	8/7/2009 7:04:27 AM
2	PPM_KNTA_REGIONS_SOURCE_EXTRACT_FF_WF	SUCCESS		48 s	8/7/2009 7:02:41 AM	8/7/2009 7:03:29 AM
20	PPM_KCRT_FG_PFM_PROJECT_SOURCE_EXTRACT_DELETE_FF_WF	SUCCESS		37 s	8/7/2009 7:02:43 AM	8/7/2009 7:03:20 AM
21	PPM_KCRT_FG_PFM_ASSET_SOURCE_EXTRACT_FF_WF	SUCCESS		2 m 1 s	8/7/2009 7:02:43 AM	8/7/2009 7:04:44 AM
23	PPM_KCRT_FG_PFM_ASSET_SOURCE_EXTRACT_DELETE_FF_WF	SUCCESS		1 m 2 s	8/7/2009 7:02:44 AM	8/7/2009 7:03:46 AM
25	PPM_KCST_BUDG_LINE_CELLS_SOURCE_EXTRACT_FF_WF	SUCCESS		1 m 45 s	8/7/2009 7:02:44 AM	8/7/2009 7:04:29 AM
26	PPM_KCST_BUDG_LINE_CELLS_SOURCE_EXTRACT_DELETE_FF_WF	SUCCESS		1 m 2 s	8/7/2009 7:02:44 AM	8/7/2009 7:03:46 AM
27	PPM_KCST_BUDG_PERIOD_SUM_SOURCE_EXTRACT_FF_WF	SUCCESS		1 m 43 s	8/7/2009 7:02:44 AM	8/7/2009 7:04:27 AM
28	PPM_KCST_BUDG_PERIOD_SUM_SOURCE_EXTRACT_DELETE_FF_WF	SUCCESS		1 m 2 s	8/7/2009 7:02:44 AM	8/7/2009 7:03:46 AM
29	PPM_KCST_BUDGET_LINES_SOURCE_EXTRACT_FF_WF	SUCCESS		1 m 45 s	8/7/2009 7:02:44 AM	8/7/2009 7:04:29 AM
31	PPM_KCST_BUDGET_LINES_SOURCE_EXTRACT_DELETE_FF_WF	SUCCESS		58 s	8/7/2009 7:02:44 AM	8/7/2009 7:03:42 AM
32	PPM_KCST_BUDGET_LNK_ENT_SOURCE_EXTRACT_FF_WF	SUCCESS		1 m 47 s	8/7/2009 7:02:44 AM	8/7/2009 7:04:31 AM
33	PPM_KCST_BUDGET_LNK_ENT_SOURCE_EXTRACT_DELETE_FF_WF	SUCCESS		1 m 2 s	8/7/2009 7:02:44 AM	8/7/2009 7:03:46 AM
34	PPM_KCST_BUDGETS_SOURCE_EXTRACT_FF_WF	SUCCESS		1 m 54 s	8/7/2009 7:02:44 AM	8/7/2009 7:04:38 AM
36	PPM_KCST_BUDGETS_SOURCE_EXTRACT_DELETE_FF_WF	SUCCESS		1 m 23 s	8/7/2009 7:02:44 AM	8/7/2009 7:04:07 AM
37	PPM_KCST_CURRENCY_CELLS_SOURCE_EXTRACT_FF_WF	SUCCESS		1 m 52 s	8/7/2009 7:02:44 AM	8/7/2009 7:04:36 AM
39	PPM_KCST_CURRENCY_CELLS_SOURCE_EXTRACT_DELETE_FF_WF	SUCCESS		1 m 25 s	8/7/2009 7:02:45 AM	8/7/2009 7:04:10 AM

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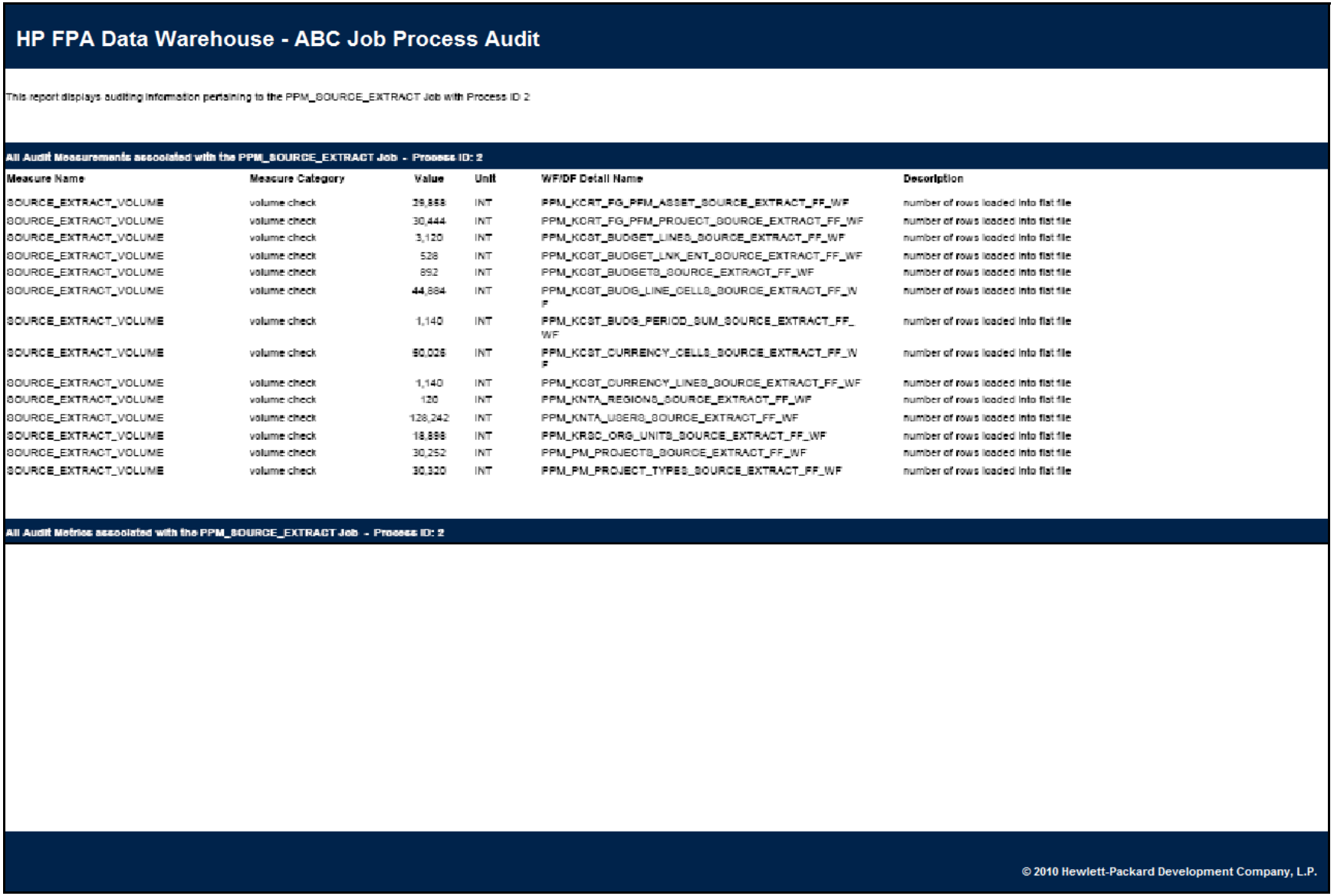
Figure 37 ABC - Job Details - Job Process Audit report



HP FPA Data Warehouse - ABC Job Process Audit

This report displays auditing information pertaining to the PPM_SOURCE_EXTRACT Job with Process ID: 2

All Audit Measurements associated with the PPM_SOURCE_EXTRACT Job - Process ID: 2

Measure Name	Measure Category	Value	Unit	WF/DF Detail Name	Description
SOURCE_EXTRACT_VOLUME	volume check	29,868	INT	PPM_KCRT_FG_PPM_ASSET_SOURCE_EXTRACT_FF_WF	number of rows loaded into flat file
SOURCE_EXTRACT_VOLUME	volume check	30,444	INT	PPM_KCRT_FG_PPM_PROJECT_SOURCE_EXTRACT_FF_WF	number of rows loaded into flat file
SOURCE_EXTRACT_VOLUME	volume check	3,120	INT	PPM_KCST_BUDGET_LINES_SOURCE_EXTRACT_FF_WF	number of rows loaded into flat file
SOURCE_EXTRACT_VOLUME	volume check	528	INT	PPM_KCST_BUDGET_LNK_ENT_SOURCE_EXTRACT_FF_WF	number of rows loaded into flat file
SOURCE_EXTRACT_VOLUME	volume check	892	INT	PPM_KCST_BUDGETS_SOURCE_EXTRACT_FF_WF	number of rows loaded into flat file
SOURCE_EXTRACT_VOLUME	volume check	44,884	INT	PPM_KCST_BUDG_LINE_CELLS_SOURCE_EXTRACT_FF_WF	number of rows loaded into flat file
SOURCE_EXTRACT_VOLUME	volume check	1,140	INT	PPM_KCST_BUDG_PERIOD_SUM_SOURCE_EXTRACT_FF_WF	number of rows loaded into flat file
SOURCE_EXTRACT_VOLUME	volume check	50,026	INT	PPM_KCST_CURRENCY_CELLS_SOURCE_EXTRACT_FF_WF	number of rows loaded into flat file
SOURCE_EXTRACT_VOLUME	volume check	1,140	INT	PPM_KCST_CURRENCY_LINES_SOURCE_EXTRACT_FF_WF	number of rows loaded into flat file
SOURCE_EXTRACT_VOLUME	volume check	126	INT	PPM_KNTA_REGIONS_SOURCE_EXTRACT_FF_WF	number of rows loaded into flat file
SOURCE_EXTRACT_VOLUME	volume check	128,242	INT	PPM_KNTA_USERS_SOURCE_EXTRACT_FF_WF	number of rows loaded into flat file
SOURCE_EXTRACT_VOLUME	volume check	18,898	INT	PPM_KRSC_ORG_UNITS_SOURCE_EXTRACT_FF_WF	number of rows loaded into flat file
SOURCE_EXTRACT_VOLUME	volume check	30,252	INT	PPM_PM_PROJECTS_SOURCE_EXTRACT_FF_WF	number of rows loaded into flat file
SOURCE_EXTRACT_VOLUME	volume check	30,320	INT	PPM_PM_PROJECT_TYPES_SOURCE_EXTRACT_FF_WF	number of rows loaded into flat file

All Audit Metrics associated with the PPM_SOURCE_EXTRACT Job - Process ID: 2

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ABC - Model Definitions

The **ABC Model Definitions** report displays the executable catalogs to be processed by ABC.

To view the report

Click **Public Folders** > **DW *xx* Operations** > **Control Reports** > **ABC - Model Definitions**.

Figure 38 on page 87 shows the information on the Executable Catalogs tab.

Figure 39 on page 88 shows the information on the Stream Definitions tab.

ABC - Operational Duration History

This report describes the duration history of job stream batches during a specified period.

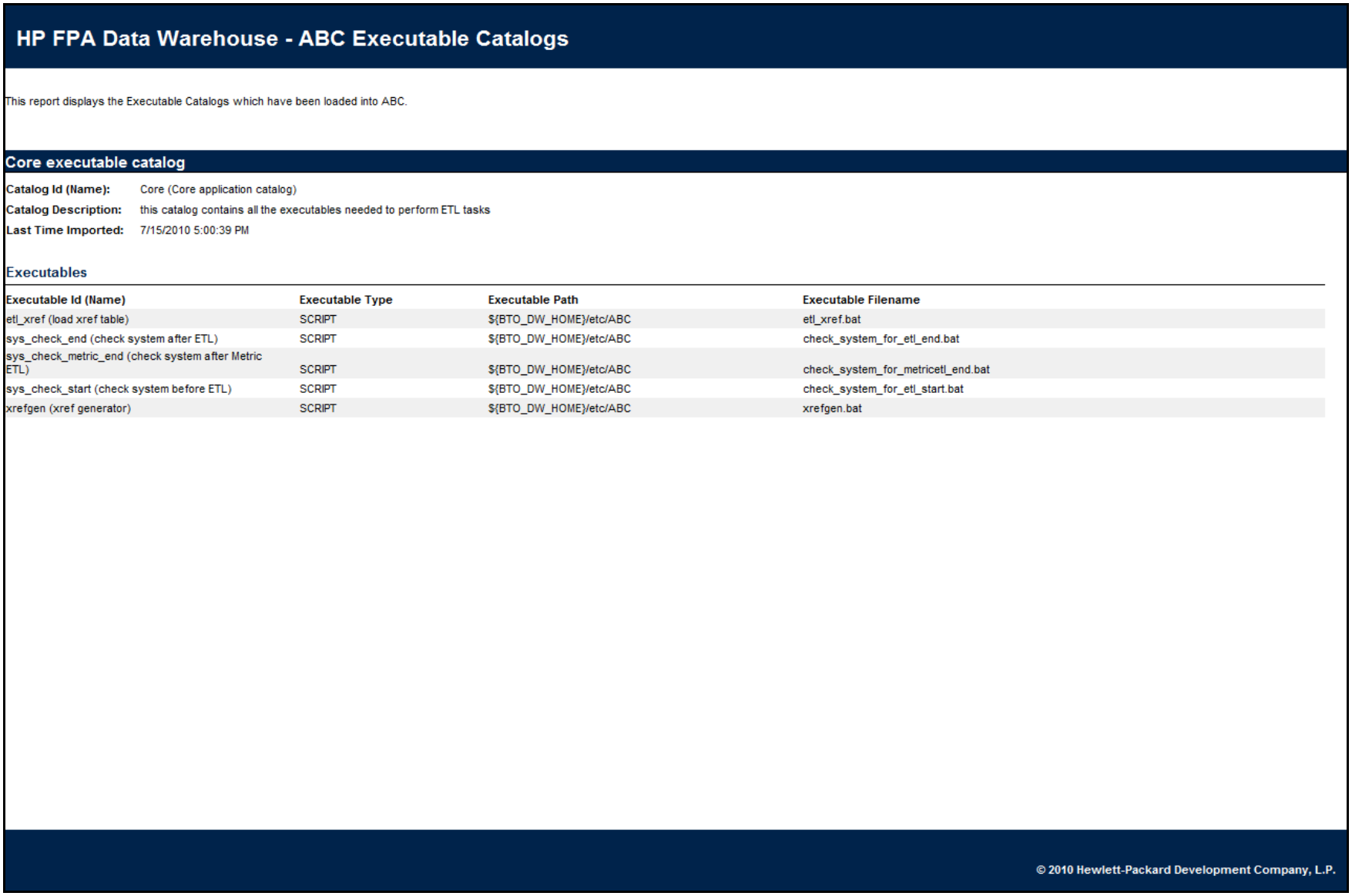
To view the report

1. Click **Public Folders** > **DW *xx* Operations** > **Control Reports** > **ABC - Operational Duration History.**
2. In the **Prompts** dialog, select **Batch run history for last X days** and type a value for X.
3. In the **Prompts** dialog, select **Batch statistics for last Y days** and type a value for Y.
4. Click **Run Query.**

Figure 40 on page 89 shows the Job Streams Duration tab with historical job stream information. The aborted job streams are red.

Figure 41 on page 90 shows the Job Details Duration tab with the amount of time consumed by individual jobs within the job stream.

Figure 38 ABC - Model Definitions - ABC Executable Catalogs report



HP FPA Data Warehouse - ABC Executable Catalogs

This report displays the Executable Catalogs which have been loaded into ABC.

Core executable catalog

Catalog Id (Name): Core (Core application catalog)
Catalog Description: this catalog contains all the executables needed to perform ETL tasks
Last Time Imported: 7/15/2010 5:00:39 PM

Executables

Executable Id (Name)	Executable Type	Executable Path	Executable Filename
etl_xref (load xref table)	SCRIPT	${BTO_DW_HOME}/etc/ABC	etl_xref.bat
sys_check_end (check system after ETL)	SCRIPT	${BTO_DW_HOME}/etc/ABC	check_system_for_etl_end.bat
sys_check_metric_end (check system after Metric ETL)	SCRIPT	${BTO_DW_HOME}/etc/ABC	check_system_for_metricetl_end.bat
sys_check_start (check system before ETL)	SCRIPT	${BTO_DW_HOME}/etc/ABC	check_system_for_etl_start.bat
xrefgen (xref generator)	SCRIPT	${BTO_DW_HOME}/etc/ABC	xrefgen.bat

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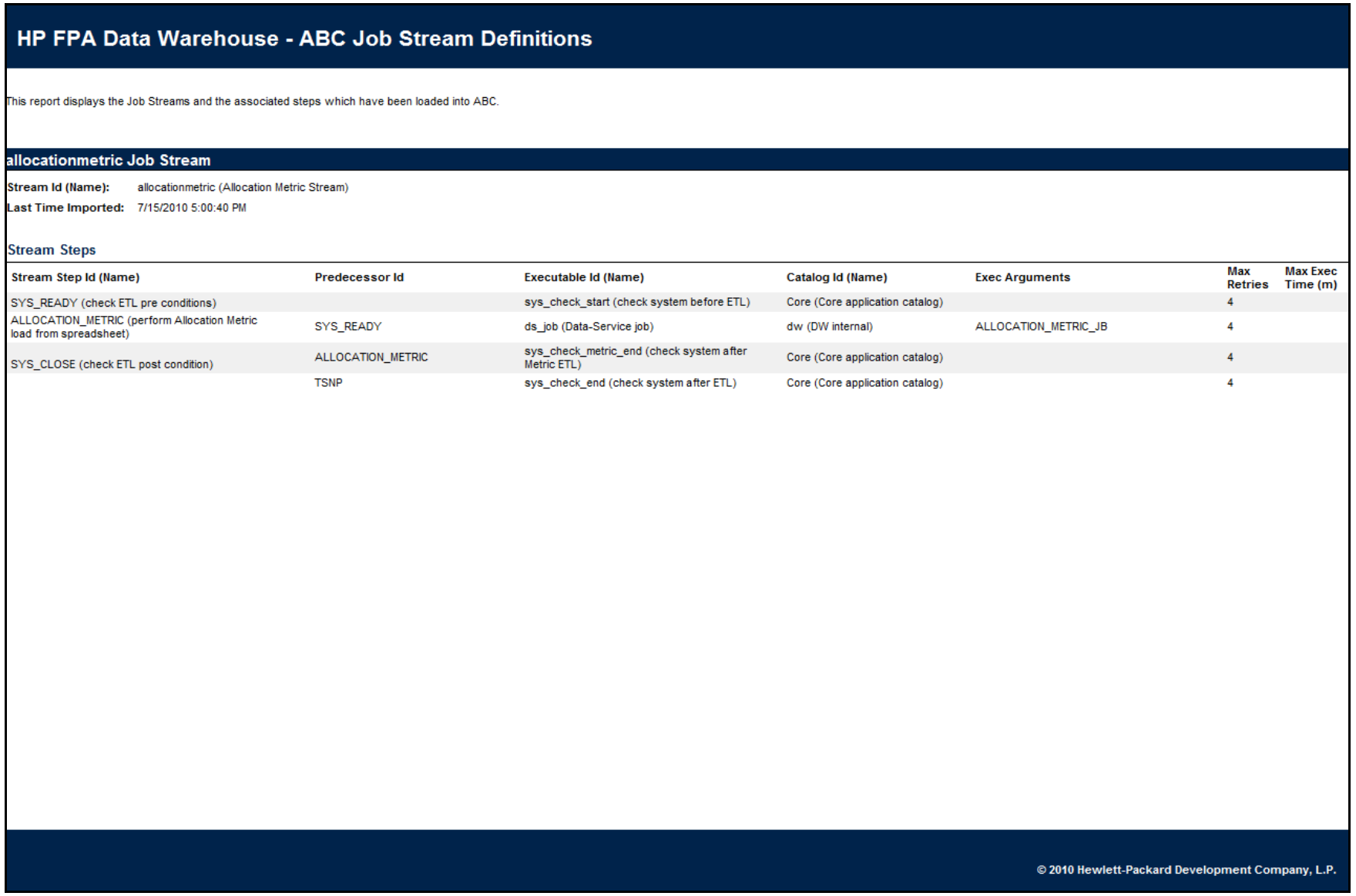
Figure 39 ABC - Model Definitions - ABC Job Stream Definitions report



HP FPA Data Warehouse - ABC Job Stream Definitions

This report displays the Job Streams and the associated steps which have been loaded into ABC.

allocationmetric Job Stream

Stream Id (Name): allocationmetric (Allocation Metric Stream)
Last Time Imported: 7/15/2010 5:00:40 PM

Stream Steps

Stream Step Id (Name)	Predecessor Id	Executable Id (Name)	Catalog Id (Name)	Exec Arguments	Max Retries	Max Exec Time (m)
SYS_READY (check ETL pre conditions)		sys_check_start (check system before ETL)	Core (Core application catalog)		4	
ALLOCATION_METRIC (perform Allocation Metric load from spreadsheet)	SYS_READY	ds_job (Data-Service job)	dw (DW internal)	ALLOCATION_METRIC_JB	4	
SYS_CLOSE (check ETL post condition)	ALLOCATION_METRIC	sys_check_metric_end (check system after Metric ETL)	Core (Core application catalog)		4	
	TSNP	sys_check_end (check system after ETL)	Core (Core application catalog)		4	

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Figure 40 ABC - Operational Duration History - Job Streams Duration History report

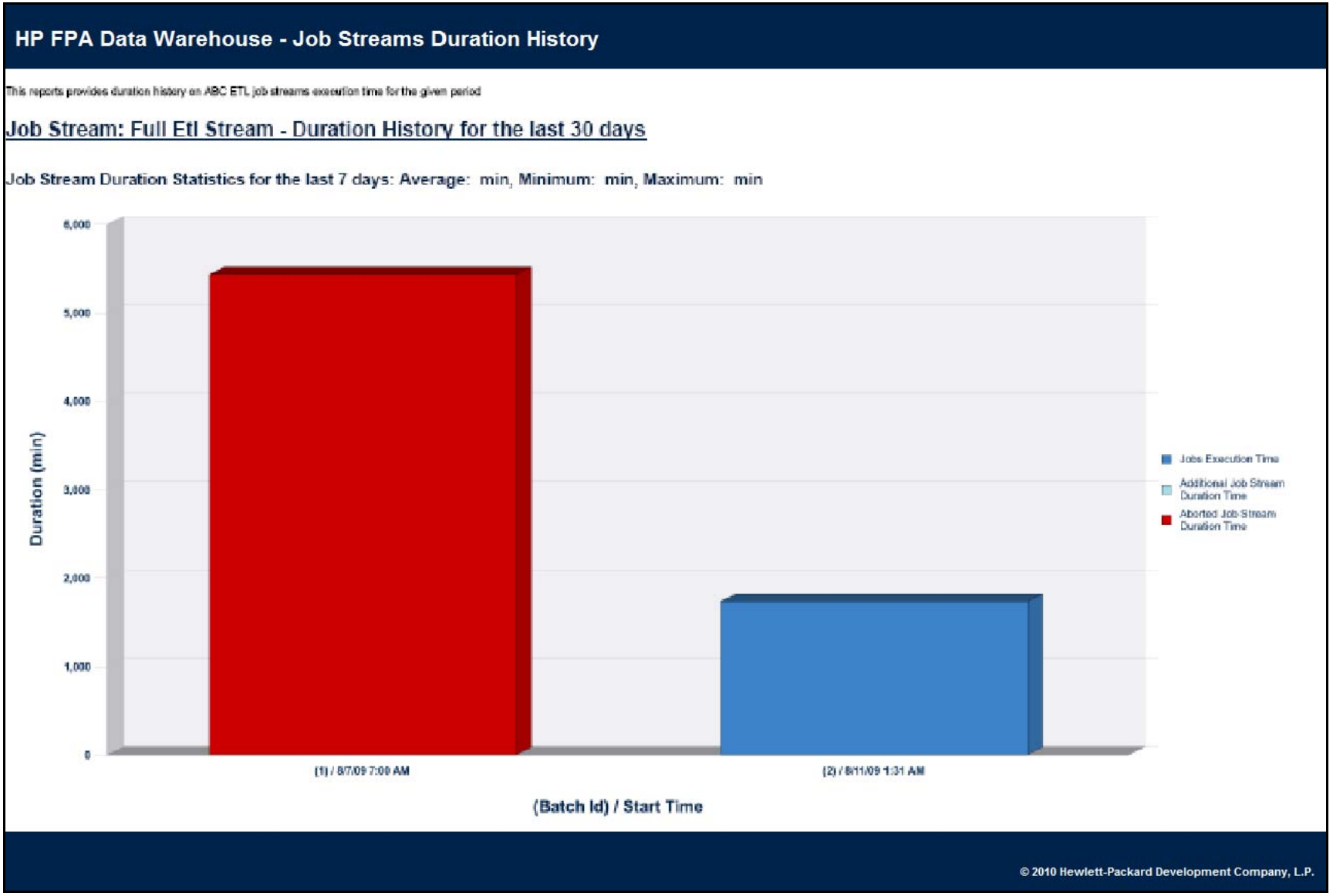
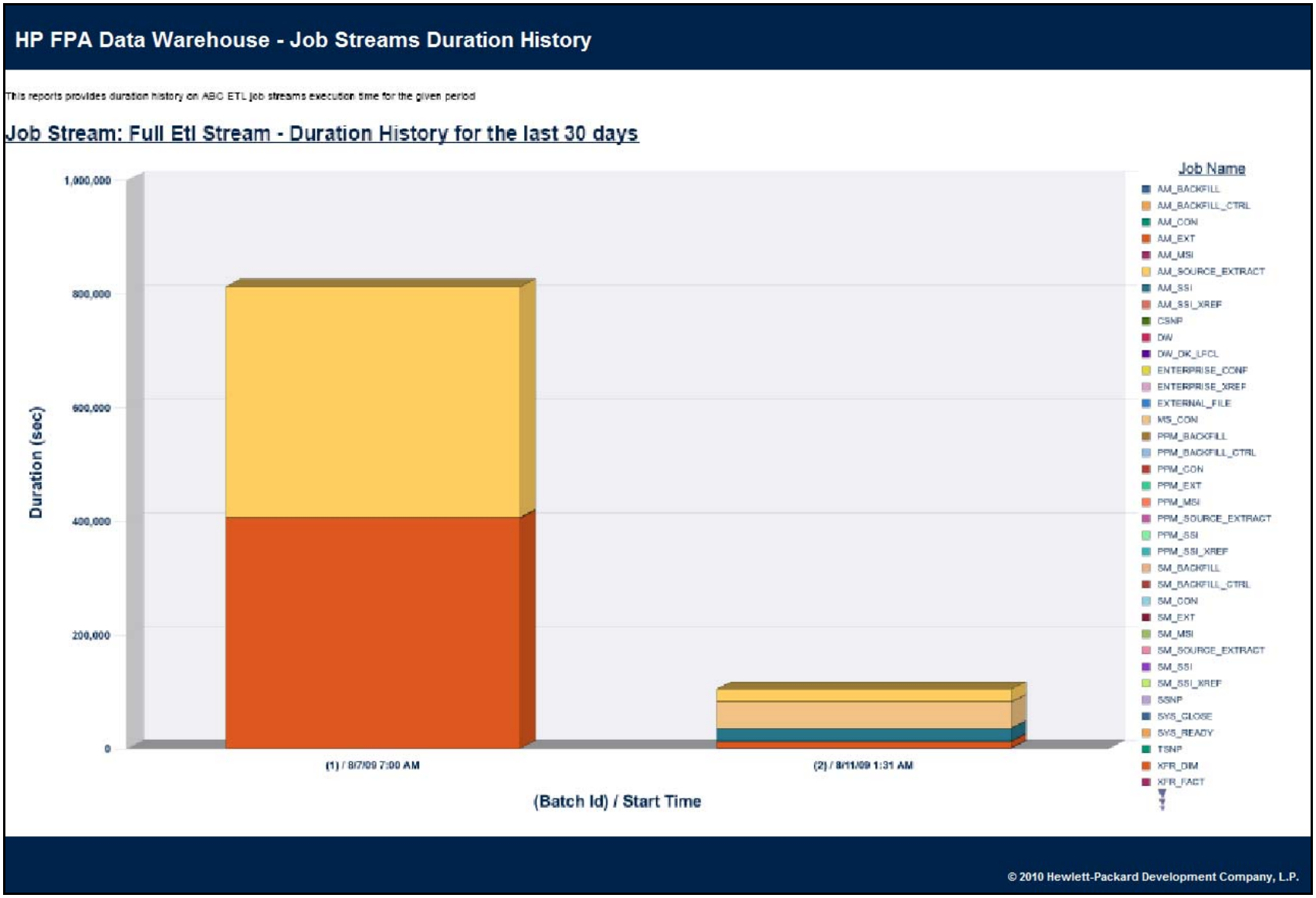


Figure 41 ABC - Operational Duration History - Job Streams Duration History report



ABC - Operational Status History

This report displays a batch run history for ABC ETL job streams during a specified period. The report shows run-time duration, status, and error frequency.

To view the report

1. Click **Public Folders** > **DW *xx* Operations** > **Control Reports** > **ABC - Operational Status History**.
2. In the **Prompts** dialog, select **Batch run history for last X days** and type a value for X.
3. Click **Run Query**.

Figure 42 on page 92 shows the Job Streams Status report, which is a bar chart that uses these status values:

- **Success (Green):** The number of jobs with no error condition or inconsistency detected.
- **Warning (Orange):** The number of jobs where a minor error condition exists, although there are no data inconsistencies or corruption detected, and, there is no loss of data.
- **Error (Red):** The number of jobs with a critical error status.
- **Max Time Exceeded (Pink):** Number of jobs that exceed max execution time.
- **Remaining:** Number of jobs that are waiting to be started.

Figure 43 on page 93 shows the Jobs and Work Flows Errors Frequency report that shows how often job and work flow errors occur (in descending order). The reports lists only jobs and workflows that produce error conditions.

Figure 42 ABC - Operational Status History - Job Streams Status History report

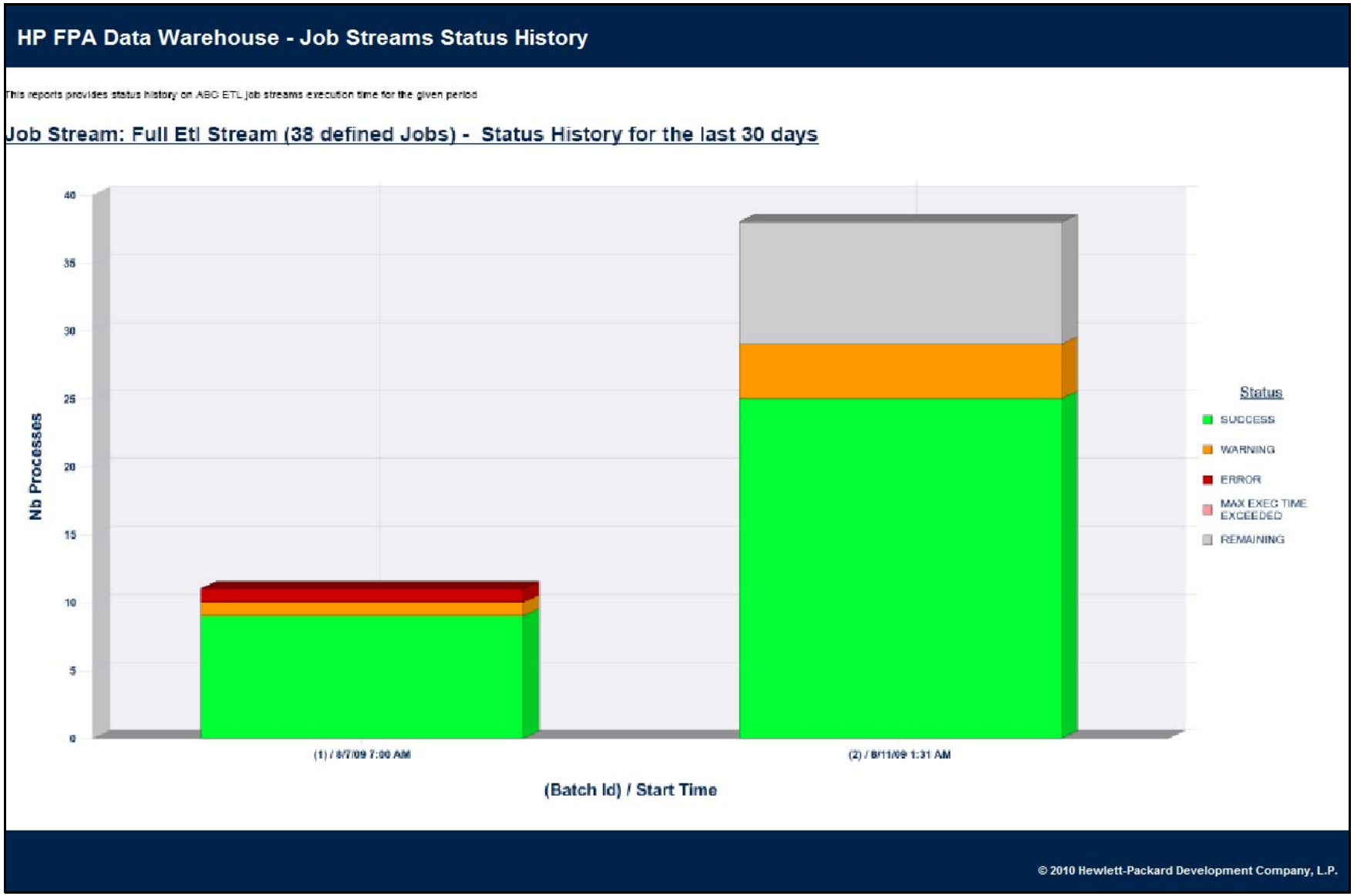
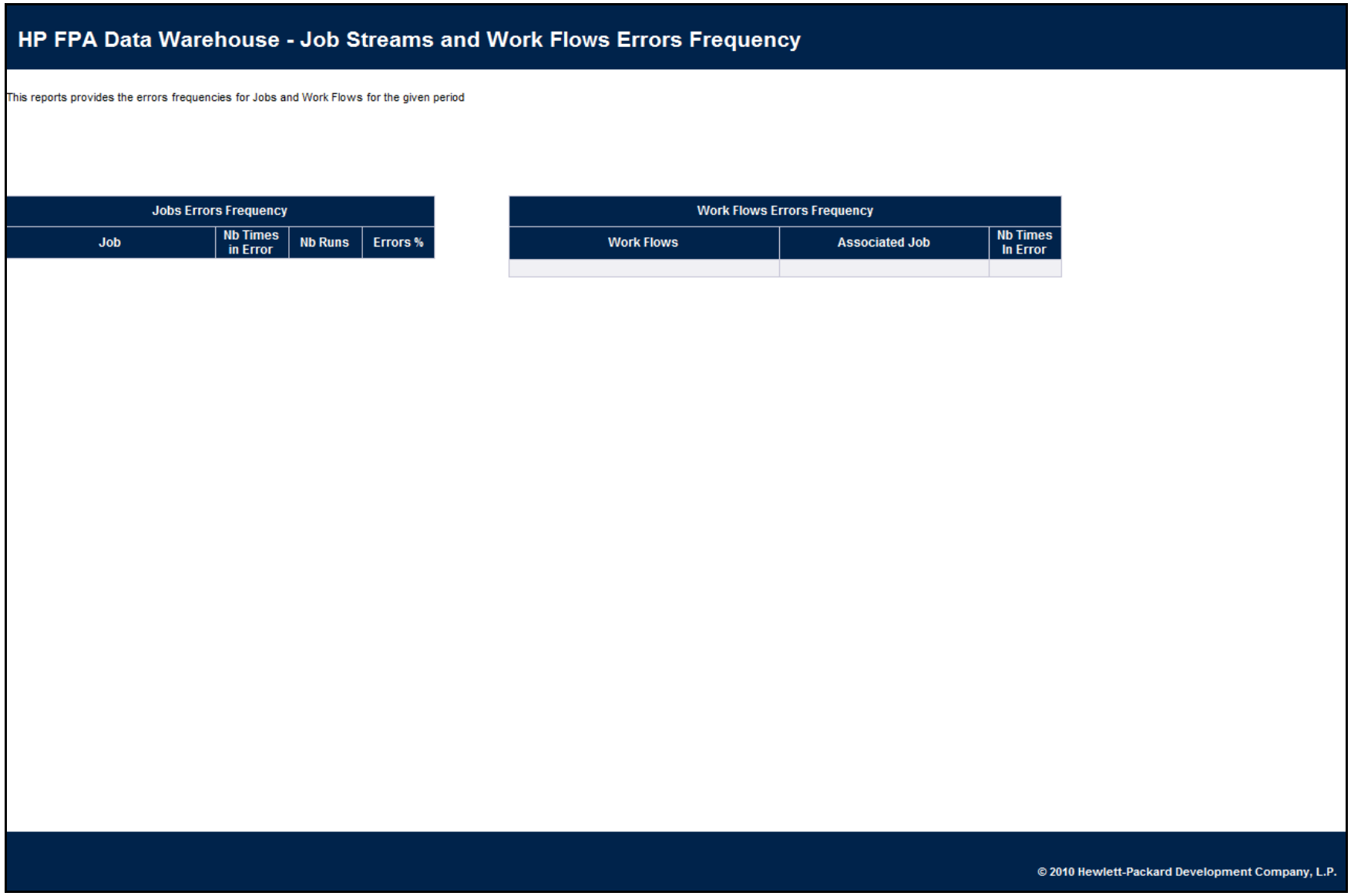


Figure 43 BC - Operational Status History - Job Streams and Work Flows Errors Frequency report



HP FPA Data Warehouse - Job Streams and Work Flows Errors Frequency

This reports provides the errors frequencies for Jobs and Work Flows for the given period

Jobs Errors Frequency			
Job	Nb Times in Error	Nb Runs	Errors %

Work Flows Errors Frequency		
Work Flows	Associated Job	Nb Times In Error

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8 ABC Command Reference

This chapter describes all of the out-of-box ABC command files that are available to administer the ABC functions. Table 3 lists these out-of-box files that you can use to accomplish ABC tasks.

Syntax Conventions

Command options in square brackets ([ ]) are optional.

Italicized lowercase expressions are variable values.

If a command option argument is a text string that contains blank spaces, you must enclose it in quotation marks. Otherwise, the text before the blank space is considered the entire argument and the remaining text becomes an undefined option.

Command Summary

The following command script files are available in this directory:

C:\Program Files\HP\FPA\Foundation\bin

Table 3 ABC Script Files

Name	Purpose	Primary User
dw_abc_add_audit_measure on page 97	Add an audit measure.	Administrator or ETL developer
dw_abc_add_audit_metric on page 98	Add an audit metric.	Administrator or ETL developer
dw_abc_add_balance_measure on page 99	Add a balance measure.	Administrator or ETL developer
dw_abc_add_balance_metric on page 100	Add a balance metric.	Administrator or ETL developer
dw_abc_add_process_measure on page 101	Add a process measure.	Administrator or ETL developer
dw_abc_batch_control on page 102	Start and stop batch job streams.	Administrator
dw_abc_enter_step_detail on page 103	Record the details of a job step.	Administrator or ETL developer

Table 3 ABC Script Files

Name	Purpose	Primary User
dw_abc_exit_step_detail on page 104	Exit from a step.	Administrator or ETL developer
dw_abc_importdefs on page 105	Load ABC definition files into the metadata repository.	Administrator
dw_abc_job_launcher on page 106	Start or stop job steps within a job stream.	Administrator or ETL developer
dw_abc_load_batch on page 107	Load a batch job stream or register it as a Windows scheduled task.	Administrator
dw_abc_retry_step on page 108	Restart a job stream step.	Administrator
dw_abc_run_steps on page 109	Run job stream steps (the ABC engine) or register it as a Windows scheduled task.	Administrator
dw_abc_set_status on page 110	Capture the status of job stream steps that are implemented as batch scripts.	Administrator or ETL developer

dw_abc_add_audit_measure

Purpose

Use this script to add an audit measure.

User

Administrator or ETL developer

Syntax

dw_abc_add_audit_measure [-category <*string*>]
[-description <*string*>]
-jobstreamstepdetailname <*string*>
-name <*string*>
[-process <*long*>]
-unit <*string*>
-value <*string*>
[-help]

Table 4 dw_abc_add_audit_measure.bat options

Option	Required?	Description
-category *string*	N	Category for aggregation.
-description *string*	N	Description of record.
-jobstreamstepdetailname *string*	Y	Job stream step detail name.
-name *string*	Y	Name.
-process *process_id*	N	Process ID value.
-unit *string*	Y	Unit.
-value *string*	Y	Value.
-help	N	Display command syntax.

If you omit the -process option, you must set an environment variable %DW_PROCESS_ID% that contains the value of the process ID. The description field is free text and optional.

Example

dw_abc_add_audit_measure -process %DW_PROCESS_ID% -jobstreamstepdetailname "PPM_BUDGETS_EXT_DF" -name "RowCount" -value 25 -unit "INTEGER" -category "PPM_BUDGETS_EXT" -description "Inserted rows in table from category"

dw_abc_add_audit_metric

Purpose

Use this script to add an audit metric.

User

Administrator or ETL developer

Syntax

dw_abc_add_audit_metric [-category <*string*>]
[-description <*string*>]
-jobstreamstepdetailname <*string*>
-name <*string*>
[-process <*string*>]
-unit <*string*>
-value <*string*>
[-error | -success | -value]
[-help]

Table 5 dw_abc_add_audit_metric.bat options

Option	Required?	Description
-category *string*	N	Category for aggregation.
-description *string*	N	Description of record.
-jobstreamstepdetailname *string*	Y	Job stream step detail name.
-name *string*	Y	Name.
-process *process_id*	N	Process ID value.
-unit *string*	Y	Unit.
-value *string*	Y	Value.
Choose one of the following status parameters:		
• **-error**	N	If an error occurs, display an error status.
• **-success**	N	If successful, display a status of success.
• **-warning**	N	If a warning status occurs, display a warning status.
-help	N	Display command syntax.

If you omit the -process option, you must set an environment variable %DW_PROCESS_ID% that contains the value of the process ID. The description field is optional free text.

Example

dw_abc_add_audit_metric -process %DW_PROCESS_ID% -jobstreamstepdetailname "PPM_BUDGETS_EXT_DF" -name "RowCountMatch" value 0 -success -unit "INTEGER" -category "PPM_BUDGETS_EXT" -description "Number of bad rows in table from category"

dw_abc_add_balance_measure

Purpose

Use this script to add a balance measure.

User

Administrator or ETL developer

Example

dw_abc_add_balance_measure [-batch <*long*>]
[-category <*string*>]
[-description <*string*>]
-name <*string*>
[-systemname <*string*>]
-unit <*string*>
-value <*string*>
[-help]

Table 6 dw_abc_add_balance_measure.bat options

Option	Required?	Description
-batch *batch_id*	N	Batch ID value.
-category *string*	N	Category for aggregation.
-description *string*	N	Description of record.
-name *string*	Y	Name.
-systemname *string*	N	System name value.
-unit *string*	Y	Unit.
-value *string*	Y	Value.
-help	N	Display command syntax.

If you omit the -batch option, you must set an environment variable %DW_BATCH_ID% that contains the value of the batch ID. The description field is optional free text.

Example

dw_abc_add_balance_measure -batch %DW_BATCH_ID% -name "Expense" -value 2500 -unit "USD" -category "PPM" -description "New expenses since previous run" -systemname "somewhere.hp.com"

dw_abc_add_balance_metric

Purpose

Use this script to add a balance metric.

User

Administrator or ETL developer

Syntax

dw_abc_add_balance_metric [-batch <*long*>]
[-category <*string*>]
[-description <*string*>]
-name <*string*>
-unit <*string*>
-value <*string*>
[-error | -success | -value]
[-help]

Table 7 dw_abc_add_balance_metric.bat options

Option	Required?	Description
-batch *batch_id*	N	Batch ID value.
-category *string*	N	Category for aggregation.
-description *string*	N	Description of record.
-name *string*	Y	Name.
-unit *string*	Y	Unit.
-value *string*	Y	Value.
Choose one of the following status parameters:		
• **-error**	N	If an error occurs, display an error status.
• **-success**	N	If successful, display a status of success.
• **-warning**	N	If a warning status occurs, display a warning status.
-help	N	Display command syntax.

If you omit the -batch option, you must set an environment variable %DW_BATCH_ID% that contains the value of the batch ID. The description field is optional free text.

Example

dw_abc_add_balance_metric -batch %DW_BATCH_ID% -name "Expense Check" -value 304 -warning -unit USD -category PPM -description "Category expense in DW vs in source product"

dw_abc_add_process_measure

Purpose

Use this script to add a process measure.

User

Administrator or ETL developer

Syntax

dw_abc_add_process_measure [-category <*string*>]
[-description <*string*>]
-name <*string*>
[-process <*long*>]
-unit <*string*>
-value <*string*>
[-help]

Table 8 dw_abc_add_process_measure.bat options

Option	Required?	Description
-category *string*	N	Category for aggregation.
-description *string*	N	Description of record.
-name *string*	Y	Name.
-process *process_id*	N	Process ID value.
-unit *string*	Y	Unit.
-value *string*	Y	Value.
-help	N	Display command syntax.

If you omit the -process option, you must set an environment variable %DW_PROCESS_ID% that contains the value of the process ID.

The description field is free text and optional.

Example

dw_abc_add_process_measure -process %DW_PROCESS_ID% -name DatasetSize
-value 204 -unit KBytes -category Extraction -description "Total processed data set size for this job"

dw_abc_batch_control

Purpose

Use this script to start and stop batch job streams.

User

Administrator

Syntax

dw_abc_batch_control (-abort | -resume | -suspend)
(streamID <*streamid*> | -all)
[-help]

Table 9 dw_abc_batch_control.bat options

Option	Required?	Description
Choose one of the following options:		
• **-abort**	N	Terminate -all or a specific streamID where the streamID value is the catalog parameter value for dwid="*xxxx*".
• **-resume**	N	Re-start -all or a specific streamID where the streamID value is the catalog parameter value for dwid="*xxxx*".
• **-suspend**	N	Temporarily stop -all or a specific streamID where the streamID value is the catalog parameter value for dwid="*xxxx*".
Choose one of the following options:		
• **-streamId *streamId***	N	The streamID value is the catalog parameter value for dwid="*xxxx*"
• **-all**	N	All streams currently executing.
-help	N	Display command syntax

Examples

dw_abc_batch_control -suspend -streamid Stream1

dw_abc_batch_control -resume -all

dw_abc_enter_step_detail

Purpose

Use this script to record the details of a job step.

User

Administrator or ETL developer

Syntax

dw_abc_add_process_measure -detailname <*string*>

[-process <*long*>]

[-help]

Table 10 dw_abc_enter_step_detail.bat options

Option	Required?	Description
-detailname *string*	Y	Job stream step detail name.
-process *process_id*	N	Process ID value.
-help	N	Display command syntax.

If you omit the -process option, you must set an environment variable %DW_PROCESS_ID% that contains the value of the process ID.

Example

dw_abc_enter_step_detail -detailname "Extractor"

dw_abc_exit_step_detail

Purpose

Use this script to exit from a step.

User

Administrator or ETL developer

Syntax

dw_abc_exit_step_detail -detailname <*string*>
[-info <*string*>]
[-process <*long*>]
(-error | -success | -warning)
[-help]

Table 11 dw_abc_exit_step_detail.bat options

Option	Required?	Description
-detailname *string*	Y	Job stream step detail name.
-info *string*	N	Additional status information.
-process *process_id*	N	Process ID value.
Choose one of the following status parameters:		
• **-error**	N	If an error occurs, display an error status.
• **-success**	N	If successful, display a status of success.
• **-warning**	N	If a warning status occurs, display a warning status.
-help	N	Display command syntax.

The description field is optional free text.

Example

dw_abc_exit_step_detail - detailname "Extractor" -error -info "Error description"

dw_abc_importdefs

Purpose

Use this script to Load ABC definition files (catalogs, streams) into the metadata repository.

User

Administrator

Syntax

dw_abc_importdefs [-xmlfile <*xml_file_name*> | -topdir <*directory*>]

[-verbose]

[-help]

Table 12 dw_abc_importdefs.bat options

Option	Required?	Description
-topdir "*directory_name*"	N	Load all the XML files in the specified directory and sub-directories into the metadata repository.
-verbose	N	Verbose output.
-xmlfile *path_and_file name*	N	Load a single XML file into the metadata repository.
-help	N	Display command syntax.

Return codes:

0 – Success

1 – Success with warnings

>1 – Errors

Example

abc_importdefs -xmlfile C:\Program Files\HP\FPA\Foundation\xmldir*filename*.xml

abc_importdefs -topdir C:\Program Files\HP\FPA\Foundation\xmldir\

dw_abc_job_launcher

Purpose

Use this script to start or stop a job stream.

User

Administrator or ETL developer

Syntax

dw_abc_job_launcher_detail -jobname <*string*>

[-stop]

[-help]

Table 13 dw_abc_job_launcher.bat options

Option	Required?	Description
-jobname *job_name*	Y	Name of the job that you want to run.
-stop *job_name*	N	Stop job execution.
-help	N	Display command syntax.

If you omit the -process option, you must set an environment variable %DW_PROCESS_ID% that contains the value of the process ID.

Example

dw_abc_job_launcher -jobname Upstream

dw_abc_job_launcher -stop -jobname Upstream

dw_abc_load_batch

Purpose

Use this script to load a batch job stream or register it as a Windows scheduled task.

User

Administrator

Syntax

dw_abc_load_batch -streamId <*string*>

[-register (-every <*string*> |-starttime <*string*>)]

[-help]

Table 14 dw_abc_load_batch.bat options

Option	Required?	Description
-every *nnn*	No	Start the batch load task every *nnn* minutes.
Choose one of the following options:		
• **-register**	No	Create a Windows scheduled task to run dw_abc_load_batch at regular intervals.
• **-starttime *hh:mm***	No	Start the task to load the batch where the value for *hh* is 00–24 and the value for *mm* is 00–59.
-streamid *stream_id*	Yes	Identify the stream ID value that is specified in the stream file parameter dwid="*xxxx*".
-help	No	Display command syntax.

Examples

dw_abc_load_batch -streamId *streamId*

dw_abc_load_batch -streamId *streamId* -register -every 720

dw_abc_load_batch -streamId *streamId* -register -starttime 22:30

dw_abc_retry_step

Purpose

Use this script to restart a job stream step.

User

Administrator

Syntax

dw_abc_load_batch -streamId <*string*>

-stepId <*string*>

-prepareonly

[-help]

Table 15 dw_abc_retry_step.bat options

Option	Required?	Description
prepareonly	N	Allocate a new process for the step but do not run the step.
-stepId *step_id*	Y	Step ID value for the step to restart.
-streamId *stream_id*	Y	Stream ID value for the step to restart.
-help	N	Display command syntax.

Example

dw_abc_retry_step -streamId Upstream -stepId *step_id*

dw_abc_run_steps

Purpose

Use this script to run job stream steps or register the action as a Windows scheduled task.

User

Administrator

Syntax

dw_abc_run_steps [-streamId <*string*>]

[-every <*interval*>]

[-register]

[-help]

Table 16 dw_abc_run_steps.bat options

Option	Required?	Description
-every *nnn*	N	Start the batch load task every *nnn* minutes.
-register	N	Create a Windows scheduled task to run dw_abc_run_steps at regular intervals.
-streamId *stream_id*	N	Stream ID value for the step to restart.
-help	N	Display command syntax for this command.

Examples

To run all the steps that are ready within a loaded batch job:

dw_abc_run_steps

To create a Windows scheduled task that starts the dw_abc_run_steps utility every five minutes:

dw_abc_run_steps -register -every 5

To run all possible steps with a ready status:

dw_abc_run_steps -streamId Upstream

To create a Windows scheduled task that executes the dw_abc_run_steps command every 60 minutes:

dw_abc_run_steps -register -every 60 -streamId Upstream

dw_abc_set_status

Purpose

Use this script to capture the status of job stream steps that are implemented as batch scripts.

User

Administrator or ETL developer

Syntax

dw_abc_set_status (-error | -final | running | -success | -warning)
[-info <*string*>]
[-help]

Table 17 dw_abc_set_status.bat options

Option	Required?	Description
-info "*message_text*"	N	Display text status message.
Choose one of the following status parameters:		
• **-error**	N	If an error occurs, update the data warehouse with the error status.
• **-final**	N	If an error occurs, update the data warehouse with the most severe status.
• **-running**	N	If an error occurs, update the data warehouse with the run status.
• **-success**	N	If successful, update the data warehouse with the success status.
• **-warning**	N	If a warning status occurs, update the data warehouse with the warning status.
-help	N	Display command syntax.

The -info "message_text" is optional free text that you can display.

This script requires the DW_PROCESS_ID environment variable to be set with the value of the process ID before you run this script.

Example

dw_abc_set_status -error -info "Job failed"

9 Time Zone Configuration

The data warehouse contains data extracted from external sources. The original data sources can be repositories in disparate locations. It is important that the data warehouse maintain accurate date and time stamps that normalize the differences between the source time zones and the current time of the data warehouse location. These differences include both Coordinated Universal Time (UTC) offset and daylight savings time (DST) variations.

The data warehouse foundation has transparent internal functions that convert a source time zone value to a UTC value, and convert the UTC value to the data warehouse local time zone during the ETL process.

Time Zone Management

The data warehouse foundation contains tools and configuration files that help you manage time zone issues. For each data source, there are two time zones to track: the data source time zone and the data warehouse time zone. You must also collect the DST information for the time zone associated with the data source.

Task 1: Configure Data Source Time Zone Properties

To configure time zone properties for a data source

1. Open this file with a text editor:

   C:\Program Files\HP\FPA\Foundation\conf\dataSources.xml

2. Edit the time zone property for each data source.

   The dataSources.xml file supports a configurable property for each data source connection. This property specifies the source application name, version, and local time zone. For example, to specify an Asset Manager data source that exists in the same time zone as Los Angeles, you would edit the timeZone property for Asset Manager:

   ```
   <dw:DataSourceConnection    productName="AM"
                               productVersion="5.1"
                               timeZone="America/Los_Angeles" >
   ```

   The timeZone property value must conform to the requirements of the java.util.TimeZone class. For more information, see **php.net** (//www.php.net) for a list of supported time zones and the valid naming convention used to specify the time zone. For example, for Paris, New York, or Singapore, you must specify Europe/Paris, America/New_York, or Asia/Singapore.

3 Repeat step 2 on page 111 for the Project and Portfolio Management dw:DataSourceConnection parameters.

   You can configure the timeZone value for one data source connection associated with a single application. The dataSources.xml file has only one set of productName, productVersion, and timeZone properties for each supported data source.

4 Save and close the file.

Task 2: Configure Data Warehouse Time Zone Properties

To configure time zone properties for the data warehouse

1 Open this file with a text editor:

   C:\Program Files\HP\FPA\Foundation\conf\dwplatform.properties

2 Navigate to the ## Other properties section. The platform.properties file stores the local time zone for the data warehouse.

3 Edit these properties:

   `DSTManagementPeriodStart` *`yyyy`*
   `DSTManagementPeriodEnd` *`yyyy`*
   `DWTimeZone` *`xxxxxxx/xxxxxx`*

   where *xxxxxxx*/*xxxxxx* conforms to the requirements of the java.util.TimeZone class. For more information, see **php.net** (//www.php.net) for a list of supported time zones and the valid naming convention used to specify the time zone.

4 Save and close the file.

This information becomes part of the data warehouse metadata at initialization time.

Task 3: (Optional) Capture the Data Source DST Information

When the installation process runs the utilities to create the data warehouse, the dw_tz_update_dst utility captures the time zone information for the data sources and the data warehouse. You can update this information as needed if there are time zone changes to the data sources or data warehouse. For example, if you replace your original data source with a new repository in a different time zone, you must update the time zone information.

To update existing, or capture new DST information

1 Repeat the steps in Task 1: Configure Data Source Time Zone Properties on page 111.

2 Repeat the steps in Task 2: Configure Data Warehouse Time Zone Properties on page 112.

3 Open a Windows command line window.

4 Switch to this directory:

   C:\Program Files\HP\FPA\Foundation\bin

5 Run this command:

   dw_tz_update_dst

Run dw_tz_update_dst when you:

- Change the time zone attribute for a data source in the dataSources.xml file.
- Change the DST or time zone parameters in the dwplatform.properties file. For example, if you change the DSTManagementPeriodEnd value.

For more information, see dw_tz_update_dst on page 207.

Troubleshooting Date Conversion

If time zone conversion errors occur, verify that none of the following apply.

- If you specify a null date that is passed for conversion, the conversion function returns a null date. Verify that you formatted the dates correctly in any properties file value or conversion command.
- The ETL process uses special dates like 01/01/1900 00:00:01. All dates prior to 1900 are ignored for conversion purposes.
- If you do not update DST information, the ETL attempts date calculation for unmanaged years. The conversion function creates an exception that is caught by the containing workflow and propagated to the BODS job by ABC. The exception appears in the ABC reports. It is an error that locks batch execution.
- For global time zones that convert to DST, the return to standard time occurs at 2 AM. Clocks reset backwards one hour to 1 AM. When a data change occurs between 1 AM – 2 AM while you are still on DST, the time stamp is the same as a data change that occurs between 1 AM – 2 AM after the clock resets back to standard time (ST).

  You can have two data events with the same time stamp, but one occurs before the clock turns back and one occurs after the clock turns back. Source data repositories may not clearly specify whether the data event occurred pre- or post-DST conversion. This issue occurs only during that one overlapping hour from 1 AM – 2 AM during the year. When a data event occurs within this window, the data warehouse time zone management feature assigns the time stamp after the conversion to standard time.

  HP recommends that administrators suspend ETL processing during this interval to avoid conflicts.

Updating Data Warehouse Server Time Zone Information

The administrator must make sure that time zone information is current on the server hosting the data warehouse. Although the definition of time zones and DST rules are fairly static, changes can occur. For example, moving the DST conversion date on a country-wide basis.

You can capture changes to the Olson Timezone Database by obtaining and running the Java TZUpdater Tool that is available on the Sun Developer Network (SDN). For more information, visit the **Java SE Timezone Updater Tool** home page.

After you run the TZUpdater tool, complete Task 3: (Optional) Capture the Data Source DST Information on page 112.

Updating Data Warehouse Server Tables

If the daylight savings time (DST) rules change after the initial configuration, you can update these tables by re-running the dw_tz_update_dst.bat utility. For more information, see dw_tz_update_dst on page 207.

10 Tracing and Logging

This chapter describes the Data Warehouse logging and tracing mechanism.

Data warehouse scripts have different types of output log files:

- One log file for each data warehouse batch utility, using the Java application Log4J.
- One log file for each SQL command.

The Java Logging Mechanism

The data warehouse generates one log file for each batch utility, and stores it in this directory:

C:\Program Files\HP\FPA\Foundation\conf\

For example:

- dw_initdb.log
- dw_importdefs.log
- dw_generateschemas.log

Configure the Logs

For data warehouse utilities, you can customize logging behavior by editing a related log configuration file with this naming convention: *xxx*-log4j.xml. For example, importdefs-log4j.xml. The log configuration files are in this directory:

C:\Program Files\HP\FPA\Foundation\conf

Open the related *xxx*-log4j.xml file with a text editor to choose the trace levels and to change other parameter values. If you make changes, save the file before you close it.

For ABC utilities, (abc-*xxxx*) there is a single log configuration file: abc-log4j.xml. The values that you specify in this file apply to all log files generated by any ABC utility.

Trace Levels

You can choose one of the following trace levels to control the amount of information stored in the logs:

- trace
- debug
- info
- warn

- error
- fatal

The default value is *info*. You can experiment with different levels to see how much information that you want to display or suppress.

Other Log Parameters

The logging mechanism allows each new block of log information to be appended to the existing log until it reaches the maximum size of 1 MB. At that point, new logging information is stored in a backup file. There can be a maximum of five log files for a single script. You can change the log file name, size, and maximum number of backup files.

Sample Log Information

The following examples show the type of information you can find in these log files. The first example shows that a fatal error has occurred.

```
2008-07-02 13:33:10,652 INFO [com.hp.bto.dw.sqlbatch.SqlBatch] -
Checking database options...
2008-07-02 13:33:10,949 FATAL
[com.hp.bto.dw.dbcreate.DbCreateCommandLine] - Problem during DB
options check:
An error that can be corrected by the user has been found. Check the
log file to correct the problem.
Check the error log file
'C:\...\\foundation\log\mssql_check_db_options_LastRun.log', line
number 2

008-07-02 13:33:10,949 FATAL
[com.hp.bto.dw.dbcreate.DbCreateCommandLine] - Exit code: 6
```

The second example shows successful execution.

```
2008-07-02 13:36:27,136 INFO
[com.hp.bto.dw.dbmetadatatool.DbMetadatatool] -
Creating Date and Time stored procedures and populating the dimension
tables...
2008-07-02 13:36:30,511 INFO
[com.hp.bto.dw.commons.dblogparser.LogParserStatus] - Command
successfully executed.
```

It is possible to change the format of the reported information by changing the corresponding configuration files.

SQL Command Logging Mechanism

All the SQL commands that are executed at the direction of the data warehouse software are redirected to simple log file. You can view the log file to trace the execution of all SQL commands. All log files are in this directory:

C:\Program Files\HP\FPA\Foundation\conf

- mssql_TablesAndSeqsResult.log
- mssql_create_dw_schema_LastRun.log

The prefix of the log file name is the RDBMS type: mssql. The suffix of the log file name is _LastRun. This suffix indicates that the file contains the last run output of the SQL command.

To simplify interpreting SQL errors, the data warehouse applications parse the log files to report the most critical SQL error to the user. For more information, you can review the entire log file. Because the data warehouse appends log information in a history format in certain log files, you can review prior errors. Other log files retain only the history of the most recent execution. These files always have the _LastRun suffix. For example:

- mssql_check_db_options_LastRun.log
- mssql_create_dw_schema_date_time_dim_LastRun.log

These history log files contain the date and time the SQL command runs, the date and time it completes, and the returned status of the SQL command. For example:

```
------------------------------------------------------------
Start of command: sqlcmd -S localhost -d BTODW -U dwmetadata -P **** -i
"C:\...\\foundation\etc\sql\mssql\create_dw_staging_resources.sql" -o
"C:\...\\foundation\log\mssql_create_dw_staging_resources_LastRun.log"
At: Wed Jul 02 13:35:59 PDT 2009
------------------------------------------------------------
 1:
 2: ********** Creating staging resources **********
------------------------------------------------------------
End of command: sqlcmd -S localhost -d BTODW -U dwmetadata -P **** -i
"C:\...\\foundation\etc\sql\mssql\create_dw_staging_resources.sql" -o
"C:\...\\foundation\log\mssql_create_dw_staging_resources_LastRun.log"
At: Wed Jul 02 13:35:59 PDT 2009
Returned code is: 0
------------------------------------------------------------
```

XREF Log

The ETL process generates a dw_xref.log that you can locate in this directory:

C:\Program Files\HP\FPA\ContentPacks\Core\conf

Example

The following example shows an Oracle connection error.

```
2009-06-12 06:26:51,937 [INFO ] com.hp.bto.dw.etl.xrefgen.XREFGenerator -
2009-06-12 06:26:51,937 [INFO ] com.hp.bto.dw.etl.xrefgen.XREFGenerator -
********** Begin XREFGenerator table Processing ****************
2009-06-12 06:26:52,093 [DEBUG] com.hp.bto.dw.etl.xref.util.DBHelper -
Loading Configuration Properties from file:
R:\FOUNDA~1\etc\ABC\..\..\..\ContentPacks\Core\conf\xref.properties
2009-06-12 06:26:52,234 [DEBUG] com.hp.bto.dw.etl.xrefgen.XREFGenerator -
consolidatedName is PERSON Batch ID = 1.0
2009-06-12 06:26:52,234 [INFO ] com.hp.bto.dw.etl.xrefgen.XREFGenerator -
Executing XREFGenerator, consolidatedName = PERSON,md_batch_id = 1.0
2009-06-12 06:26:56,391 [ERROR] com.hp.bto.dw.etl.xrefgen.XREFGenerator -
--- Errors caught in XREFGenerator ----
```

```
2009-06-12 06:26:56,391 [ERROR] com.hp.bto.dw.etl.xrefgen.XREFGenerator -
e.getMessage()
2009-06-12 06:26:56,391 [ERROR] com.hp.bto.dw.etl.xrefgen.XREFGenerator -
Exception: ORA-12560: TNS:protocol adapter error
```

Apache Tomcat Logs

Tomcat jobs write messages about web server events in separate logs. You can locate these logs in the BOE\Tomcat directory structure:

C:\Program Files\HP\FPA\BO\boe\Tomcat55\logs

Look for task-specific logs related to web tier functionality.

BOE Logs

BODS produces many run-time logs. You can locate these logs in the BODS directory structure:

C:\Program Files\HP\FPA\BO\bods\BusinessObjects Data Services\log

The \log folder has sub-directories to further organize the BODS logs.

11 Backup and Re-Initialization

When you back up the data warehouse, you must save not only the content, but also the data warehouse infrastructure, staging databases, and configuration files.

Before you begin the backup process, make sure that no ETL process or data warehouse utility is running.

A best practice for data warehouse administrators is to back up critical data on a regular basis. Read this chapter for information about backup and re-initialization processes.

Recovery of the data warehouse is more complicated. Read Chapter 12, Recovery for information about data warehouse recovery processes.

Daily Backup Process

There are certain data warehouse tables that you should back up daily after you complete the daily scheduled ETL jobs. The backup strategy depends on the RDBMS. The backup involves selecting the following tables from source to target. The backup process includes backup of:

- Selected source tables
- Selected staging tables
- The external files in these directories:

  C:\ETL_EXTRACTIONS\AM*.TXT

  C:\ETL_EXTRACTIONS\PPM*.TXT
- The full data warehouse

Source Tables

Source tables are those tables that contain content to be extracted from those external sources. The following tables should be backed up daily.

Table 18 Source Tables

AM **Tables**	**PPM 7.50 Tables**	**PPM 8.00 Tables**
amAsset	KCRT_FG_PFM_ASSET	KCRT_FG_PFM_ASSET
amModel	KCRT_FG_PFM_PROJECT	KCRT_FG_PFM_PROJECT
amNature	KCRT_REQUESTS	KCRT_REQUESTS
amBudgCenter	KCST_BUDGET_LINE_CELLS	FM_FINANCIAL_LINE_CELLS
amBudget	KCST_BUDGET_LINES	FM_FORECAST_ACTUAL_LINES

Table 18 Source Tables

AM **Tables**	**PPM 7.50 Tables**	**PPM 8.00 Tables**
amBudgLine	KCST_BUDGET_LINKED_ENTITIES	PFM_LIFECYCLE_PARENT_ENTITY
amCompany	KCST_BUDGET_PERIOD_SUM	FM_FORECAST_ACTUAL_PERIOD_SUM
amContact	KCST_BUDGETS	FM_FINANCIAL_SUMMARY
amContract	KCST_CURRENCY_CELLS	FM_FINANCIAL_LINE_CELLS
amCostCenter	KCST_CURRENCY_LINES	KNTA_REGIONS
amCountry	KNTA_REGIONS	KNTA_USERS
amEmplDept	KNTA_USERS	KRSC_ORG_UNITS
amCostCategory	KRSC_ORG_UNITS	PM_PROJECT_TYPES
amExpenseLine	PM_PROJECT_TYPES	PM_PROJECTS
amLocation	PM_PROJECTS	PM_PROJECTS_CONTAINERS
amModel	PM_PROJECTS_CONTAINERS	
amNature		
amPortfolio		
amProject		

Staging Tables

Staging tables are temporary tables that contain the data before the ETL process loads it into target tables. You should back up the data warehouse staging tables listed in Table 19 through Table 25 daily.

ABC Tables

ABC tables contain measure, metric, and other information that supports the execution of ABC jobs.

Table 19 ABC Tables

ABC Table Name	**Schema Name**
AUDIT_MEASURE	dwabc
AUDIT_MEASURE_METRIC_ASSOC	dwabc
AUDIT_METRIC	dwabc
BALANCE_MEASURE	dwabc
BALANCE_MEASURE_METRIC_ASSOC	dwabc
BALANCE_METRIC	dwabc
CONTACT	dwabc
EXEC_CATALOG	dwabc

Table 19 ABC Tables

ABC Table Name	Schema Name
EXEC_CONTACT_ASSOC	dwabc
EXECATALOG_MODEL_AUDIT	dwabc
EXECUTABLE	dwabc
JOB_STREAM_DT	dwabc
JOB_STREAM_LINK_DT	dwabc
JOB_STREAM_RT	dwabc
JOB_STREAM_STEP_DETAIL_RT	dwabc
JOB_STREAM_STEP_DT	dwabc
JOB_STREAM_STEP_MEASURE	dwabc
JOB_STREAM_STEP_RT	dwabc
RPT_JOB_STATUS_LIST	dwabc
STREAM_MODEL_AUDIT	dwabc

XREF Tables

Cross reference (XREF) tables are ancillary tables that describe various relationships that support ETL processing. For example, cross reference tables contain descriptions of enterprise key-to-business key relationships, source entities, consolidated entities, or priority relationships among source systems consolidated entities.

Table 20 Enterprise XREF Tables

Enterprise XREF Table Name	Schema Name
ACTUALCOST_ENTERPRISE_XREF	dwst
ACTUALCOST_HISTORY_ENTERPRISE_XREF	dwst
APPLICATION_ENTERPRISE_XREF	dwst
BUDGET_ENTERPRISE_XREF	dwst
BUDGET_HISTORY_ENTERPRISE_XREF	dwst
BUDGETLINE_ENTERPRISE_XREF	dwst
BUDGETLINE_HISTORY_ENTERPRISE_XREF	dwst
BUSSERVICE_HISTORY_ENTERPRISE_XREF	dwst
CFGITEM_ENTERPRISE_XREF	dwst
CFGITEM_HISTORY_ENTERPRISE_XREF	dwst
CONSOLIDATED_XREF	dwst
CONSOLIDATION_ATTRIBUTE_XREF	dwst
CONTRACT_ENTERPRISE_XREF	dwst
CONTRACT_HISTORY_ENTERPRISE_XREF	dwst

Table 20 Enterprise XREF Tables

Enterprise XREF Table Name	Schema Name
COSTCATEGORY_ENTERPRISE_XREF	dwst
COSTCATEGORY_HISTORY_ENTERPRISE_XREF	dwst
COSTCENTER_ENTERPRISE_XREF	dwst
CURRENCY_ENTERPRISE_XREF	dwst
EXCHANGE_ENTERPRISE_XREF	dwst
ITFUNCTION_ENTERPRISE_XREF	dwst
ITFUNCTION_HISTORY_ENTERPRISE_XREF	dwst
LOCATION_ENTERPRISE_XREF	dwst
LOCATION_HISTORY_ENTERPRISE_XREF	dwst
MODEL_ENTERPRISE_XREF	dwst
MODEL_HISTORY_ENTERPRISE_XREF	dwst
ORG_ENTERPRISE_XREF	dwst
ORG_HISTORY_ENTERPRISE_XREF	dwst
PERIOD_ENTERPRISE_XREF	dwst
PERSON_ENTERPRISE_XREF	dwst
PERSON_HISTORY_ENTERPRISE_XREF	dwst
PLANNEDCOST_ENTERPRISE_XREF	dwst
PLANNEDCOST_HISTORY_ENTERPRISE_XREF	dwst
PROGRAM_ENTERPRISE_XREF	dwst
PROGRAM_HISTORY_ENTERPRISE_XREF	dwst
PROJECT_ENTERPRISE_XREF	dwst
PROJECT_HISTORY_ENTERPRISE_XREF	dwst
SCENARIO_ENTERPRISE_XREF	dwst
SOURCE_CONS_PRIORITY_XREF	dwst
SOURCE_INTEGRATION_XREF	dwst
SOURCE_SYS_INSTANCE_XREF	dwst
SRC_ATTR_CONS_PRIORITY_XREF	dwst
XREF_EXTT	dwst
XREF_TRACK	dwst
XREF_UPDATE_AUDIT	dwst

Lookup Tables

The data warehouse uses lookup tables to retrieve the ID of an entity using the enterprise or durable key. Lookup tables are mainly used in the XFR process.

Table 21 Lookup Tables

Lookup Table Name	Schema Name
APPLICATION_KEY_LOOKUP	dwst
BUDGET_KEY_LOOKUP	dwst
BUDGETLINE_KEY_LOOKUP	dwst
BUSSERVICE_KEY_LOOKUP	dwst
CFGITEM_KEY_LOOKUP	dwst
CONTRACT_KEY_LOOKUP	dwst
COSTCATEGORY_KEY_LOOKUP	dwst
COSTCENTER_KEY_LOOKUP	dwst
CURRENCY_KEY_LOOKUP	dwst
DNFLAG_KEY_LOOKUP	dwst
EXCHANGE_KEY_LOOKUP	dwst
ITFUNCTION_KEY_LOOKUP	dwst
LOCATION_KEY_LOOKUP	dwst
MODEL_KEY_LOOKUP	dwst
OCFLAG_KEY_LOOKUP	dwst
ORG_KEY_LOOKUP	dwst
PERIOD_KEY_LOOKUP	dwst
PERSON_KEY_LOOKUP	dwst
PROGRAM_KEY_LOOKUP	dwst
PROJECT_KEY_LOOKUP	dwst
SCENARIO_KEY_LOOKUP	dwst

Metadata Tables

Metadata tables describe logical models used to create the data warehouse tables.

Table 22 Metadata Tables

Metadata Table Name	Schema Name
AggCollapsedDimAttribute	dwmetadata
Aggregation	dwmetadata
AGGREGATION_AUDIT	dwmetadata
AGGREGATION_AUDIT_DETAILS	dwmetadata
AggregationMeasure	dwmetadata
AggTableGeneration	dwmetadata
AggTableGenerationDetail	dwmetadata
Catalog	dwmetadata
CONSOLIDATION_MODEL_AUDIT	dwmetadata
CONSOLIDATION_MODEL_AUDIT_DETAILS	dwmetadata
ConsolidationColumn	dwmetadata
ConsolidationDimRef	dwmetadata
ConsolidationFactRef	dwmetadata
ConsolidationModel	dwmetadata
DATABASE_CONFIGURATION	dwmetadata
DataSourceConnection	dwmetadata
DatasourceMssqlInstance	dwmetadata
DatasourceOracleInstance	dwmetadata
DATATYPE_MAPPING	dwmetadata
DATATYPE_MAPPING_REVERSE	dwmetadata
DDL_DEFINITION	dwmetadata
Dimension	dwmetadata
DimensionAssociatedDimension	dwmetadata
DimensionAttribute	dwmetadata
DML_DEFINITION	dwmetadata
DS_CONNECTION_AUDIT	dwmetadata
DW_CONFIGURATION	dwmetadata
EXTRACTION_MODEL_AUDIT	dwmetadata
EXTRACTION_MODEL_AUDIT_DETAILS	dwmetadata
ExtractionColumn	dwmetadata

Table 22 Metadata Tables

Metadata Table Name	Schema Name
ExtractionConsRef	dwmetadata
ExtractionModel	dwmetadata
Fact	dwmetadata
FactAssociatedDimension	dwmetadata
FactMeasure	dwmetadata
FixedHierarchy	dwmetadata
FixedHierarchyLevel	dwmetadata
FixedHierarchyLevelMember	dwmetadata
FixedHierarchyLevelPosition	dwmetadata
IMPORTED_STATIC_TABLE	dwmetadata
MODEL_TO_DDL_ASSOC	dwmetadata
RecursiveHierarchy	dwmetadata
SOURCE_MODEL_AUDIT	dwmetadata
SourceModel	dwmetadata
SourceModelColumnMapping	dwmetadata
SourceModelMapping	dwmetadata
STATIC_ATTRIBUTE_PROPERTY	dwmetadata
STATIC_COL	dwmetadata
STATIC_DIMENSION	dwmetadata
STATIC_TABLE	dwmetadata
STATUS_EXPLANATION	dwmetadata
TARGET_DIMENSION_AUDIT	dwmetadata
TARGET_DIMENSION_AUDIT_DETAILS	dwmetadata
TARGET_FACT_AUDIT	dwmetadata
TARGET_FACT_AUDIT_DETAILS	dwmetadata
TIMEZONE_INFO	dwmetadata

Snapshot Tables

Snapshot (TSNP, SSNP, and CSNP) tables are the persistent storage for ETL staging data. These snapshot tables capture the changed data and support the data warehouse recovery process. The data warehouse uses TSNP tables for source extraction staging, SSNP tables for single source identity staging, and CSNP tables for single or multiple source consolidation staging. The final ETL stage captures the snapshot data.

Table 23 Snapshot Tables

Snapshot Table Name	Schema Name
AM_ACTUALCOST_SSNP	dws
AM_AMASSET_TSNP	dws
AM_AMBUDGCENTER_TSNP	dws
AM_AMBUDGET_TSNP	dws
AM_AMBUDGLINE_TSNP	dws
AM_AMCOMPANY_TSNP	dws
AM_AMCONTACT_TSNP	dws
AM_AMCONTRACT_TSNP	dws
AM_AMCOSTCENTER_TSNP	dws
AM_AMCOUNTRY_TSNP	dws
AM_AMEMPLDEPT_TSNP	dws
AM_AMEXPENSELINE_TSNP	dws
AM_AMLOCATION_TSNP	dws
AM_AMMODEL_TSNP	dws
AM_AMNATURE_TSNP	dws
AM_AMPORTFOLIO_TSNP	dws
AM_AMPROJECT_TSNP	dws
AM_BUDGET_SSNP	dws
AM_BUDGETLINE_SSNP	dws
AM_CFGITEM_SSNP	dws
AM_CONTRACT_SSNP	dws
AM_COSTCENTER_SSNP	dws
AM_LOCATION_SSNP	dws
AM_MODEL_SSNP	dws
AM_ORG_SSNP	dws
AM_PERSON_SSNP	dws
AM_PLANNEDCOST_SSNP	dws
AM_PROJECT_SSNP	dws

Table 23 Snapshot Tables

Snapshot Table Name	Schema Name
PPM_ACTUALCOST_SSNP	dws
PPM_BUDGET_SSNP	dws
PPM_BUDGETLINE_SSNP	dws
PPM_KCRT_FG_PFM_ASSET_TSNP	dws
PPM_KCRT_FG_PFM_PROJECT_TSNP	dws
PPM_KCRT_REQUESTS_TSNP	dws
PPM_KCST_BUDG_LINE_CELLS_TSNP	dws
PPM_KCST_BUDG_PERIOD_SUM_TSNP	dws
PPM_KCST_BUDGET_LINES_TSNP	dws
PPM_KCST_BUDGET_LNK_ENT_TSNP	dws
PPM_KCST_BUDGETS_TSNP	dws
PPM_KCST_CURRENCY_CELLS_TSNP	dws
PPM_KCST_CURRENCY_LINES_TSNP	dws
PPM_KNTA_REGIONS_TSNP	dws
PPM_KNTA_USERS_TSNP	dws
PPM_KRSC_ORG_UNITS_TSNP	dws
PPM_LOCATION_SSNP	dws
PPM_ORG_SSNP	dws
PPM_PERSON_SSNP	dws
PPM_PLANNEDCOST_SSNP	dws
PPM_PM_PROJECT_TYPES_TSNP	dws
PPM_PM_PROJECTS_CONT_TSNP	dws
PPM_PM_PROJECTS_TSNP	dws
PPM_PROGRAM_SSNP	dws
PPM_PROJECT_SSNP	dws
SM_CFGITEM_SSNP	dws
SM_COMPANYM1_TSNP	dws
SM_CONTCTSM1_TSNP	dws
SM_DEPTM1_TSNP	dws
SM_DEVICE2M1_TSNP	dws
SM_LOCATION_SSNP	dws
SM_LOCM1_TSNP	dws
SM_MODEL_SSNP	dws

Table 23 Snapshot Tables

Snapshot Table Name	Schema Name
SM_MODELM1_TSNP	dws
SM_ORG_SSNP	dws
SM_PERSON_SSNP	dws
SM_VENDORM1_TSNP	dws
ACTUALCOST_CSNP	dws
APPLICATION_CSNP	dws
BUDGET_CSNP	dws
BUDGETLINE_CSNP	dws
CFGITEM_CSNP	dws
CONTRACT_CSNP	dws
COSTCATEGORY_CSNP	dws
COSTCENTER_CSNP	dws
CURRENCY_CSNP	dws
EXCHANGE_CSNP	dws
ITFUNCTION_CSNP	dws
LOCATION_CSNP	dws
MODEL_CSNP	dws
ORG_CSNP	dws
PERIOD_CSNP	dws
PERSON_CSNP	dws
PLANNEDCOST_CSNP	dws
PROGRAM_CSNP	dws
PROJECT_CSNP	dws
SCENARIO_CSNP	dws

Validation Tables

Validation Failed (VALF) tables contains the records that fail validation. You can use these failed records to research data errors and potential remedies. Data validation is part of the process to load the EXT tables.

Table 24 Validation Tables

Validation Table Name	Schema Name
AM_AMASSET_VALF	dws
AM_AMBUDGCENTER_VALF	dws
AM_AMBUDGET_VALF	dws
AM_AMBUDGLINE_VALF	dws
AM_AMCOMPANY_VALF	dws
AM_AMCONTACT_VALF	dws
AM_AMCONTRACT_VALF	dws
AM_AMCOSTCENTER_VALF	dws
AM_AMCOUNTRY_VALF	dws
AM_AMEMPLDEPT_VALF	dws
AM_AMEXPENSELINE_VALF	dws
AM_AMLOCATION_VALF	dws
AM_AMMODEL_VALF	dws
AM_AMNATURE_VALF	dws
AM_AMPORTFOLIO_VALF	dws
AM_AMPROJECT_VALF	dws
PPM_KCRT_FG_PFM_ASSET_VALF	dws
PPM_KCRT_FG_PFM_PROJECT_VALF	dws
PPM_KCRT_REQUESTS_VALF	dws
PPM_KCST_BUDG_LINE_CELLS_VALF	dws
PPM_KCST_BUDG_PERIOD_SUM_VALF	dws
PPM_KCST_BUDGET_LINES_VALF	dws
PPM_KCST_BUDGET_LNK_ENT_VALF	dws
PPM_KCST_BUDGETS_VALF	dws
PPM_KCST_CURRENCY_CELLS_VALF	dws
PPM_KCST_CURRENCY_LINES_VALF	dws
PPM_KNTA_REGIONS_VALF	dws
PPM_KNTA_USERS_VALF	dws
PPM_KRSC_ORG_UNITS_VALF	dws

Table 24 Validation Tables

Validation Table Name	Schema Name
PPM_PM_PROJECT_TYPES_VALF	dws
PPM_PM_PROJECTS_CONT_VALF	dws
PPM_PM_PROJECTS_VALF	dws
SM_COMPANYM1_VALF	dws
SM_CONTCTSM1_VALF	dws
SM_DEPTM1_VALF	dws
SM_DEVICE2M1_VALF	dws
SM_LOCM1_VALF	dws
SM_MODELM1_VALF	dws
SM_VENDORM1_VALF	dws
VALIDATION_REF	dws

XREFGEN Tables

Cross Reference Generator (XREFGEN) tables support data matching and cross reference inputs for the consolidation models.

Table 25 XREFGEN Tables

XREFGEN Table Name	Schema Name
ACTUALCOST_QUALIFIER	xrefgen
ACTUALCOST_REFERENCE	xrefgen
ACTUALCOST_SOURCEREFERENCE1	xrefgen
ACTUALCOST_SOURCEREFERENCE2	xrefgen
ACTUALCOST_SOURCEREFERENCE3	xrefgen
ACTUALCOST_STG_QUALIFIER	xrefgen
ACTUALCOST_STG_SOURCE_BUSINESSKEY	xrefgen
ACTUALCOST_STG_SOURCE1_BUSINESSKEY	xrefgen
ACTUALCOST_STG_SOURCE2_BUSINESSKEY	xrefgen
ACTUALCOST_STG_SOURCE3_BUSINESSKEY	xrefgen
ACTUALCOST_XREF_INPUT	xrefgen
BUDGET_QUALIFIER	xrefgen
BUDGET_REFERENCE	xrefgen
BUDGET_SOURCEREFERENCE1	xrefgen
BUDGET_SOURCEREFERENCE2	xrefgen
BUDGET_SOURCEREFERENCE3	xrefgen

Table 25 XREFGEN Tables

XREFGEN Table Name	Schema Name
BUDGET_STG_QUALIFIER	xrefgen
BUDGET_STG_SOURCE_BUSINESSKEY	xrefgen
BUDGET_STG_SOURCE1_BUSINESSKEY	xrefgen
BUDGET_STG_SOURCE2_BUSINESSKEY	xrefgen
BUDGET_STG_SOURCE3_BUSINESSKEY	xrefgen
BUDGET_XREF_INPUT	xrefgen
BUDGETLINE_QUALIFIER	xrefgen
BUDGETLINE_REFERENCE	xrefgen
BUDGETLINE_SOURCEREFERENCE1	xrefgen
BUDGETLINE_SOURCEREFERENCE2	xrefgen
BUDGETLINE_SOURCEREFERENCE3	xrefgen
BUDGETLINE_STG_QUALIFIER	xrefgen
BUDGETLINE_STG_SOURCE_BUSINESSKEY	xrefgen
BUDGETLINE_STG_SOURCE1_BUSINESSKEY	xrefgen
BUDGETLINE_STG_SOURCE2_BUSINESSKEY	xrefgen
BUDGETLINE_STG_SOURCE3_BUSINESSKEY	xrefgen
BUDGETLINE_XREF_INPUT	xrefgen
BUSSERVICE_QUALIFIER	xrefgen
BUSSERVICE_REFERENCE	xrefgen
BUSSERVICE_SOURCEREFERENCE1	xrefgen
BUSSERVICE_SOURCEREFERENCE2	xrefgen
BUSSERVICE_SOURCEREFERENCE3	xrefgen
BUSSERVICE_STG_QUALIFIER	xrefgen
BUSSERVICE_STG_SOURCE_BUSINESSKEY	xrefgen
BUSSERVICE_STG_SOURCE1_BUSINESSKEY	xrefgen
BUSSERVICE_STG_SOURCE2_BUSINESSKEY	xrefgen
BUSSERVICE_STG_SOURCE3_BUSINESSKEY	xrefgen
BUSSERVICE_XREF_INPUT	xrefgen
CFGITEM_QUALIFIER	xrefgen
CFGITEM_REFERENCE	xrefgen
CFGITEM_SOURCEREFERENCE1	xrefgen
CFGITEM_SOURCEREFERENCE2	xrefgen
CFGITEM_SOURCEREFERENCE3	xrefgen

Table 25 XREFGEN Tables

XREFGEN Table Name	Schema Name
CFGITEM_STG_QUALIFIER	xrefgen
CFGITEM_STG_SOURCE_BUSINESSKEY	xrefgen
CFGITEM_STG_SOURCE1_BUSINESSKEY	xrefgen
CFGITEM_STG_SOURCE2_BUSINESSKEY	xrefgen
CFGITEM_STG_SOURCE3_BUSINESSKEY	xrefgen
CFGITEM_XREF_INPUT	xrefgen
CONTRACT_QUALIFIER	xrefgen
CONTRACT_REFERENCE	xrefgen
CONTRACT_SOURCEREFERENCE1	xrefgen
CONTRACT_SOURCEREFERENCE2	xrefgen
CONTRACT_SOURCEREFERENCE3	xrefgen
CONTRACT_STG_QUALIFIER	xrefgen
CONTRACT_STG_SOURCE_BUSINESSKEY	xrefgen
CONTRACT_STG_SOURCE1_BUSINESSKEY	xrefgen
CONTRACT_STG_SOURCE2_BUSINESSKEY	xrefgen
CONTRACT_STG_SOURCE3_BUSINESSKEY	xrefgen
CONTRACT_XREF_INPUT	xrefgen
COSTCATEGORY_QUALIFIER	xrefgen
COSTCATEGORY_REFERENCE	xrefgen
COSTCATEGORY_SOURCEREFERENCE1	xrefgen
COSTCATEGORY_SOURCEREFERENCE2	xrefgen
COSTCATEGORY_SOURCEREFERENCE3	xrefgen
COSTCATEGORY_STG_QUALIFIER	xrefgen
COSTCATEGORY_STG_SOURCE_BUSINESSKEY	xrefgen
COSTCATEGORY_STG_SOURCE1_BUSINESSKEY	xrefgen
COSTCATEGORY_STG_SOURCE2_BUSINESSKEY	xrefgen
COSTCATEGORY_STG_SOURCE3_BUSINESSKEY	xrefgen
COSTCATEGORY_XREF_INPUT	xrefgen
ITFUNCTION_QUALIFIER	xrefgen
ITFUNCTION_REFERENCE	xrefgen
ITFUNCTION_SOURCEREFERENCE1	xrefgen
ITFUNCTION_SOURCEREFERENCE2	xrefgen
ITFUNCTION_SOURCEREFERENCE3	xrefgen

Table 25 XREFGEN Tables

XREFGEN Table Name	Schema Name
ITFUNCTION_STG_QUALIFIER	xrefgen
ITFUNCTION_STG_SOURCE_BUSINESSKEY	xrefgen
ITFUNCTION_STG_SOURCE1_BUSINESSKEY	xrefgen
ITFUNCTION_STG_SOURCE2_BUSINESSKEY	xrefgen
ITFUNCTION_STG_SOURCE3_BUSINESSKEY	xrefgen
ITFUNCTION_XREF_INPUT	xrefgen
LOCATION_QUALIFIER	xrefgen
LOCATION_REFERENCE	xrefgen
LOCATION_SOURCEREFERENCE1	xrefgen
LOCATION_SOURCEREFERENCE2	xrefgen
LOCATION_SOURCEREFERENCE3	xrefgen
LOCATION_STG_QUALIFIER	xrefgen
LOCATION_STG_SOURCE_BUSINESSKEY	xrefgen
LOCATION_STG_SOURCE1_BUSINESSKEY	xrefgen
LOCATION_STG_SOURCE2_BUSINESSKEY	xrefgen
LOCATION_STG_SOURCE3_BUSINESSKEY	xrefgen
LOCATION_XREF_INPUT	xrefgen
MODEL_QUALIFIER	xrefgen
MODEL_REFERENCE	xrefgen
MODEL_SOURCEREFERENCE1	xrefgen
MODEL_SOURCEREFERENCE2	xrefgen
MODEL_SOURCEREFERENCE3	xrefgen
MODEL_STG_QUALIFIER	xrefgen
MODEL_STG_SOURCE_BUSINESSKEY	xrefgen
MODEL_STG_SOURCE1_BUSINESSKEY	xrefgen
MODEL_STG_SOURCE2_BUSINESSKEY	xrefgen
MODEL_STG_SOURCE3_BUSINESSKEY	xrefgen
MODEL_XREF_INPUT	xrefgen
ORG_QUALIFIER	xrefgen
ORG_REFERENCE	xrefgen
ORG_SOURCEREFERENCE1	xrefgen
ORG_SOURCEREFERENCE2	xrefgen
ORG_SOURCEREFERENCE3	xrefgen

Table 25 XREFGEN Tables

XREFGEN Table Name	Schema Name
ORG_STG_QUALIFIER	xrefgen
ORG_STG_SOURCE_BUSINESSKEY	xrefgen
ORG_STG_SOURCE1_BUSINESSKEY	xrefgen
ORG_STG_SOURCE2_BUSINESSKEY	xrefgen
ORG_STG_SOURCE3_BUSINESSKEY	xrefgen
ORG_XREF_INPUT	xrefgen
PERSON_QUALIFIER	xrefgen
PERSON_REFERENCE	xrefgen
PERSON_SOURCEREFERENCE1	xrefgen
PERSON_SOURCEREFERENCE2	xrefgen
PERSON_SOURCEREFERENCE3	xrefgen
PERSON_STG_QUALIFIER	xrefgen
PERSON_STG_SOURCE_BUSINESSKEY	xrefgen
PERSON_STG_SOURCE1_BUSINESSKEY	xrefgen
PERSON_STG_SOURCE2_BUSINESSKEY	xrefgen
PERSON_STG_SOURCE3_BUSINESSKEY	xrefgen
PERSON_XREF_INPUT	xrefgen
PLANNEDCOST_QUALIFIER	xrefgen
PLANNEDCOST_REFERENCE	xrefgen
PLANNEDCOST_SOURCEREFERENCE1	xrefgen
PLANNEDCOST_SOURCEREFERENCE2	xrefgen
PLANNEDCOST_SOURCEREFERENCE3	xrefgen
PLANNEDCOST_STG_QUALIFIER	xrefgen
PLANNEDCOST_STG_SOURCE_BUSINESSKEY	xrefgen
PLANNEDCOST_STG_SOURCE1_BUSINESSKEY	xrefgen
PLANNEDCOST_STG_SOURCE2_BUSINESSKEY	xrefgen
PLANNEDCOST_STG_SOURCE3_BUSINESSKEY	xrefgen
PLANNEDCOST_XREF_INPUT	xrefgen
PROGRAM_QUALIFIER	xrefgen
PROGRAM_REFERENCE	xrefgen
PROGRAM_SOURCEREFERENCE1	xrefgen
PROGRAM_SOURCEREFERENCE2	xrefgen
PROGRAM_SOURCEREFERENCE3	xrefgen

Table 25 XREFGEN Tables

XREFGEN Table Name	Schema Name
PROGRAM_STG_QUALIFIER	xrefgen
PROGRAM_STG_SOURCE_BUSINESSKEY	xrefgen
PROGRAM_STG_SOURCE1_BUSINESSKEY	xrefgen
PROGRAM_STG_SOURCE2_BUSINESSKEY	xrefgen
PROGRAM_STG_SOURCE3_BUSINESSKEY	xrefgen
PROGRAM_XREF_INPUT	xrefgen
PROJECT_QUALIFIER	xrefgen
PROJECT_REFERENCE	xrefgen
PROJECT_SOURCEREFERENCE1	xrefgen
PROJECT_SOURCEREFERENCE2	xrefgen
PROJECT_SOURCEREFERENCE3	xrefgen
PROJECT_STG_QUALIFIER	xrefgen
PROJECT_STG_SOURCE_BUSINESSKEY	xrefgen
PROJECT_STG_SOURCE1_BUSINESSKEY	xrefgen
PROJECT_STG_SOURCE2_BUSINESSKEY	xrefgen
PROJECT_STG_SOURCE3_BUSINESSKEY	xrefgen
PROJECT_XREF_INPUT	xrefgen
XREFGEN_TRACK	xrefgen

Export and Import ETL

The ETL export scripts, dw_etl_backup.bat and dw_etl_restore.bat, enable you to export ETL processes and then re-import the processes after an IT Analytics upgrade. You can export the ETL workflows for a particular entity or for the entire SAP BusinessObjects Data Services repository. The export tool saves each workflow as an XML file and includes the dependent objects, such as data flows and other workflows, but does not include data stores and shared functions.

To export ETL workflows

1. Make sure ETL is not running.
2. Open a Windows command line window.
3. Switch to this directory:

   C:\Program Files\HP\FPA\Foundation\bin
4. Run this command:

   *dw_etl_backup.bat -**option***

   where *option* is one or more of the following options:

Option	Description
-help	Display the command syntax.
-verbose	Verbose output.
-entity <entity>	Export ETL for this entity. This option is exclusive and cannot be used with other options.
-allentities	Export ETL for all entities. This option is exclusive and cannot be used with other options.
-workflow <workflow>	Export ETL for this workflow.
-allfunctions	Export all custom functions.
-allflatfileformats	Export all custom file formats.
-alljobs	Export all jobs.
-alldatastores	Export all data stores.
-todir <directory>	Export all files to this directory.

For example

```
dw_etl_backup.bat -entity PERSON -todir c:\BTO\ETLBackup\1
dw_etl_backup.bat -allentities -todir c:\BTO\ETLBackup\2
dw_etl_backup.bat -alljobs -allflatfileformats -todir c:\BTO\ETLBackup\3
```

To import the ETL workflows into the SAP BusinessObjects Data Services repository

1. Make sure ETL is not running.
2. Open a Windows command line window.
3. Switch to this directory:

   C:\Program Files\HP\FPA\Foundation\bin

4 Run this command:

*dw_etl_restore.bat -**option***

where *option* is one or more of the following options:

Option	Description
-help	Display the command syntax.
-verbose	Verbose output.
-fromfile <xmlfile>	Import ETL from an XML file.
-fromdir <directory>	Import ETL from XML files in this directory.

For example

```
dw_etl_restore.bat -fromdir c:\BTO\ETLBackup\1
```

Re-Initialization

This process is important when you identify corrupted data in data warehouse tables. The objective is to re-initialize the data warehouse tables with current source data. There are two possible strategies to accomplish this objective.

- You can truncate the affected data warehouse tables and repeat the ETL process to re-load those tables. If you truncate the affected tables, you will lose the history for those tables.
- You can delete only the corrupt source records from the affected tables and repeat the ETL process to re-load the deleted records. The deleted records are replaced with the current source data records. Replacing corrupted data at the record level is preferable because you will not lose the table history, although this action does not correct any historical inactive data.

When you start the ETL process, you assume that external data sources have updated data since the last scheduled ETL. Therefore, entities that you do not re-initialize may have updates, deletes, or new records to store in the data warehouse. When you re-initialize one or more entities, you may also lose some history data.

Related Entities and Tables

The following entities are candidates for re-initialization using the truncate or delete method.

Core Entities

Table 26 BUSSERVICE Entity

Table Name	Type	Schema	Source System
BUSSERVICE_DIM	DW	DWT	N/A

Table 27 CFGITEM Entity

Table Name	Type	Schema	Source System
CFGITEM_CSNP	CSNP	DWST	N/A
CFGITEM_DIM	DW	DWT	N/A
CFGITEM_ENTERPRISE_XREF	ENTERPRISE_XREF	DWST	N/A
CFGITEM_KEY_LOOKUP	KEY_LOOKUP	DWST	N/A
AM_CFGITEM_SSNP	SSNP	DWS	AM
SM_CFGITEM_SSNP	SSNP	DWS	SM
AM_AMASSET_TSNP	TSNP	DWS	AM
AM_AMMODEL_TSNP	TSNP	DWS	AM
AM_AMNATURE_TSNP	TSNP	DWS	AM
AM_AMPORTFOLIO_TSNP	TSNP	DWS	AM
SM_DEVICE2M1_TSNP	TSNP	DWS	SM

Table 27 CFGITEM Entity

Table Name	Type	Schema	Source System
PPM_KCST_BUDGETS_TSNP	TSNP	DWS	PPM
PPM_KCST_CURRENCY_CELLS_TSNP	TSNP	DWS	PPM
PPM_KCST_CURRENCY_LINES_TSNP	TSNP	DWS	PPM

Table 28 LOCATION Entity

Table Name	Type	Schema	Source System
LOCATION_CSNP	CSNP	DWST	N/A
LOCATION_DIM	DW	DWT	N/A
LOCATION_ENTERPRISE_XREF	ENTERPRISE_XREF	DWST	N/A
LOCATION_KEY_LOOKUP	KEY_LOOKUP	DWST	N/A
AM_LOCATION_SSNP	SSNP	DWS	AM
PPM_LOCATION_SSNP	SSNP	DWS	PPM
SM_LOCATION_SSNP	SSNP	DWS	SM
AM_AMLOCATION_TSNP	TSNP	DWS	AM
PPM_KNTA_REGIONS_TSNP	TSNP	DWS	PPM
SM_LOCM1_TSNP	TSNP	DWS	SM

Table 29 MODEL Entity

Table Name	Type	Schema	Source System
MODEL_CSNP	CSNP	DWST	N/A
MODEL_DIM	DW	DWT	N/A
MODEL_ENTERPRISE_XREF	ENTERPRISE_XREF	DWST	N/A
MODEL_KEY_LOOKUP	KEY_LOOKUP	DWST	N/A
AM_MODEL_SSNP	SSNP	DWS	AM
SM_MODEL_SSNP	SSNP	DWS	SM
AM_AMMODEL_TSNP	TSNP	ITAM	AM
SM_MODELM1_TSNP	TSNP	DBO	SM

Table 30 ORG Entity

Table Name	Type	Schema	Source System
ORG_CSNP	CSNP	DWST	N/A
ORG_DIM	DW	DWT	N/A
ORG_ENTERPRISE_XREF	ENTERPRISE_XREF	DWST	N/A
ORG_KEY_LOOKUP	KEY_LOOKUP	DWST	N/A
AM_ORG_SSNP	SSNP	DWS	AM
PPM_ORG_SSNP	SSNP	DWS	PPM
SM_ORG_SSNP	SSNP	DWS	SM
AM_AMCOMPANY_TSNP	TSNP	DWS	AM
AM_AMEMPLDEPT_TSNP	TSNP	DWS	AM
PPM_KRSC_ORG_UNITS_TSNP	TSNP	DWS	PPM
SM_COMPANYM1_TSNP	TSNP	DWS	SM
SM_DEPTM1_TSNP	TSNP	DWS	SM
SM_VENDORM1_TSNP	TSNP	DWS	SM

Table 31 PERSON Entity

Table Name	Type	Schema	Source System
PERSON_CSNP	CSNP	DWST	N/A
PERSON_DIM	DW	DWT	N/A
PERSON_ENTERPRISE_XREF	ENTERPRISE_XREF	DWST	N/A
PERSON_KEY_LOOKUP	KEY_LOOKUP	DWST	N/A
AM_PERSON_SSNP	SSNP	DWS	AM
PPM_PERSON_SSNP	SSNP	DWS	PPM
SM_PERSON_SSNP	SSNP	DWS	SM
AM_AMCONTACT_TSNP	TSNP	DWS	AM
AM_AMEMPLDEPT_TSNP	TSNP	DWS	AM
PPM_KNTA_USERS_TSNP	TSNP	DWS	PPM
SM_CONTCTSM1_TSNP	TSNP	DWS	SM

Table 32 PROJECT Entity

Table Name	Type	Schema	Source System
PROJECT_CSNP	CSNP	DWST	N/A
PROJECT_DIM	DW	DWT	N/A
PROJECT_ENTERPRISE_XREF	ENTERPRISE_XREF	DWST	N/A
PROJECT_KEY_LOOKUP	KEY_LOOKUP	DWST	N/A
AM_PROJECT_SSNP	SSNP	DWS	AM
PPM_PROJECT_SSNP	SSNP	DWS	PPM
AM_AMPROJECT_TSNP	TSNP	DWS	AM
PPM_KCRT_FG_PFM_PROJECT_TSNP	TSNP	DWS	PPM
PPM_PM_PROJECT_TYPES_TSNP	TSNP	DWS	PPM
PPM_PM_PROJECTS_TSNP	TSNP	DWS	PPM

Table 33 CURRENCY Entity

Table Name	Type	Schema	Source System
CURRENCY_DIM	DW	DWT	N/A

Table 34 EXCHANGE Entity

Table Name	Type	Schema	Source System
EXCHANGE_DIM	DW	DWT	N/A
EXCHANGE_KEY_LOOKUP	KEY_LOOKUP	DWST	N/A

Table 35 PERIOD Entity

Table Name	Type	Schema	Source System
PERIOD_CSNP	CSNP	DWST	N/A
PERIOD_DIM	DW	DWT	N/A
PERIOD_ENTERPRISE_XREF	ENTERPRISE_XREF	DWST	N/A
PERIOD_KEY_LOOKUP	KEY_LOOKUP	DWST	N/A
PERIOD_EXTT	TSNP	DWS	N/A

Table 36 PROGRAM Entity

Table Name	Type	Schema	Source System
PROGRAM_DIM	DW	DWT	N/A

Table 37 ACTUALCOST Entity

Table Name	Type	Schema	Source System
ACTUALCOST_CSNP	CSNP	DWST	N/A
ACTUALCOST_FACT	DW	DWT	N/A
ACTUALCOST_ENTERPRISE_XREF	ENTERPRISE_XREF	DWST	N/A
AM_ACTUALCOST_SSNP	SSNP	DWS	AM
PPM_ACTUALCOST_SSNP	SSNP	DWS	PPM
AM_AMEXPENSELINE_TSNP	TSNP	DWS	AM
PPM_KCRT_FG_PFM_ASSET_TSNP	TSNP	DWS	PPM
PPM_KCRT_FG_PFM_PROJECT_TSNP	TSNP	DWS	PPM
PPM_KCST_BUDG_LINE_CELLS_TSNP	TSNP	DWS	PPM
PPM_KCST_BUDG_PERIOD_SUM_TSNP	TSNP	DWS	PPM
PPM_KCST_BUDGET_LINES_TSNP	TSNP	DWS	PPM
PPM_KCST_BUDGET_LNK_ENT_TSNP	TSNP	DWS	PPM
PPM_KCST_BUDGETS_TSNP	TSNP	DWS	PPM
PPM_KCST_CURRENCY_CELLS_TSNP	TSNP	DWS	PPM
PPM_KCST_CURRENCY_LINES_TSNP	TSNP	DWS	PPM

Table 38 BUDGETLINE Entity

Table Name	Type	Schema	Source System
BUDGETLINE_CSNP	CSNP	DWST	N/A
BUDGETLINE_DIM	DW	DWT	N/A
BUDGETLINE_ENTERPRISE_XREF	ENTERPRISE_XREF	DWST	N/A
BUDGETLINE_KEY_LOOKUP	KEY_LOOKUP	DWST	N/A
AM_BUDGETLINE_SSNP	SSNP	DWS	AM
PPM_BUDGETLINE_SSNP	TSNP	DWS	PPM

Table 39 COSTCENTER Entity

Table Name	Type	Schema	Source System
COSTCENTER_CSNP	CSNP	DWST	N/A
COSTCENTER_DIM	DW	DWT	N/A
COSTCENTER_ENTERPRISE_XREF	ENTERPRISE_XREF	DWST	N/A
COSTCENTER_KEY_LOOKUP	KEY_LOOKUP	DWST	N/A
AM_AMCOSTCENTER_TSNP	TSNP	DWS	AM

Table 40 PLANNEDCOST Entity

Table Name	Type	Schema	Source System
PLANNEDCOST_CSNP	CSNP	DWST	N/A
PLANNEDCOST_FACT	DW	DWT	N/A
PLANNEDCOST_ENTERPRISE_XREF	ENTERPRISE_XREF	DWST	N/A
AM_PLANNEDCOST_SSNP	SSNP	DWS	AM
PPM_PLANNEDCOST_SSNP	SSNP	DWS	PPM
PPM_KCRT_FG_PFM_ASSET_TSNP	TSNP	DWS	PPM
PPM_KCRT_FG_PFM_PROJECT_TSNP	TSNP	DWS	PPM
PPM_KCST_BUDG_LINE_CELLS_TSNP	TSNP	DWS	PPM
PPM_KCST_BUDGET_LINES_TSNP	TSNP	DWS	PPM
PPM_KCST_BUDGET_LNK_ENT_TSNP	TSNP	DWS	PPM
PPM_KCST_BUDGETS_TSNP	TSNP	DWS	PPM
PPM_KCST_CURRENCY_CELLS_TSNP	TSNP	DWS	PPM

Table 41 BUDGET Entity

Table Name	Type	Schema	Source System
BUDGET_CSNP	CSNP	DWST	N/A
BUDGET_DIM	DW	DWT	N/A
BUDGET_ENTERPRISE_XREF	ENTERPRISE_XREF	DWST	N/A
BUDGET_KEY_LOOKUP	KEY_LOOKUP	DWST	N/A
BUDGET_EXTT	TSNP	DWS	N/A

Table 42 APPLICATION Entity

Table Name	Type	Schema	Source System
APPLICATION_DIM	DW	DWT	N/A

Table 43 CONTRACT Entity

Table Name	Type	Schema	Source System
CONTRACT_CSNP	CSNP	DWST	N/A
CONTRACT_DIM	DW	DWT	N/A
CONTRACT_ENTERPRISE_XREF	ENTERPRISE_XREF	DWST	N/A
CONTRACT_KEY_LOOKUP	KEY_LOOKUP	DWST	N/A
AM_AMCONTRACT_TSNP	TSNP	DWS	AM

Table 44 ITFUNCTION Entity

Table Name	Type	Schema	Source System
ITFUNCTION_DIM	DW	DWT	N/A

Re-Initialization Scenarios

There are four typical re-initialization scenarios:

- Re-Initialize a Single Entity From a Single Source (on this page).
- Re-Initialize a Single Entity From All Sources on page 148.
- Re-Initialize All Entities From a Single Source on page 153.
- Re-Initialize All Entities From All Sources on page 155.

These re-initialization scenarios apply to non-consolidated records.

Re-Initialize a Single Entity From a Single Source

When all the data for a single entity in a single data warehouse table from a single source system is corrupt, you must clean the data warehouse tables to ensure a successful refresh of source data. If the entity with corrupt data shares tables with other entities, you may need to clean and refresh those tables, too. The defective data resides in the data warehouse tables and TSNP, SSNP, and CSNP tables. The first step is to clean the affected tables and then re-run the ETL process to re-populate the tables.

Table 45 on page 145 shows those entities that have dependent entities.

Table 45 Entities With Shared Source Tables

Entity Name	External Data Source	Dependent Entity
ACTUALCOST	AM	No Other AM Entity Affected
	PPM	BUDGETLINE
		PLANNEDCOST
		PROJECT

Table 45 Entities With Shared Source Tables

Entity Name	External Data Source	Dependent Entity
BUDGETLINE	AM	PLANNEDCOST
	PPM	PROJECT
		PLANNEDCOST
		ACTUALCOST
CONTRACT	AM	No Other AM Entity Affected
COSTCENTER	AM	No Other AM Entity Affected
LOCATION	AM	No Other SM Entity Affected
	PPM	No Other PPM Entity Affected
	SM	No Other SM Entity Affected
MODEL	AM	PROJECT
	SM	No Other SM Entity Affected
ORG	AM	PERSON
	PPM	No Other PPM Entity Affected
	SM	No Other SM Entity Affected
PERSON	AM	ORG
	PPM	No Other Entity Affected
	SM	No Other Entity Affected
PROJECT	AM	MODEL
	PPM	ACTUALCOST
		BUDGETLINE
		PLANNEDCOST

For example, if the PROJECT entity data from Project and Portfolio Management is corrupt, you must re-populate not only PROJECT, but also the PLANNEDCOST, ACTUALCOST and BUDGETLINE entities from the Project and Portfolio Management source database because these entities share source tables.

To complete the required tasks

1 Delete the corrupt records from the dimension tables.

```
/* Microsoft SQL Server 2005 template to delete dimension tables */

DELETE FROM <DW_DB_NAME>.<SCH_NAME>.<ENTITY_NAME>_DIM
WHERE MD_DURABLE_KEY in (
   SELECT en_xref.ENTERPRISE_KEY AS MD_DURABLE_KEY
   FROM <STAGING_DB_NAME>.<SCH_NAME>.<ENTITY_NAME>_ENTERPRISE_XREF
   en_xref,<STAGING_DB_NAME>.<SCH_NAME>.SOURCE_INTEGRATION_XREF src_xref
   WHERE en_xref.SOURCE_INTEGRATION_XREF_ID =
     src_xref.SOURCE_INTEGRATION_XREF_ID
```

```
   AND src_xref.SINGLE_SOURCE_IDENTITY_NAME =
     '<SRC_SYS_NAME>_<ENTITY_NAME>');
```

Example: Run the following script to delete corrupt dimension data from the ORG entity.

```
DELETE FROM DC_DW.dwt.ORG_DIM
WHERE MD_DURABLE_KEY in (
   SELECT en_xref.ENTERPRISE_KEY AS MD_DURABLE_KEY
   FROM DC_STAGING.dwst.ORG_ENTERPRISE_XREF en_xref,
     DC_STAGING.dwst.SOURCE_INTEGRATION_XREF src_xref
   WHERE en_xref.SOURCE_INTEGRATION_XREF_ID =
     src_xref.SOURCE_INTEGRATION_XREF_ID
   AND src_xref.SINGLE_SOURCE_IDENTITY_NAME = 'AM_ORG');
```

2 Delete all corrupt records in the CSNP tables.

```
/*Microsoft SQL Server 2005 template to delete CSNP tables*/

DELETE FROM <STAGING_DB_NAME>.<SCH_NAME>.<ENTITY_NAME>_CSNP
WHERE MD_ENTERPRISE_KEY in (
   SELECT en_xref.ENTERPRISE_KEY AS MD_ENTERPRISE_KEY
   FROM <STAGING_DB_NAME>.<SCH_NAME>.<ENTITY_NAME>_ENTERPRISE_XREF
     en_xref,<STAGING_DB_NAME>.<SCH_NAME>.SOURCE_INTEGRATION_XREF src_xref
   WHERE en_xref.SOURCE_INTEGRATION_XREF_ID =
     src_xref.SOURCE_INTEGRATION_XREF_ID
   AND src_xref.SINGLE_SOURCE_IDENTITY_NAME =
     '<SRC_SYS_NAME>_<ENTITY_NAME>');
```

Example: Run the following SQL script to delete corrupt data from the ORG CSNP table.

```
DELETE FROM DC_STAGING.dwst.ORG_CSNP
WHERE MD_ENTERPRISE_KEY in (
   SELECT en_xref.ENTERPRISE_KEY AS MD_ENTERPRISE_KEY
   FROM DC_STAGING.dwst.ORG_ENTERPRISE_XREF en_xref,
     DC_STAGING.dwst.SOURCE_INTEGRATION_XREF src_xref
   WHERE en_xref.SOURCE_INTEGRATION_XREF_ID =
     src_xref.SOURCE_INTEGRATION_XREF_ID
   AND src_xref.SINGLE_SOURCE_IDENTITY_NAME = 'AM_ORG');
```

3 Delete all corrupt records from the SSNP tables.

```
/*Microsoft SQL Server 2005 template to delete SSNP tables*/

DELETE FROM <STAGING_DB_NAME>.<SCH_NAME>.<SRC_SYS_NAME>_<ENTITY_NAME>_SSNP
WHERE MD_BUSINESS_KEY in (
   SELECT en_xref. BUSINESS_KEYVALUE AS MD_BUSINESS_KEY
   FROM <STAGING_DB_NAME>.<SCH_NAME>.<ENTITY_NAME>_ENTERPRISE_XREF
     en_xref,<STAGING_DB_NAME>.<SCH_NAME>.SOURCE_INTEGRATION_XREF src_xref
   WHERE en_xref.SOURCE_INTEGRATION_XREF_ID =
     src_xref.SOURCE_INTEGRATION_XREF_ID
   AND src_xref.SINGLE_SOURCE_IDENTITY_NAME =
     '<SRC_SYS_NAME>_<ENTITY_NAME>');
```

Example: Run the following script to delete corrupt data from the ORG SSNP table.

```
DELETE FROM DC_STAGING.dws.AM_ORG_SSNP
WHERE MD_BUSINESS_KEY in (
   SELECT en_xref.BUSINESS_KEYVALUE AS MD_BUSINESS_KEY
   FROM DC_STAGING.dwst.PLANNEDCOST_ENTERPRISE_XREF en_xref,
     DC_STAGING.dwst.SOURCE_INTEGRATION_XREF src_xref
   WHERE en_xref.SOURCE_INTEGRATION_XREF_ID =
     src_xref.SOURCE_INTEGRATION_XREF_ID
   AND src_xref.SINGLE_SOURCE_IDENTITY_NAME = 'AM_ORG');
```

4 Delete all corrupt records from the TSNP tables.

Example: If the ORG entity is corrupt, you must truncate all related TSNP tables described in Related Entities and Tables on page 138. Table 46 lists the TSNP tables for the ORG entity.

Table 46 PLANNED_COST Entity

Table Name	Type	Schema	Source System
AM_AMCOMPANY_TSNP	TSNP	DWS	AM
AM_AMEMPLDEPT_TSNP	TSNP	DWS	AM

5 Start a complete ETL job. For more information, see the *FPA 9.11 Installation and Configuration Guide*.

Re-Initialize a Single Entity From All Sources

If you need to refresh a single entity from all external data sources, complete these tasks. This process truncates all the staging tables associated with a single entity. The data warehouse tables will be re-populated entirely by the most current source data from their dependent systems (Asset Manager or Project and Portfolio Management).

If a single entity that acquires source data from multiple sources, such as Asset Manager or Project and Portfolio Management, is corrupt, you must clean up all tables that process delta records, key lookup tables, and related data warehouse tables. The basic steps are to remove the corrupt data and then re-populate these tables with current source data.

There are a few entities that share tables from the same source database. When this occurs, all data warehouse tables associated with these entities sharing the same source system tables must also be refreshed, but only for the shared source system. This is similar to the scenario described in Re-Initialize All Entities From a Single Source on page 153. You must complete some extra steps to delete defective data from the related data warehouse and staging tables related to the single entity. If the single entity has no shared tables, follow these steps. If the single entity shares tables with other entities, skip the following steps and proceed to Re-Initialize a Single Entity That Shares Tables on page 149.

If you truncate records from data warehouse tables, you will lose some table history.

You can refresh these entities independently.

- CONTRACT
- COSTCENTER

To re-initialize a single entity from all sources

1 Run the following SQL script to truncate all records from the tables listed in Related Entities and Tables on page 138. For example, if you need to refresh the LOCATION entity, you must truncate these tables to refresh the LOCATION entity with current source data.

/*SQL Example for Microsoft SQL Server 2005 to truncate LOCATION*/

```
TRUNCATE TABLE <DW_DB_NAME>.<SCH_NAME>.AM_AMLOCATION_DIM;
TRUNCATE TABLE <STAGING_DB_NAME>.<SCH_NAME>.AM_AMLOCATION_TSNP;
TRUNCATE TABLE <STAGING_DB_NAME>.<SCH_NAME>.PPM_KNTA_REGIONS_TSNP;
TRUNCATE TABLE <STAGING_DB_NAME>.<SCH_NAME>.SM_LOCM1_TSNP;
TRUNCATE TABLE <STAGING_DB_NAME>.<SCH_NAME>.AM_LOCATION_SSNP;
TRUNCATE TABLE <STAGING_DB_NAME>.<SCH_NAME>.PPM_LOCATION_SSNP;
TRUNCATE TABLE <STAGING_DB_NAME>.<SCH_NAME>.SM_LOCATION_SSNP;
TRUNCATE TABLE <STAGING_DB_NAME>.<SCH_NAME>.LOCATION_CSNP;
TRUNCATE TABLE <STAGING_DB_NAME>.<SCH_NAME>.LOCATION_ENTERPRISE_XREF;
TRUNCATE TABLE <STAGING_DB_NAME>.<SCH_NAME>.LOCATION_KEY_LOOKUP;
```

2 Start a complete ETL job. For more information, see the *FPA 9.11 Installation and Configuration Guide*.

Re-Initialize a Single Entity That Shares Tables

The following table lists those entities that obtain data from multiple sources and share source tables with other entities. When there are shared tables, you must refresh them when the entity has corrupt data.

Table 47 Entities With Shared Tables

Entity Name	External Data Source	Dependent Entity
ACTUALCOST	AM	No Other Entity Affected
	PPM	BUDGETLINE
		PLANNEDCOST
		PROJECT
BUDGETLINE	AM	PLANNEDCOST
	PPM	PROJECT
		PLANNEDCOST
		ACTUALCOST
LOCATION	AM	No Other SM Entity Affected
	PPM	No Other PPM Entity Affected
	SM	No Other SM Entity Affected
PLANNEDCOST	AM	BUDGETLINE
	PPM	ACTUALCOST
		BUDGETLINE
		PROJECT

Table 47 Entities With Shared Tables

Entity Name	External Data Source	Dependent Entity
PROJECT	AM	MODEL
	PPM	ACTUALCOST
		BUDGETLINE
		PLANNEDCOST
ORG	AM	PERSON
	PPM	No Other Entity Affected
	SM	No Other Entity Affected
PERSON	AM	ORG
	PPM	No Other Entity Affected
	SM	No Other Entity Affected
CFITEM	AM	BUSSERVICE
	SM	BUSSERVICE
BUSSERVICE	AM	CFGITEM
	SM	CFGITEM

For example, if the PROJECT entity is corrupt, you must:

- Refresh the AM MODEL table, as well as the PPM ACTUALCOST, BUDGETLINE, and PLANNEDCOST tables.
- Remove corrupt data from the AM MODEL, PPM ACTUALCOST, PPM BUDGETLINE, and PPM PLANNEDCOST data warehouse tables and staging tables.

To re-initialize a single entity that shares tables

1 Run the following SQL script to truncate (delete) all records from the related PROJECT tables listed in Related Entities and Tables on page 138.

```
/*Microsoft SQL Server 2005 template to truncate related tables*/

TRUNCATE TABLE <DW_DB_NAME>.<SCH_NAME>.AM_AMPROJECT_DIM;
TRUNCATE TABLE <STAGING_DB_NAME>.<SCH_NAME>.AM_AMPROJECT_TSNP;
TRUNCATE TABLE <STAGING_DB_NAME>.<SCH_NAME>.PPM_PM_PROJECTS_TSNP;
TRUNCATE TABLE <STAGING_DB_NAME>.<SCH_NAME>.PPM_PM_PROJECT_TYPES_TSNP;
TRUNCATE TABLE <STAGING_DB_NAME>.<SCH_NAME>.PPM_KCRT_FG_PFM_PROJECT_TSNP;
TRUNCATE TABLE <STAGING_DB_NAME>.<SCH_NAME>.AM_PROJECT_SSNP;
TRUNCATE TABLE <STAGING_DB_NAME>.<SCH_NAME>.PPM_PROJECT_SSNP;
TRUNCATE TABLE <STAGING_DB_NAME>.<SCH_NAME>.PROJECT_CSNP;
TRUNCATE TABLE <STAGING_DB_NAME>.<SCH_NAME>.PROJECT_ENTERPRISE_XREF;
TRUNCATE TABLE <STAGING_DB_NAME>.<SCH_NAME>.PROJECT_KEY_LOOKUP;
```

2 Delete all corrupt records from the data warehouse tables.

```
/*Microsoft SQL Server 2005 template to delete related data warehouse
tables*/

DELETE FROM <DW_DB_NAME>.<SCH_NAME>.<ENTITY_NAME>_DIM /*OR _FACT*/
WHERE MD_DURABLE_KEY in (
   SELECT en_xref.ENTERPRISE_KEY AS MD_DURABLE_KEY
   FROM <STAGING_DB_NAME>.<SCH_NAME>.<ENTITY_NAME>_ENTERPRISE_XREF
     en_xref,<STAGING_DB_NAME>.<SCH_NAME>.SOURCE_INTEGRATION_XREF src_xref
   WHERE en_xref.SOURCE_INTEGRATION_XREF_ID =
     src_xref.SOURCE_INTEGRATION_XREF_ID
   AND src_xref.SINGLE_SOURCE_IDENTITY_NAME =
     '<SRC_SYS_NAME>_<ENTITY_NAME>');
```

Example: If the corrupt entity is PROJECT, then all the data warehouse tables related to AM MODEL, PPM ACTUALCOST, PPM BUDGETLINE, and PPM PLANNEDCOST must be deleted.

```
/*Microsoft SQL Server 2005 example to delete tables related to PROJECT*/

DELETE FROM <DW_DB_NAME>.<SCH_NAME>.<ENTITY_NAME>_DIM     /*OR _FACT*/
WHERE MD_DURABLE_KEY in (
   SELECT en_xref.ENTERPRISE_KEY AS MD_DURABLE_KEY
   FROM <STAGING_DB_NAME>.<SCH_NAME>.<ENTITY_NAME>_ENTERPRISE_XREF
     en_xref,<STAGING_DB_NAME>.<SCH_NAME>.SOURCE_INTEGRATION_XREF src_xref
   WHERE en_xref.SOURCE_INTEGRATION_XREF_ID =
     src_xref.SOURCE_INTEGRATION_XREF_ID
   AND src_xref.SINGLE_SOURCE_IDENTITY_NAME =
     '<SRC_SYS_NAME>_<ENTITY_NAME>');
```

Example: Run the following SQL script to delete corrupt fact data from the PLANNEDCOST entity:

```
DELETE FROM DC_DW.dwt.PLANNEDCOST_FACT
WHERE MD_DURABLE_KEY in (
   SELECT en_xref.ENTERPRISE_KEY AS MD_DURABLE_KEY
   FROM DC_STAGING.dwst.PLANNEDCOST_ENTERPRISE_XREF en_xref,
     DC_STAGING.dwst.SOURCE_INTEGRATION_XREF src_xref
   WHERE en_xref.SOURCE_INTEGRATION_XREF_ID =
     src_xref.SOURCE_INTEGRATION_XREF_ID
   AND src_xref.SINGLE_SOURCE_IDENTITY_NAME = 'AM_PLANNEDCOST');
```

3 Delete all corrupt records in the CSNP tables.

```
/*Microsoft SQL Server 2005 template to delete CSNP tables*/

DELETE FROM <STAGING_DB_NAME>.<SCH_NAME>.<ENTITY_NAME>_CSNP
WHERE MD_ENTERPRISE_KEY in (
   SELECT en_xref.ENTERPRISE_KEY AS MD_ENTERPRISE_KEY
   FROM <STAGING_DB_NAME>.<SCH_NAME>.<ENTITY_NAME>_ENTERPRISE_XREF
     en_xref,<STAGING_DB_NAME>.<SCH_NAME>.SOURCE_INTEGRATION_XREF src_xref
   WHERE en_xref.SOURCE_INTEGRATION_XREF_ID =
     src_xref.SOURCE_INTEGRATION_XREF_ID
   AND src_xref.SINGLE_SOURCE_IDENTITY_NAME =
     '<SRC_SYS_NAME>_<ENTITY_NAME>');
```

Example: Run the following SQL script to delete corrupt data from the PLANNEDCOST CSNP table.

```
DELETE FROM DC_STAGING.dwst.PLANNEDCOST_CSNP
WHERE MD_ENTERPRISE_KEY in (
   SELECT en_xref.ENTERPRISE_KEY AS MD_ENTERPRISE_KEY
   FROM DC_STAGING.dwst.PLANNEDCOST_ENTERPRISE_XREF en_xref,
     DC_STAGING.dwst.SOURCE_INTEGRATION_XREF src_xref
   WHERE en_xref.SOURCE_INTEGRATION_XREF_ID =
     src_xref.SOURCE_INTEGRATION_XREF_ID
   AND src_xref.SINGLE_SOURCE_IDENTITY_NAME = 'AM_PLANNEDCOST');
```

4 Delete all corrupt records from the SSNP tables.

```
/*Microsoft SQL Server 2005 template to delete SSNP tables*/
DELETE FROM <STAGING_DB_NAME>.<SCH_NAME>.<SRC_SYS_NAME>_<ENTITY_NAME>_SSNP
WHERE MD_BUSINESS_KEY in (
   SELECT en_xref. BUSINESS_KEYVALUE AS MD_BUSINESS_KEY
   FROM <STAGING_DB_NAME>.<SCH_NAME>.<ENTITY_NAME>_ENTERPRISE_XREF
     en_xref,<STAGING_DB_NAME>.<SCH_NAME>.SOURCE_INTEGRATION_XREF src_xref
   WHERE en_xref.SOURCE_INTEGRATION_XREF_ID =
     src_xref.SOURCE_INTEGRATION_XREF_ID
   AND src_xref.SINGLE_SOURCE_IDENTITY_NAME =
     '<SRC_SYS_NAME>_<ENTITY_NAME>');
```

Example: If the PROJECT entity is corrupt, run the following SQL script to delete corrupt data from the PLANNEDCOST SSNP table. You must repeat the process for AM MODEL, PPM ACTUALCOST, and PPM BUDGETLINE.

```
DELETE FROM DC_STAGING.dws.AM_PLANNEDCOST_SSNP
WHERE MD_BUSINESS_KEY in (
   SELECT en_xref.BUSINESS_KEYVALUE AS MD_BUSINESS_KEY
   FROM DC_STAGING.dwst.PLANNEDCOST_ENTERPRISE_XREF en_xref,
     DC_STAGING.dwst.SOURCE_INTEGRATION_XREF src_xref
   WHERE en_xref.SOURCE_INTEGRATION_XREF_ID =
     src_xref.SOURCE_INTEGRATION_XREF_ID
   AND src_xref.SINGLE_SOURCE_IDENTITY_NAME = 'AM_PLANNEDCOST');
```

5 Delete all corrupt records from the TSNP tables.

Example: If the PROJECT entity is corrupt, you must truncate all TSNP tables related to AM MODEL, PPM ACTUALCOST, PPM BUDGETLINE, and PPM PLANNEDCOST described in Related Entities and Tables on page 138. Table 48 lists the TSNP tables for the PLANNEDCOST entity.

Table 48 PLANNED_COST Entity

Table Name	Type	Schema	Source System
AM_AMBUDGCENTER_TSNP	TSNP	DWS	AM
AM_AMBUDGET_TSNP	TSNP	DWS	AM
AM_AMBUDGLINE_TSNP	TSNP	DWS	AM

6 Start a complete ETL job. For more information, see the *FPA 9.11 Installation and Configuration Guide*.

Re-Initialize All Entities From a Single Source

If all data in a data warehouse table from a single source, such as Asset Manager or Project and Portfolio Management, is corrupt, you must clean up the data warehouse tables to refresh with the current source data. The corrupt data is in the data warehouse tables and related staging tables (TSNP, SSNP, and CSNP). The basic steps are to remove the corrupt data and then re-populate these tables with valid data.

To delete corrupt data and re-initialize the tables

1 Run the following SQL script to delete corrupt records from the dimension tables.

```
/*Microsoft SQL Server 2005 template to delete corrupt records for
dimension tables*/

DELETE FROM <DW_DB_NAME>.<SCH_NAME>.<ENTITY_NAME>_DIM
WHERE MD_DURABLE_KEY in (
   SELECT en_xref.ENTERPRISE_KEY AS MD_DURABLE_KEY
   FROM <STAGING_DB_NAME>.<SCH_NAME>.<ENTITY_NAME>_ENTERPRISE_XREF
    en_xref,
       <STAGING_DB_NAME>.<SCH_NAME>.SOURCE_INTEGRATION_XREF src_xref
   WHERE en_xref.SOURCE_INTEGRATION_XREF_ID =
     src_xref.SOURCE_INTEGRATION_XREF_ID
   AND src_xref.SINGLE_SOURCE_IDENTITY_NAME =
     '<SRC_SYS_NAME>_<ENTITY_NAME>');
```

Example: Run the following SQL script to delete defective source data from the PERSON dimension table.

```
DELETE FROM DC_DW.dwt.PERSON_DIM
WHERE MD_DURABLE_KEY in (
   SELECT en_xref.ENTERPRISE_KEY AS MD_DURABLE_KEY
   FROM DC_STAGING.dwst.PERSON_ENTERPRISE_XREF en_xref,
      DC_STAGING.dwst.SOURCE_INTEGRATION_XREF src_xref
   WHERE en_xref.SOURCE_INTEGRATION_XREF_ID =
      src_xref.SOURCE_INTEGRATION_XREF_ID
   AND src_xref.SINGLE_SOURCE_IDENTITY_NAME = 'AM_PERSON');
```

2 Delete corrupt records from the CSNP tables.

```
/*Microsoft SQL Server 2005 template to delete corrupt CSNP records */

DELETE FROM <STAGING_DB_NAME>.<SCH_NAME>.<ENTITY_NAME>_CSNP
WHERE MD_ENTERPRISE_KEY in (
   SELECT en_xref.ENTERPRISE_KEY AS MD_ENTERPRISE_KEY
   FROM <STAGING_DB_NAME>.<SCH_NAME>.<ENTITY_NAME>_ENTERPRISE_XREF
     en_xref,<STAGING_DB_NAME>.<SCH_NAME>.SOURCE_INTEGRATION_XREF src_xref
   WHERE en_xref.SOURCE_INTEGRATION_XREF_ID =
     src_xref.SOURCE_INTEGRATION_XREF_ID
   AND src_xref.SINGLE_SOURCE_IDENTITY_NAME =
     '<SRC_SYS_NAME>_<ENTITY_NAME>');
```

Example: Run the following script to delete defective source data from the PERSON CSNP table.

```
DELETE FROM DC_STAGING.dwst.PERSON_CSNP
WHERE MD_ENTERPRISE_KEY in (
   SELECT en_xref.ENTERPRISE_KEY AS MD_ENTERPRISE_KEY
   FROM DC_STAGING.dwst.PERSON_ENTERPRISE_XREF en_xref,
     DC_STAGING.dwst.SOURCE_INTEGRATION_XREF src_xref
   WHERE en_xref.SOURCE_INTEGRATION_XREF_ID =
     src_xref.SOURCE_INTEGRATION_XREF_ID
   AND src_xref.SINGLE_SOURCE_IDENTITY_NAME = 'AM_PERSON');
```

3 Delete corrupt records from the SSNP tables.

```
/*Microsoft SQL Server 2005 template to delete corrupt SSNP records */

DELETE FROM <STAGING_DB_NAME>.<SCH_NAME>.<SRC_SYS_NAME>_<ENTITY_NAME>_SSNP
WHERE MD_BUSINESS_KEY in (
   SELECT en_xref. BUSINESS_KEYVALUE AS MD_BUSINESS_KEY
   FROM <STAGING_DB_NAME>.<SCH_NAME>.<ENTITY_NAME>_ENTERPRISE_XREF
     en_xref,<STAGING_DB_NAME>.<SCH_NAME>.SOURCE_INTEGRATION_XREF src_xref
   WHERE en_xref.SOURCE_INTEGRATION_XREF_ID =
     src_xref.SOURCE_INTEGRATION_XREF_ID
   AND src_xref.SINGLE_SOURCE_IDENTITY_NAME =
     '<SRC_SYS_NAME>_<ENTITY_NAME>');
```

Example: Run the following script to delete corrupt records from the SSNP table.

```
DELETE FROM DC_STAGING.dws.AM_PERSON_SSNP
WHERE MD_BUSINESS_KEY in (
   SELECT en_xref.BUSINESS_KEYVALUE AS MD_BUSINESS_KEY
   FROM DC_STAGING.dwst.PERSON_ENTERPRISE_XREF en_xref,
     DC_STAGING.dwst.SOURCE_INTEGRATION_XREF src_xref
   WHERE en_xref.SOURCE_INTEGRATION_XREF_ID =
     src_xref.SOURCE_INTEGRATION_XREF_ID
   AND src_xref.SINGLE_SOURCE_IDENTITY_NAME = 'AM_PERSON');
```

4 Delete the TSNP tables related to the entity. For example, the TSNP tables for the Asset Manager PERSON entity, are

— AM_AMEMPLDEPT_TSNP

— AM_AMCONTACT_TSNP

5 Start a complete ETL job. For more information, see the *FPA 9.11 Installation and Configuration Guide*.

Re-Initialize All Entities From All Sources

This is the same process as the original initialization of all entities. Complete these steps only when you want to refresh all entities from all data sources. The objective is to truncate all the necessary staging tables. Those include all tables used to process delta records, key lookup tables and data warehouse tables. The data warehouse tables are re-populated with the most current data from their original source systems (Asset Manager or Project and Portfolio Management).

To re-populate all entities

1 Run the following SQL script to truncate (delete) all records from the tables listed in Related Entities and Tables on page 138.

/* Microsoft SQL Server 2005 template */

```
TRUNCATE TABLE <DW_DB_NAME>.<SCH_NAME>.AM_AMLOCATION_DIM;
TRUNCATE TABLE <STAGING_DB_NAME>.<SCH_NAME>.AM_AMLOCATION_TSNP;
TRUNCATE TABLE <STAGING_DB_NAME>.<SCH_NAME>.PPM_KNTA_REGIONS_TSNP;
TRUNCATE TABLE <STAGING_DB_NAME>.<SCH_NAME>.SM_LOCM1_TSNP;
TRUNCATE TABLE <STAGING_DB_NAME>.<SCH_NAME>.AM_LOCATION_SSNP;
TRUNCATE TABLE <STAGING_DB_NAME>.<SCH_NAME>.PPM_LOCATION_SSNP;
TRUNCATE TABLE <STAGING_DB_NAME>.<SCH_NAME>.SM_LOCATION_SSNP;
TRUNCATE TABLE <STAGING_DB_NAME>.<SCH_NAME>.LOCATION_CSNP;
TRUNCATE TABLE <STAGING_DB_NAME>.<SCH_NAME>.LOCATION_ENTERPRISE_XREF;
TRUNCATE TABLE <STAGING_DB_NAME>.<SCH_NAME>.LOCATION_KEY_LOOKUP;
```

2 Start a complete ETL job. For more information, see the *FPA 9.11 Installation and Configuration Guide*.

12 Recovery

The basic difference between the re-initialization process and recovery process is the amount of history lost and the effort required to bring the data warehouse to the steady state. Recovery processes assume the data is correct but the ETL job introduced errors. There are three typical recovery scenarios. These scenarios are independent from the external data sources and entities. Recovering from an ETL error means that the data warehouse returns to a stable state and is ready for the next scheduled ETL job.

These typical scenarios are:

Scenario 1: The latest ETL job result appears to be invalid but the source data is intact.

Scenario 2: There is a failure in the middle of the ETL job.

Scenario 3: There is invalid data in the warehouse, but you know the last time when the data was correct.

When you start the recovery process, you must have complete backups of the data warehouse that are readily available. It is possible that you will lose history data, especially in Scenario 3.

This chapter is a reference for the data warehouse recovery process. The recovery process for your environment may vary according to your business needs and may require customization. Verify that the following processes are consistent with your architecture and environment before you proceed with real data.

Restoring a Microsoft SQL Server Database

Each recovery scenario requires different steps that may include this RDBMS recovery procedure. For more information, see the Microsoft SQL Server 2005 documentation.

To restore a Microsoft SQL Server 2005 database

1. Connect to the Microsoft SQL Server 2005 database.
2. Click the *server_name* to display the Summary information in the main pane.
3. Expand **Databases**.
4. In the left pane, right-click one of the IT Analytics databases.
5. Click **Tasks** > **Restore** > **Database**.
6. If necessary, click **General**.
7. The name of the database to be restored appears in the **To database** drop-down list. The default value is the database you selected in Step 4. Type a new name if you want to restore into a new database or select another from the drop-down list.
8. **From database** identifies the source to be restored. The default value is the database you selected in Step 4. You can select another database from the drop-down list.

9 To specify the source and location of the backup to restore, click the **From device** option.

10 Click **Browse** to open the **Specify Backup** dialog.

11 Click the drop-down **Backup media** list to select a device type.

12 To select one or more devices for the **Backup location**, click **Add**.

13 When the list is complete, click **OK** to return to the General page.

14 **Select the backup sets to restore** displays a list of available backups. Select the backup to restore. The application suggests a recovery plan by pre-selecting backups. You can change these selections, but if you choose a backup that depends on a de-selected backup, both are de-selected.

15 Click **OK** to return to the General page.

16 In the list of **Restore option**s, select **Overwrite the existing database**.

17 Click **OK**.

Scenario 1: Failed Job With Intact Source Data

This scenario is appropriate when the ETL job produces an intermediate warning or non-critical error, the job completes successfully but the target data appears to be incorrect.

To recover from a failed job that has intact source data

1 Complete the steps in Restoring a Microsoft SQL Server Database on page 157.

2 After you complete the backup restoration procedure, associate the database users and logins by running these scripts on the staging and target databases. For example, if you used the sample names in the *HP IT Analytics Installation and Configuration Guide*, you would run these scripts on the “staging” and “target” databases:

For the staging database:

```
EXEC sp_change_users_login 'Update_One', 'dws', 'dws'
EXEC sp_change_users_login 'Update_One', 'dwst', 'dwst'
EXEC sp_change_users_login 'Update_One', 'dwmetadata', 'dwmetadata'
EXEC sp_change_users_login 'Update_One', 'dwabc', 'dwabc'
EXEC sp_change_users_login 'Update_One', 'xrefgen', 'xrefgen'
EXEC sp_change_users_login 'Update_One', 'dwt', 'dwt'
```

For the target database:

```
EXEC sp_change_users_login 'Update_One', 'dwt', 'dwt'
EXEC sp_change_users_login 'Update_One', 'dwmetadata', 'dwmetadata'
EXEC sp_change_users_login 'Update_One', 'itaapp', 'itaapp'
EXEC sp_change_users_login 'Update_One', 'itafpaqry', 'itafpaqry'
```

3 Start a complete ETL job. For more information, see the *FPA 9.11 Installation and Configuration Guide*.

Scenario 2: The ETL Job Fails

There are five probable points of failure:

- Failure before the dwid="DW" job stream step begins.

  <ns1:JobStreamStep dwid="DW" businessname="load from staging to target" catalog="dw" executableidentifier="ds_job" arguments="DW_JB" maxretries="4"/>
- Failure during the dwid="DW" job stream step.
- Failure during the Transactional snapshot (TSNP) phase.
- Failure during the Single Source Identity snapshot (SSNP) phase.
- Failure during the Consolidated snapshot (CSNP) phase.

Before ETL Begins

The data warehouse ABC processes enable you to restart a job stream or a step within a job stream. For more information, see one of these topics:

dw_abc_load_batch on page 107

dw_abc_retry_step on page 108

dw_abc_run_steps on page 109

For more information, see the *FPA 9.11 Installation and Configuration Guide*.

Failure During the ETL Job

If a BODS error occurs, BODS rolls back automatically. If the error is not caused or caught by BODS, follow these steps.

To recover from a failure during an ETL job

1. Delete all the new records in the data warehouse tables inserted by the current batch job. Updated and deleted records are ignored. Use this example to delete the records from all FACT and DIM tables.

   ```
   DELETE FROM <TARGET DB>.<TARGET SCHEMA>.<TABLENAME>_FACT
   WHERE MD_BATCH_ID = (SELECT MAX(MD_BATCH_ID)
       FROM <STAGING DB>.<ABC SCHEMA>.JOB_STREAM_STEP_RT)
       AND MD_LASTMODDATE IS NULL AND MD_DELETEDDATE IS NULL
   ```

   Where <*TABLENAME*>_FACT (or <*TABLENAME*>_DIM) varies depending on the table you are cleaning up.

   At this point, the warehouse is not in a usable state until you complete the next step.
2. Re-start the ETL job. For more information, see the *FPA 9.11 Installation and Configuration Guide*.

Failure During the TSNP Phase

If a BODS error occurs, BODS rolls back automatically. If the error is not caused or caught by BODS, follow these steps.

To recover from a failure during the TSNP phase

1. Delete all the new records in the TSNP tables inserted by the current batch job. Updated and deleted records are ignored. Use this example to delete the records from all tables that have a _TSNP suffix.

   ```
   DELETE FROM <STAGING DB>.<SRC STAGING SCHEMA>.<TABLENAME>_TSNP
   WHERE MD_BATCH_ID = (SELECT MAX(MD_BATCH_ID)
       FROM <STAGING DB>.<ABC SCHEMA>.JOB_STREAM_STEP_RT)
   ```

   Where <*TABLENAME*>_TSNP varies depending on the table you are cleaning up.

   At this point, the warehouse is not in a usable state until you complete the next step.

2. Re-start the ETL job. For more information, see the *FPA 9.11 Installation and Configuration Guide*.

Failure During the SSNP Phase

If a BODS error occurs, BODS rolls back automatically. If the error is not caused or caught by BODS, follow these steps.

To recover from a failure during the SSNP phase

1. Delete all the new records in the SSNP tables inserted by the current batch job. Updated and deleted records are ignored. Use this example to delete the records from all tables that have an _SSNP suffix.

   ```
   DELETE FROM <STAGING DB>.<SRC STAGING SCHEMA>.<TABLENAME>_SSNP
   WHERE MD_BATCH_ID = (SELECT MAX(MD_BATCH_ID)
       FROM <STAGING DB>.<ABC SCHEMA>.JOB_STREAM_STEP_RT)
   ```

   Where <*TABLENAME*>_SSNP varies depending on the table you are cleaning up.

   At this point, the warehouse is not in a usable state until you complete the next step.

2. Re-start the ETL job. For more information, see the *FPA 9.11 Installation and Configuration Guide*.

Failure During the CSNP Phase

If a BODS error occurs, BODS rolls back automatically. If the error is not caused or caught by BODS, follow these steps.

To recover from a failure during the SSNP phase

1. Delete all the new records in the CSNP tables inserted by the current batch job. Updated and deleted records are ignored. Use this example to delete the records from all tables that have a _CSNP suffix.

   ```
   DELETE FROM <STAGING DB>.<DW STAGING SCHEMA>.<TABLENAME>_CSNP
   WHERE MD_BATCH_ID = (SELECT MAX(MD_BATCH_ID)
       FROM <STAGING DB>.<ABC SCHEMA>.JOB_STREAM_STEP_RT)
   ```

   Where <*TABLENAME*>_CSNP varies depending on the table you are cleaning up.

At this point, the warehouse is not in a usable state until you complete the next step.

2 Re-start the ETL job. For more information, see the *FPA 9.11 Installation and Configuration Guide*.

Scenario 3: Invalid Data

This scenario assumes that:

- There is a backup of the last steady state of the warehouse available.
- The source data is correct or has been corrected.
- It is acceptable to lose the history between the last steady state backup and the current date.

This scenario is appropriate when the ETL job produces an intermediate warning or non-critical error, the job completes successfully but the target data appears to be incorrect.

To recover from invalid data

1 Complete the steps in Restoring a Microsoft SQL Server Database on page 157.

2 After you complete the backup restoration procedure, associate the database users and logins by running these scripts on the data warehouse server. For example, if you used the sample names in the *HP IT Analytics Installation and Configuration Guide*, you would run these scripts on the “staging” and “target” databases:

For the staging database:

```
EXEC sp_change_users_login 'Update_One', 'dws', 'dws'
EXEC sp_change_users_login 'Update_One', 'dwst', 'dwst'
EXEC sp_change_users_login 'Update_One', 'dwmetadata', 'dwmetadata'
EXEC sp_change_users_login 'Update_One', 'dwabc', 'dwabc'
EXEC sp_change_users_login 'Update_One', 'xrefgen', 'xrefgen'
EXEC sp_change_users_login 'Update_One', 'dwt', 'dwt'
```

For the target database:

```
EXEC sp_change_users_login 'Update_One', 'dwt', 'dwt'
EXEC sp_change_users_login 'Update_One', 'dwmetadata', 'dwmetadata'
EXEC sp_change_users_login 'Update_One', 'itaapp', 'itaapp'
EXEC sp_change_users_login 'Update_One', 'itafpaqry', 'itafpaqry'
```

3 Start a complete ETL job. For more information, see the *FPA 9.11 Installation and Configuration Guide*.

13 Troubleshooting

Read this chapter for troubleshooting information about:

- ABC Errors (on this page)
- BODS Errors on page 167
- Connectivity Errors on page 168
- ETL Warnings on page 169
- Password Errors on page 169
- Source Data Errors on page 172
- Validation Errors on page 173
- XREF_GENERATOR Errors on page 173

Make sure that you check all logs for error messages. For more information, see Chapter 10, Tracing and Logging on page 115.

ABC Errors

The errors described in this section relate to problems running ETL.

Initial Sync Failure

Problem: The initial sync fails.

User Action: Verify that the external source directories exist at the root level, and that you followed the steps to prepare the external source files. For more information, see Chapter 4, ETL Tasks.

ABC Process Errors

Problem: A process fails.

User Action: Follow these steps to correct the error:

1. Run the dw_abc_batch_control.bat script using the command to suspend the batch run. At that point, take corrective action. For example, fix a data connection error or database problem.
2. Re-run the job stream step by running the dw_abc _retry_step.bat script.

When the problem is resolved, the administrator can run the dw_abc_batch_control.bat script to resume the batch run.

HP recommends that you do not attempt to change the ETL processing logic because the interrelated actions are complex and results may be unpredictable.

Batch Control

Problem: The dw_abc_batch_control.bat script changes the run state of one or all job streams.

User Action: To suspend, resume, or abort the job stream, you must specify the *streamId* value. For example, the out-of-box job stream is upstream.xml:

```
dw_abc_batch_control -commandName all
dw_abc_batch_control -abort upstream
dw_abc_batch_control -resume upstream
dw_abc_batch_control -suspend upstream
```

Option	Required?	Description
-*commandName* all	No	Complete the named command action on all loaded job streams.
-abort *streamId*	No	Stop the job stream with the streamId value that is specified in the stream file parameter dwid="*xxxx*". Terminate the current running process.
-help	No	Display the command syntax in the command window.
-resume *streamId*	No	Resume the job stream with the streamId value that is specified in the stream file parameter dwid="*xxxx*".
-suspend *streamId*	No	Suspend the job stream with the streamId value that is specified in the stream file parameter dwid="*xxxx*". Allow the current process to finish.

You can change the state of job streams with a status of ACTIVE or SUSPENDED. When you suspend a stream, the stream steps no longer appear as candidate steps to run.

BODS Step Retry

Problem: The dw_abc_retry_step.bat script restarts a job step that failed in a prior run.

User Action: To re-run a step, you must specify the *streamId* and the *stepId* values. For example:

```
dw_abc_retry_step -streamId -stepId stepId
dw_abc_retry_step -streamId streamId -stepId stepId -prepareonly
```

Option	Required?	Description
-help	No	Display the command syntax in the command window.

Option	Required?	Description
-prepareonly	No	Allocate a new process for the step but do not run the step.
-stepId *stepId*	Yes	Restart the job stream step with the stepId value that is specified in the stream file parameter dwid="*stepId*".
-streamId *streamId*	Yes	Restart the job stream with the streamId value that is specified in the stream file parameter dwid="*streamId*".

ABC and Operational Report Errors

Problem: ABC reports errors and they also appear in the operational reports. These errors may be due to a web service time out where ABC detected the time out but BODS started the job just before the time out occurred. The time out of the job overlaps the restart of the job. The error message states:

```
Error: [50316] ERROR: This job is not in a runnable state. This may come from
Web Service time out, the job will not execute and a new one will be triggered
by ABC (if not already done).
```

Parallel execution of the same job is not supported. ABC infrastructure permits only one job to proceed. It will flag the second one as an error and prevent that job from completing an ETL step to avoid any corruption.

User Action: The retry mechanism automatically manages these errors but the error still appears in the operational report.

Problem: An error message appears in an ABC log or report to report a "null" server condition:

```
Web Services sent the request to start batch job 'AM_SOURCE_EXTRACT_JB' on
server 'null'. The Job Server refused the request with error: Connection
refused: connect
```

User Action: Follow these steps:

1. From the Windows **Start** menu, click **All Programs** > **BusinessObjects Data Services** > **Data Services Server Manager**.
2. Click **Restart**.
3. Close Data Services Server Manager.
4. Retry the ETL job.

If the same error message appears

1. From the Windows **Start** menu, click **All Programs** > **BusinessObjects Data Services** > **Data Services Server Manager**.
2. Click **Edit Job Server Config**.
3. Select **JobServer_1**.
4. Verify that there is an associated repository. If it exists, click **Resync**.
5. If there is no associated repository, click **Add**.
6. Add the information about the BODS database:
   - Database type (Microsoft SQL Server is the default value).
   - Database server name.

— Database name.

— Authentication information.

7 Click **Apply** to re-establish the connection between the BODS application and the bods database.

8 Click **Restart**.

9 Close Data Services Server Manager.

Problem: This execution status appears: Executable is taking too long to launch (> 180 seconds).

User Action: Change the Maximum Time to Launch parameter in the data warehouse configuration file to increase the maximum time to launch:

1 Navigate to C:\Program Files\HP\FPA\Foundation\conf, and open dwplatform.properties.

2 Search for the **Abc_DataServicesWSMaxTimeToLaunch** parameter.

3 Change the value for the parameter from **180** to **360**.

4 Save and close dwplatform.properties.

ODBC and Dataflow Time Out Errors

Problem: The ODBC connection times out or the dataflow terminates.

User Action:

1 From the Windows **Start** menu, click **All Programs** > **BusinessObjects Enterprise XI 3.1** > **BusinessObjects Data Services** > **Data Services Designer**.

2 Login with the server, database, and authentication information.

3 Click **Tools** > **Options**.

4 Expand **Job Server**.

5 Click **General**.

6 The default value of SQLServerLoginTimeout is 60 seconds. Type these new values:

Section: AL_ENGINE

Key: SQLServerQueryTimeout

Value: 180 (or a value greater than 60)

7 Click **OK**.

8 From the Windows **Start** menu, click **All Programs** > **BusinessObjects Enterprise XI 3.1** > **BusinessObjects Data Services** > **Data Services Server Manager**.

9 Select **JobServer 1**.

10 Click **Restart**.

Web Service Errors

Problem: This execution status appears: Web Service job is taking too long to launch (> 180 seconds).

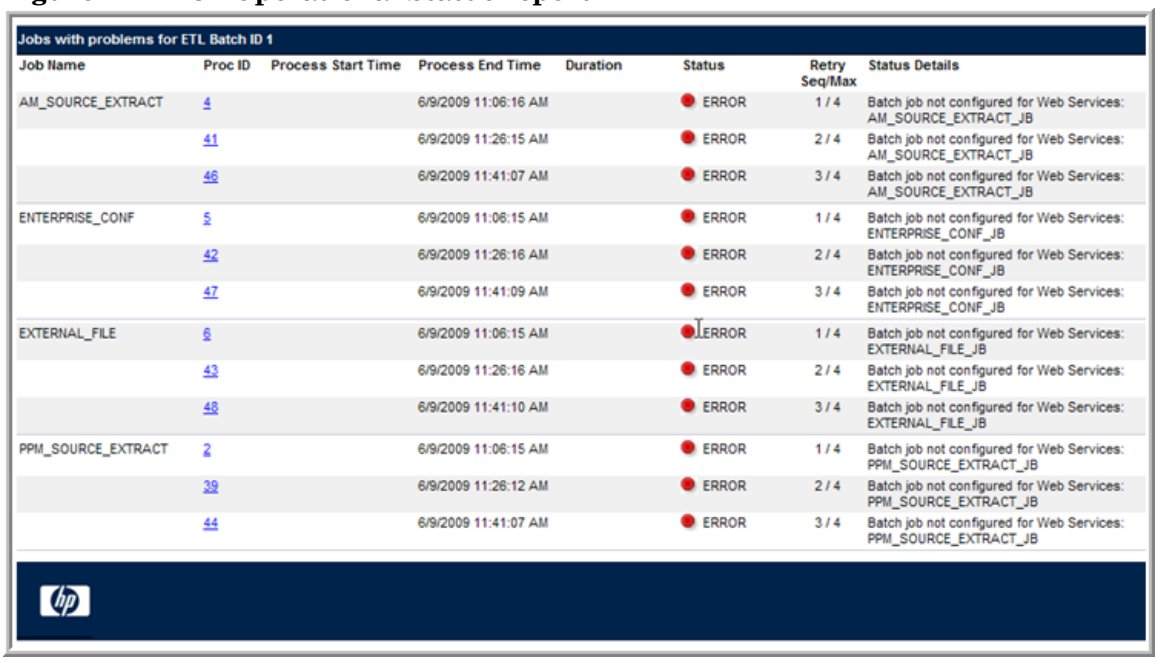
User Action: Change the Maximum Time to Launch parameter in the data warehouse configuration file to increase the maximum time to launch:

1. Navigate to C:\Program Files\HP\FPA\Foundation\conf, and open dwplatform.properties.
2. Search for the **Abc_DataServicesWSMaxTimeToLaunch** parameter.
3. Change the value for the parameter from **180** to **360**.
4. Save and close dwplatform.properties.

BODS Errors

Problem: BODS jobs were not configured for Web Services. If you did not complete this installation step to register the BODS database on the BODS Management Console, ETL jobs end with an error status, as shown in Figure 44.

Figure 44 ABC - Operational Status report



Jobs with problems for ETL Batch ID 1

Job Name	Proc ID	Process Start Time	Process End Time	Duration	Status	Retry Seq/Max	Status Details
AM_SOURCE_EXTRACT	4		6/9/2009 11:06:16 AM		ERROR	1 / 4	Batch job not configured for Web Services: AM_SOURCE_EXTRACT_JB
	41		6/9/2009 11:26:15 AM		ERROR	2 / 4	Batch job not configured for Web Services: AM_SOURCE_EXTRACT_JB
	46		6/9/2009 11:41:07 AM		ERROR	3 / 4	Batch job not configured for Web Services: AM_SOURCE_EXTRACT_JB
ENTERPRISE_CONF	5		6/9/2009 11:06:15 AM		ERROR	1 / 4	Batch job not configured for Web Services: ENTERPRISE_CONF_JB
	42		6/9/2009 11:26:16 AM		ERROR	2 / 4	Batch job not configured for Web Services: ENTERPRISE_CONF_JB
	47		6/9/2009 11:41:09 AM		ERROR	3 / 4	Batch job not configured for Web Services: ENTERPRISE_CONF_JB
EXTERNAL_FILE	6		6/9/2009 11:06:15 AM		ERROR	1 / 4	Batch job not configured for Web Services: EXTERNAL_FILE_JB
	43		6/9/2009 11:26:16 AM		ERROR	2 / 4	Batch job not configured for Web Services: EXTERNAL_FILE_JB
	48		6/9/2009 11:41:10 AM		ERROR	3 / 4	Batch job not configured for Web Services: EXTERNAL_FILE_JB
PPM_SOURCE_EXTRACT	2		6/9/2009 11:06:15 AM		ERROR	1 / 4	Batch job not configured for Web Services: PPM_SOURCE_EXTRACT_JB
	39		6/9/2009 11:26:12 AM		ERROR	2 / 4	Batch job not configured for Web Services: PPM_SOURCE_EXTRACT_JB
	44		6/9/2009 11:41:07 AM		ERROR	3 / 4	Batch job not configured for Web Services: PPM_SOURCE_EXTRACT_JB

Solution: You must register the BODS database that you defined on the RDBMS server on the BODS Management Console.

1. Restart the data warehouse server.
2. From the Windows **Start** menu, click **All Programs** > **BusinessObjects XI 3.1** > **BusinessObjects Data Services** > **Data Services Management Console**.
3. Type your login and password. The default login for BODS is **admin** and the default password is **admin**.
4. Click **Login**.
5. Select **Administrator**.
6. In the left navigation pane, expand **Management** and select **Repositories**.
7. In the main pane, click **Add**.

8 Type the **Repository name**.

9 Choose the **Database type**. It should be Microsoft_SQL_Server.

10 If appropriate, select **Windows authentication**.

11 Type the **Machine name**.

12 Type the **Database port** (1433 is the default value).

13 Type the **Database name**.

14 Type the **User name**.

15 Type the **Password**.

16 Click **Apply**.

The MS SQL Server default port number value is 1433. BODS verifies that a connection exists using the port number that you specify.

After you complete the registration, the first batch run may fail. If this occurs, restart the job stream. The second run should be successful.

Connectivity Errors

Verify Connectivity

The dw_check_datasources_connectivity.bat tool can run a check to validate data source connections.

Broken Web Service Connections

If you modify and save a job with SAP BusinessObjects Data Services Designer, you will break the associated Web Service connection. You can do one of the following:

- Restart the Business Objects Tomcat service.
- Open the SAP BusinessObjects Data Services Management Console and refresh the Web Services Configuration tab.

BOE Caches Connections

If you re-import the universe because you updated password or data connection information, previously opened reports will fail because BOE uses the original connection information.

To use the updated universe password or data connection information, remove the universe before you re-import it.

ETL Warnings

Job Warnings During Installation

Problem: Some warnings may be displayed in SAP BusinessObjects Data Services when running the ETL jobs on a case-sensitive SQL Server instance. For example:

```
Job warning with remote DW DBs: ODBC data source <SQL Server server name>
warning message for operation <bulkExecSql>: <>, SQLState <>.
```

This indicates that some or all of the permissions were not properly granted to the following SQL Server logins during the IT Analytics installation.

Login	Missing Permission
dws, dwst, dwt	**ALTER ANY DATABASE**
dwt	**bulkadmin** server role

User Action: Grant the following permissions to the SQL Server logins:

Run these commands to grant the **ALTER ANY DATABASE** permission to the dws, dwst, and dwt logins. On a distributed environment, these logins can be located on different SQL Server instances.

```
USE master
GO
GRANT ALTER ANY DATABASE TO <login name>
GO
```

Run the following commands to grant the **bulkadmin** server role to the dwt login:

```
USE master
GO
EXEC sp_addsrvrolemember N'dwt', N'bulkadmin'
GO
```

Password Errors

Changing Database Passwords

Problem: If you attempt to redefine a password after running the dw_initdb.bat script, an error may occur.

User Action: Because SQL Server saves the credentials in the database, you must remove them from the Security tab before you re-encrypt the password by running dw-encryptpasswords.bat and then re-running the dw_initdb.bat script to create a new password.

Passphrase.txt File Missing

Problem: The data warehouse generates the following error message.

```
FATAL - com.hp.bto.dw.atlimportexport.AtlImportExportException: Error
while decoding Data Services Repository Password.
Message is: The file (C:\Test\foundation\etc\conf\passphrase.txt)
containing the passphrase used to encode/decode passwords is missing.
Please use the dw-encryptpasswords.bat tool to recreate this file and do
not forget to re-encrypt all your passwords.
dw_ds_import.bat: Failure. See dw_atlimportexport.log for details
```

User Action: The passphrase.txt file contains the encrypted passwords. If this file is not available, data warehouse tools and utilities do not run successfully.

You must re-encrypt all passwords.

To encrypt all passwords

1. Run dw-encryptpasswords.bat with the proper command line options to encrypt the passwords in dwplatform.properties and dataSources.xml. For more information, see dw-encryptpasswords on page 200.
2. Open a Windows command line window, and switch to this directory:

   C:\Program Files\HP\FPA\Foundation\bin
3. Encrypt the passwords in the following properties files:
   - db-itaapp.properties
   - db-itafpaqry.properties
   - db-xrefgen.properties
   - xref.properties
   - db-dwabc.properties
   - db-dwmetadata.properties
   - db-dws.properties
   - db-dwst.properties
   - db-dwt.properties

   To encrypt the passwords, type *dw-encryptpasswords.bat -encrypt* <*password*> where <password> is the password that you want to encrypt.

   The encrypted password is displayed on standard output.

4 Copy the password from the standard output and paste it into the proper file in each place where the password is listed. Table 49 lists the passwords in each properties file.

Table 49 Property File Passwords

Properties File	Property	Password
db-itaapp.properties	SystemUserPassword	The system administrator login (usually the **sa** login) for accessing the target database that contains the itaapp schema.
	UserPassword	The **itaapp** login that owns the itaapp schema in the target database.
db-itafpaqry.properties	SystemUserPassword	The system administrator login (usually the **sa** login) for accessing the target database, which contains the itafpaqry schema.
	UserPassword	The **itafpaqry** login that owns the itafpaqry schema in the target database.
db-xrefgen.properties	SystemUserPassword	The system administrator login (usually the **sa** login) for accessing the staging database, which contains the xrefgen schema.
	UserPassword	The **xrefgen** login that owns the itafpaqry schema in the staging database.
xref.properties	AMDB_UserPassword	The login used to access Asset Manager. See property *AMDB_User* for the name of the login.
	PPMDB_UserPassword	The login used to access Project and Portfolio Management. See property *PPMDB_User* for the name of the login.
	SMDB_UserPassword	The login used to access Service Manager. See property *SMDB_User* for the name of the login.
	etl.password	The **dwst** login that owns the dwst schema in the staging database.
	xrefetl.password	The **xrefgen** login that owns the itafpaqry schema in the staging database.

Table 49 Property File Passwords

Properties File	Property	Password
db-dwabc.properties	SystemUserPassword	The system administrator login (usually the **sa** login) for accessing the database (usually the staging database) that stores the dwabc schema.
	UserPassword	The **dwabc** login that owns the dwabc schema (usually in the staging database).
db-dwmetadata.properties	SystemUserPassword	The system administrator login (usually the **sa** login) for accessing the database (usually the staging database) that stores the dwmetadata schema.
	UserPassword	The **dwmetadata** login that owns the dwmetadata schema (usually the staging database).
db-dws.properties	SystemUserPassword	The system administrator login (usually the **sa** login) for accessing the staging database, which contains the dws schema.
	UserPassword	The **dws** login that owns the dws schema in the staging database.
db-dwst.properties	SystemUserPassword	The system administrator login (usually the **sa** login) for accessing the staging database, which contains the dwst schema.
	UserPassword	The **dwst** login that owns the dwst schema in the staging database.
db-dwt.properties	SystemUserPassword	The system administrator login (usually the **sa** login) for accessing the target database, which contains the dwt schema.
	UserPassword	The **dwt** login that owns the dwt schema in the target database.

Source Data Errors

Problem: The out-of-box source data schema limits field sizes. For example, the maximum length for an Asset Manager name field is 30 characters, but some databases may contain longer name fields and truncating the name will not produce desirable results.

User Action: The remedy for this problem may require help from HP Services to customize either the source data, the source data schema, or both.

Problem: The execution status for a job is “Web Service job is taking too long to launch (>180 seconds).”

User Action: Do one of the following:

- Retry the job.
- Change the time out value.
- Use BODS Designer to validate the job. For more information, see Web Service Errors on page 166.

Problem: The initial installation supports only one connection to each source data application. You can have a connection to one instance of Asset Manager and one instance of Project and Portfolio Management.

User Action: The out-of-box configuration limits these connections. The remedy for this problem may require help from HP Services.

Problem: The source data contains more than 10 hierarchy levels.

User Action: The remedy for this problem may require help from HP Services to reduce the number of hierarchy levels in the source database before you can complete the ETL process successfully.

Validation Errors

ABC reports validation errors in the ABC - Operational Status or ABC - Job Details (Audit Details tab) report, or in a dws.*xxx_xxx*_VALF file. If source data validation errors occur, you must go back to the original source data to fix the error before you restart the ETL job. for more information about validation tests, see the *IT Analytics 2.01 ETL User Guide*.

XREF_GENERATOR Errors

It is helpful to be familiar with the log files that capture error and warning messages generated during XREF processing.

Problem: An XREF_GENERATOR job ends with a WARNING, but the warning text does not explain the error or point to a related log file.

User Action:

1. Navigate to this directory:

   C:\Program Files\HP\FPA\ContentPacks\Core\log\
2. Open this file with a text editor:

   dw_xref.log
3. Examine this log for specific error messages that suggest remedial action.

Problem: Operational reports display XREF_GEN warning messages.

User Action:

1. Navigate to this directory:

   C:\Program Files\HP\FPA\ContentPacks\Core\log\

2 Open this file with a text editor:

dw_xref.log

3 Examine this log for specific error messages that suggest remedial action.

Glossary

IT Analytics uses a variety of terms to describe its functionality and objectives. Click any term to view the definition.

A B C D E F G H I J L M N O P R S T U W X

A

ABC

ABC Batch

ABC Job stream

ABC Job stream step

Ad hoc query

Aggregation

Allocation engine

Allocation scenario

Allocation stage

Analytic

Analytic application

Assignment groups

B

Backfill record

Business driver

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MSC

MSI

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O

OLAP

Organization

P

Predictive analysis

Primary key

Prioritization

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R

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W

Work flow

X

XFR

XREF

ABC

Audit, Balance, and Control (ABC). ABC is an application that triggers the ETL processes.

Audit ensures consistency during ETL processing. It measures the number of records in and the number of records out for each step and displays these runtime statistics in a collection of audit reports.

Balance verifies that data in the data warehouse matches data in the source system. For example, if the data warehouse stores project dollar amounts then the balance process verifies that the aggregate project dollars in the data warehouse matches the aggregate project dollars in the source application data.

Control governs ETL processes. Control makes sure that there is a proper restart and recovery when a system error occurs. Control also manages job dependencies at runtime.

ABC Batch

An instantiated ABC job stream built from the job stream definition. The execution is sequential: one batch must finish execution before a new batch for the same job stream can start. In the case where there is both upstream and downstream ETL, an upstream batch and a downstream batch can run concurrently. Each executable batch has a unique ID.

ABC Job stream

A flow of individual execution (job stream) steps and a description of related dependencies. A job stream can have one or more start steps, one or more end steps, and execute several parallel branches. A stream ID value identifies the individual stream. The ABC job stream contains one-to-many job stream steps.

ABC Job stream step

An individual step that invokes a command line utility or executes an SAP BusinessObjects Data Services job. An ABC job stream step is unique within an ABC job stream.

Ad hoc query

Ad hoc queries are spontaneous requests for information that are normally formulated and run a single time. Ad hoc queries are constructed with a SQL statement or by using a data access tool.

Aggregation

Aggregation is the accumulation of related data into a single table.

Allocation engine

The allocation engine is a process that communicates with the Financial Planning & Analysis (FPA) web application. It provides status information about allocations when changes are made to stages or rules. It selects costs, updates relationships, and splits costs across the data model.

By using allocation scenarios, stages, and rules, financial analysts can allocate the costs to compare planned versus actual costs and use the results for proper cost and budget management.

Allocation scenario

An allocation scenario is a tool that enables you to analyze planned costs and actual costs by categorizing them. You can use categorized costs to compare planned (budgeted) costs to the actual costs.

Allocation stage

Allocation stages are a required component of the allocation engine. They identify a dimension that is associated with a Cost fact table. You can define Actual Cost and Planned Cost stages.

Analytic

Analytics are reports that summarize or aggregate data. Analytics help managers to identify trends, analyze volumes of data, plan, forecast, and make business or strategic decisions.

Analytic application

Analytic applications produce a series of logically integrated interactive reports, including dashboards and scorecards. These reports support management decisions that usually involve demographic analysis, trend analysis, pattern recognition, drill-down analysis, and profiling. For example, Financial Planning & Analysis (FPA), IT Performance Analytics (ITPA), and IT Financial Management (ITFM) are analytic applications.

Assignment groups

Assignment groups are lists of users who are responsible for an incident. When an incident opens or escalates, a notification mechanism alerts the users in the group.

Example: A service desk operator receives a request to fix a disabled workstation. The operator creates an incident and assigns it to the IT assignment group. The IT technician determines that the hard drive must be replaced. Because the drive must be purchased, the technician updates the incident and assigns it to a Materials Management assignment group for acquisition. If the hard drive purchase is delayed, and the incident cannot be closed in a reasonable amount of time, a pre-defined process can escalate the incident to the operations manager for intervention.

Incident category definitions can include a default assignment group for all incidents in that category. For example, the hardware category can list IT as the assignment group if the IT department is always the first group to handle hardware incidents.

Backfill record

Backfill records are used to complete partial data entities in the change data capture (CDC) records for a given cycle. Backfill records are used to ensure that completed data is loaded into the target environment.

Business driver

1 Business drivers are the tasks, information, and people that support and promote the goals of the enterprise.

2 Business drivers are the requirements that describe the business goals, for example, more quality data and faster response to queries.

3 Business drivers are problems that are important enough to mean the difference between success and failure for an organization.

Business impact analysis report

A business impact analysis report describes potential risks to the organization. A good business impact analysis report should identify the cost of outages in terms of lost revenue, replacement of equipment, salaries, and other opportunity costs.

Business intelligence

Business intelligence describes the result of in-depth analysis of detailed business data, including database and application technologies and analysis practices. Business intelligence is sometimes used synonymously with decision support but is much broader, potentially encompassing knowledge management, enterprise resource planning, data mining, and other practices.

Business process

Business processes are a set of business services that support a single corporate purpose.

Business service

A business service is the combination of one or more business applications plus the supporting configuration items that enable delivery of the business service to the customer. The products that IT offers its customers are internal and external business services. A business service supports zero-to-many organizations, and a business service incident usually impacts associated organizations. An organization can rely on one-to-many business services; however, an incident that affects the organization may not always affect the associated business service.

Enterprise resource planning (ERP) is a good example of a business service. ERP is a business management system that integrates all facets of the business, including planning, manufacturing, sales, and marketing. There can be many component business applications such as inventory control, order tracking, customer service, finance, and human resources.

Business service downtime impact

Business service downtime impact (BSDI) is a metric that quantifies the cost of service downtime in monetary terms, including productivity and business opportunity impact.

Catalog

A list of declared available executables.

Change data capture

IT Analytics uses the change data capture (CDC) technique to detect inserts and updates from source data based on the previously extracted change timestamp for each entity. Delete records are detected using a full key compare against the Transactional Snapshot (TSNP).

Composite key

Composite keys are primary keys that consist of more than one column. Composite keys are also known as concatenated keys or aggregate keys.

Configuration item

Configuration items (CI) are components of your infrastructure or a business service. CIs are catalogued in your Configuration Management Database (CMDB). A CI can be a hardware component in a larger hardware system, a software application, or any other identifiable item that supports a business service. For example, a CI can be items such as operating systems, monitors, accounting applications, routers, and telephones.

Configuration Management Database

A well-designed Configuration Management Database (CMDB) is a critical building block that stores configuration, asset, and incident data. The CMDB integrates information about assets, incidents, problems, change requests, and configuration items (CIs).

IT Analytics uses the data in the CMDB to run scenarios and produce analytics that suggest how to tune your business services and IT infrastructure. Historical information about assets and CIs, and how well they meet performance commitments, helps you make decisions about future IT investments and cost-saving strategies. The more robust your data, the more precise these scenarios and analytics will be.

A well-tuned CMDB can relate assets to CIs, provide information about asset class availability and CI performance cost, and relate asset and service availability to business service performance.

Conformed dimension

A conformed dimension is used in more than one cube and has the same meaning and data regardless of the fact table that references it.

Consolidated model

IT Analytics uses the consolidated model. During the ETL process, IT Analytics gathers information from one or more source systems and conforms the data into a single consolidated entity before loading it into the data warehouse.

Core model

In the core model, data marts are architected to share the same master set of conformed dimensions and standardized facts across the enterprise.

Corporate information factory

Corporate information factories are the framework that surrounds the data warehouse. Corporate information factories typically contain an operational data store, a data warehouse, data marts, decision support systems applications, exploration warehouses, data mining warehouses, alternate storage, and other data management systems. IT Analytics uses the Ralph Kimball methodology.

CSNP

Consolidated Snapshot.

Crosstab

Crosstab (cross tabulation), also known as a contingency table, is a combination of two or more variable tables. A contingency table analyzes whether the value of one variable is associated with or contingent on another.

Cube

Cubes are groups of related dimensions and measures that are used for data analysis.

Dashboard

Dashboards are reporting tools that consolidate, aggregate, and arrange measurements and metrics on a single screen so information can be monitored at-a-glance.

Data architecture

1. Data architecture is the framework design used to organize data resources for collection and future access.
2. Data architecture is the data, processes, and technologies that an organization uses to create and operate information systems.

Data flow

Data flow is a reusable object that contains steps to define the transformation of data from source to target. Data flows are called from inside a work flow or job. You can pass information into or out of data flows using parameters.

You can store data flows inside work flows, but you cannot store data flows inside other data flows.

Source: SAP® Business Objects. SAP Help Portal (http://help.sap.com).

Data integration

Data integration consolidates records with similar information to produce a single version of data in the data warehouse.

Data integration includes the steps from acquisition through publication, such as extraction, cleansing, consolidation, removing duplication, key generation, transformation, and aggregation, of source data before loading to the target table.

Data quality

Data quality is the degree of data excellence. For example, the data is stored according to data type, it is consistent, complete, not redundant, follows business rules, and corresponds to established domains. The data should be timely, well understood, and satisfy the needs of the business. The user should be satisfied with the validity of the data and the information derived from that data.

Data mart

Data marts are highly focused versions of a data warehouse. They are data stores that contain data for a specific business function within an organization, for example, finance or sales.

Data mining

Data mining is the process of analyzing data to identify relationships, trends, or patterns in the data.

Data model

Data models describe the source, extraction, consolidation, and target components for a single entity.

Data quality

Data quality is the degree of data excellence. For example, the data is stored according to data type, it is consistent, complete, not redundant, follows business rules, and corresponds to established domains. The data should be timely, well understood, and satisfy the needs of the business. The user should be satisfied with the validity of the data and the information derived from that data.

Data warehouse

Data warehouses are a repository of integrated information that is available for queries and analysis. Users can run queries against a database without having to know anything about the underlying data structures in the database.

Dimension

1. Dimensions are entities that describe, qualify, or otherwise add meaning to facts in a star schema fact table. Dimensions are the items in the analysis of facts by product, market, time, and period, for example.
2. Dimensions describe the measurements (facts) that business users want to analyze.

Downstream

Downstream ETL is a process that retrieves data from the data warehouse and passes it to a consumer application.

Efficiency and effectiveness

Efficiency describes how well IT meets customer expectation with minimal resources, expense, or unnecessary effort. Effectiveness measures the degree of success in achieving a given goal.

Unlike efficiency, effectiveness does not measure the resources expended, the expense incurred, or the effort, but only the degree of success.

IT can be effective without being efficient. IT Analytics enables you to construct scenarios that alter resources, expenses, or other efficiency components to improve effectiveness.

Enterprise key

The enterprise key is used to generate the durable key in the target entities.

ETL

The Extract, Transform, and Load (ETL) process is an end-to-end transfer of external source data through several staging layers and into the target layer of the data warehouse. The source data can reside in a single database or multiple databases. The data warehouse uses the ETL process to extract, consolidate, and transform the source data into a meaningful target model that populates relevant business analytics.

Executable

A program that executes an ETL task:

- Any custom script or program that complies with the data warehouse ABC API.
- An SAP BusinessObjects Data Services job that complies with the data warehouse ABC utilities.

EXT

Extract Staging.

Extract (ETL)

The extract process extracts delta data from the source systems and writes it to delimited flat files on the file system. The data warehouse uses the Change Data Capture (CDC) technique for extracting data from the source tables. IT Analytics extracts data if the last modification date is greater than or equal to the maximum last modification date value.

Fact table

Fact tables are the central tables in star schemas. Facts are information about the business that are typically numeric and additive. Fact tables contain the measures that the business users wish to analyze to find new trends or to understand the success or failure of the organization.

Financial Planning & Analysis

Financial Planning & Analysis (FPA) is a component of IT Analytics that helps organizations make better IT financial decisions by reducing the effort involved with managing IT finance and giving business the financial transparency it demands. FPA does this by consolidating and allocating planned and actual costs from HP Asset Manager and HP Project and Portfolio Management to help IT manage those costs more effectively.

Foreign key

A foreign key is the field in a table that refers to the primary key of another table in the same data source. Every relationship in the model must be supported by a foreign key. Foreign keys enforce referential integrity by completing an association between two entities.

Governance

Governance is a structures process or group used to control change and provide oversight. Governance groups are commonly used to control changes in data models, data modeling practices, and architecture standards.

Granularity

Granularity is the level of the measures within a fact table represented by the lowest level of the dimensions.

Hierarchy

Hierarchies use ordered levels to organize data. For example, in a time dimension, a hierarchy might be used to aggregate data from the month level to the quarter level to the year level.

Historical data

Historical data is data from previous time periods. It is used for trend analysis and for comparisons to other time periods.

Impact analysis

Impact analysis is the process of analyzing the effect if a business process fails or loses efficiency.

Impact rules

Impact rules define the effect of an incident on a business service, application, or the organization. Impact rules are associated with these characteristics:

- Incident type, such as degraded performance, limited capacity, corruption, an outage, or a request for information.
- Scope of the impact. For example, the impact might affect one user, an entire department, a business unit, or the entire enterprise.
- A schedule that defines when the rule applies. An outage at midnight might not be as expensive as an outage during normal business hours.
- Fixed amount, fixed rate, or stepped rate impact calculation.

These variables make each rule unique. As you expand the number of impact rules to cover different scenarios, your impact calculations become more precise. For example, if all variables are the same except for the scope, the impact cost is exponentially greater as a larger segment of the organization is affected. Different rules also enable you to calculate the impact of an outage at these levels:

- Business service level, which has immediate impact.
- Organization level, which extends the impact to include customer good will, lost revenue, and more.

IT Analytics uses impact rules to calculate the impact of historical events as well as hypothetical scenarios.

ITIL best practices

IT Analytics users need to adhere to the best practices advocated by the IT Infrastructure Library (ITIL). When you adhere to the ITIL best practices and processes for problem, change, and service level management, you have a business maturity model that is compatible with IT Analytics processes and objectives. To validate the benefits of ITIL best practices, you can evaluate comparative industry process metrics to confirm the improved efficiency and effectiveness of your internal processes.

IT Analytics follows ITIL version 3 guidelines for naming conventions and to categorize analytics.

Join

Tables from a single data source where one table is considered the parent or primary table are consolidated with a join. In a join, all records from the parent table are imported, and records that have a matching foreign key are imported from child tables.

Load (ETL)

The load process adds new records, updates existing records, and flags deleted records in the data warehouse target layer fact and dimension tables.

Log

A log displays an alert that an issue occurred during execution. The information in the execution log can become an alert when configured by the alert system.

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.

The ABC application does not make any assumptions about the business tasks performed by the executable or impose any semantic requirements on computed measure values. The ABC application provides an interface for the executable to store measures. The ABC reports provide drill-down capabilities into the stored measures.

Merge

Tables that exist across multiple data sources and where reconciliation is done are consolidated with a merge. In a merge, all records from all tables are imported, and reconciliation is done where appropriate. Merges join tables where they overlap and also import all other records.

Metadata

1. Metadata includes a description of data models, a description of the layouts used in database design, the definition of the system of record, the mapping of data from the system of record to other places in the environment, and specific database design definitions.
2. Metadata usually refers to agreed-upon definitions and business rules stored in a centralized repository to ensure that business users across departments and systems use common terminology for key business terms. Metadata can include information about data currency, ownership, source system, derivation (such as profit equals revenues minus costs), or usage rules. Metadata prevents data misinterpretation and poor decision making due to limited understanding of the true meaning and use of corporate data.

Source: SAP® Business Objects. SAP Help Portal (http://help.sap.com).

Metric

1. Metrics measure quality. They establish and collect measurements of success or failure.
2. The executable that collects the measures and generates the status. The ABC application provides an interface for the executable to store metrics.

MSC

Multiple Source Consolidated.

MSI

Multiple Source Identity.

Multi-dimensional

Multi-dimensional is the aggregation of data by the dimensions of the business. For example, sales by region by product by time.

Near-real-time

Near-real-time provides users with rapid updates from transactional systems.

OLAP

Online analytical processing (OLAP) is an application that enables multidimensional analysis and visualization of data.

Organization

Organizations are parts of your business that provide a product or service to an internal or external customer. It can be an entire business unit, a cost or profit center, or a functional department. It is an entity that adds value directly or indirectly to your customer community.

Predictive analysis

Predictive analysis uses data mining techniques to predict future behavior, probability, and trends. The more historical data that you have, the more accurately you can predict the likelihood of future events.

For example, auto insurance companies use safety predictors such as age, gender, and driving record when they issue car insurance policies. Mortgage underwriters use financial predictors such as income, debt ratio, and payment history when they issue home mortgages.

Primary key

Primary keys are the field or fields that make up the unique value for each record. In the source application, this is represented by the business key. In the data warehouse, it is the surrogate key.

Prioritization

When the number of services required exceeds your capacity, you must establish rules to organize open incidents into a work queue. The most urgent incidents are at the beginning of the queue; incidents with lower priority are at the bottom of queue.

Process

A process is an execution of a job stream step in a specific batch. A single job stream step may lead to multiple processes in cases of retries.

Real-time

Real-time reporting is on demand reporting versus scheduled, prebuilt reporting.

Reconciliation

Data reconciliation helps ensure the quality of the data.

Report

Reports are pre-defined documents that target a specific audience or user.

Report library

Report libraries are sets of programs that have been created, fully tested, quality assured, documented, and made available to the user community. The programs in these libraries are called canned, predefined, parameterized, or skeleton queries. They are launched by a user who enters only a variable such as a date, region number, range of activity, or some other set or sets of values the program needs to generate a query or report.

Resource allocation

The challenge for IT is to reduce costs without compromising services. Reducing personnel can reduce costs, but may seriously affect services that require high service levels and minimal outages. IT Analytics enables you to plan for resource needs, the cost of reducing head count, and validate that resources levels are correct for your service requirements.

For example, increased revenues may mean increased demand for services and more unplanned outages. How much budget do you need to assign enough technicians to cover expected demand?

Risk

Risk is the possibility of loss that is measurable in monetary terms. Risk can also be an intangible opportunity cost. The business service owner must define the level of risks, such as the amount of acceptable downtime or economic impact. IT must set expectations for how it will support the applications and infrastructure of business service and mitigate risks.

Examples of risks include a corrupt database, a power outage, or a natural disaster. The list of business risks is large. Some are common to all enterprises, like a natural disaster; some are specific to your organization or line of business.

Slowly changing dimension

A slowly changing dimension (SCD) is a dimension that contains data that changes over time. For SCD type 1 changes, the new data overwrites the original data. For SCD type 2 changes a new record is generated. IT Analytics makes a copy of the record and flags the original record as historical. Both the new and old record share the same durable key, indicating that they are the same piece of data.

Snowflake schema

A snowflake schema is a data model that has a centralized fact table that references multiple dimension tables, and the dimension tables reference multiple related tables.

SSI

Single Source Identity.

SSNP

Single Source Snapshot.

Staging

Staging areas are collection areas where data is transformed for presentation, integration, or enhancement. For example, data might be staged until all relevant components are in place.

Star schema

Star schemas are simpler than snowflake schemas. A star schema is a data model that has one or more centralized fact tables that reference a single layer of dimension tables. The dimension tables do not reference other tables.

Stream step detail

A sub-task of the executable job stream step. There are no assumptions about the content of the executable; therefore, the stream step detail is not modeled. The ETL designer is responsible to define the job stream step details.

Surrogate key

A surrogate key is a primary key for the dimension tables. It is the field that makes up the unique value for each record in the data warehouse. Surrogate keys are numeric and are controlled by the ETL process.

Transform (ETL)

During the transformation process, IT Analytics transforms data into the format of the target tables and populates the load-ready target staging tables. The Transformation layer contains load-ready tables that match the internal structure of the data warehouse target tables.

TSNP

Transactional Snapshot.

Union

Tables that occur in either single or multiple data sources and have records that are assumed to be equal and independent are consolidated with a union. In a union, all records from all sources are imported but are not reconciled. They are simply added to the rowset.

Universe

The universe is the result of a semantic layer of metadata that creates a business oriented view of the data. The universe contains a schema of the tables and joins that make up the universe and dimension and measurement objects. The universe is an interface between the data warehouse and the analytics that display the data.

The universe contains analytic views that enable you to see published and up-to-date allocation cost and planned cost data as well as unpublished data or published data that is not up-to-date. The views also ensure the consistency of data warehouse quality by showing only data that is successfully extracted, transformed, and loaded. Analytic views provide the mechanism to reduce the dependencies of analytic semantic models to data warehouse physical models.

Upstream

Upstream ETL retrieves data from one or more external applications, consolidates it into a target data model, and stores it in the data warehouse.

Work flow

A work flow is a reusable object containing steps to define the order of job execution. Work flows call data flows but cannot manipulate data. You can call work flows from inside other work flows or jobs and can pass information into or out of work flows using parameters. You can reuse work flows by dragging existing ones from the object library.

Source: SAP® Business Objects SAP Help Portal (http://help.sap.com)

XFR

Dimensional Transform.

XREF

Cross Reference.

A Data Warehouse Command Reference

This appendix is a syntax reference for the out-of-box scripts that are available to ETL designers and developers. Table 1 lists the out-of-box scripts that you can use to accomplish command line tasks. These scripts produce specific results. Changing them may produce unpredictable results when they run.

Syntax Conventions

Command options in square brackets ([ ]) are optional.

Italicized lowercase expressions are variable values.

If a command option argument is a text string or path that contains blank spaces, you must enclose it in quotation marks. Otherwise, the text before the blank space is considered the entire argument and the remaining text becomes an undefined option.

Command Summary

The following command script files are available in this directory:

C:\Program Files\HP\FPA\Foundation\bin\

Table 1 Data Warehouse Script Files

Name	Purpose	Primary User
dw_app_config on page 193	Configure the application.	Installer
dw_check_datasources_connectivity on page 194	Verify database connections.	Administrator
dw_cleandb on page 195	Remove the staging and target data for all consolidated entities related to the specified data source.	Administrator
dw_config_loader on page 196	Load dataSources.xml into the metadata repository.	Administrator

Table 1 Data Warehouse Script Files

Name	Purpose	Primary User
dw_deploy_biar_files on page 197	Deploy .biar files to a remote SAP BusinessObjects Enterprise XI 3.1 server.	ETL developer
dw_ds_gen on page 198	Generate the metadata repository.	ETL developer
dw_ds_import on page 199	Import source files into the metadata repository	ETL developer
dw-encryptpasswords on page 200	Encrypt data warehouse passwords.	Administrator
dw_etl_export on page 202	Export the BODS jobs, workflows, and other ETL components.	ETL developer
dw_etl_import on page 203	Import the BODS jobs, workflows, and other ETL components.	ETL developer
dw_etl_update_containers on page 204	Build an ETL workflow container.	ETL developer
dw_foundation_setup on page 205	Build the data warehouse foundation	Installer
dw_initdb on page 206	Initialize the data warehouse database schema	Administrator
dw_tz_update_dst on page 207	Update time zone information	Administrator
dw_generateschemas on page 208	Generate schemas and tables.	ETL developer
dw_importdefs on page 209	Load entity model definition files into the metadata repository	ETL developer

dw_app_config

Purpose

Installation script used to configure the application.

User

ETL developer

Syntax

dw_app_config [-descriptorFile <*descriptorFile*>]

-taskName <*taskName*>

[-verbose]

[-help]

Table 2 dw_app_config.bat options

Option	Required?	Description
-descriptorFile *descriptor_file_name*	N	Name of the descriptor file.
-taskName *name_of_task*	Y	Name of the task.
-verbose	N	Produce more detailed output.
-help	N	Display command syntax.

Return codes

0 – Success

1 – Success with warnings

>1 – Errors

Examples

dw_app_config -taskName "My Task" -verbose

dw_app_config -taskName task1 -descriptorFile c:\...\directory\descriptorfile_name

dw_check_datasources_connectivity

Purpose

Use this script to verify database connections.

User

Administrator

Syntax

dw_check_datasources_connectivity [-verbose]

[-help]

Table 3 dw_check_datasources_connectivity.bat options

Option	Required?	Description
-verbose	N	Produce more detailed output.
-help	N	Display command syntax.

Return codes

0 – All data sources are connected

>0 – Error connecting data sources

<0 – Number of unconnected data sources

If an error occurs, verify that this directory contains the required jdbc.jar file:

C:\Program Files\HP\FPA\Foundation\lib\

Example

dw_check_datasources_connectivity -verbose

dw_cleandb

Purpose

Remove the staging and target data for all consolidated entities related to the specified data source.

User

Administrator

Syntax

dw_cleandb [-help>]

[-file <*file*>]

[-listonly]

[-product <*product*>]

Table 4 dw_cleandb.bat options

Option	Required?	Description
-help	N	Display command syntax.
-file <file>	N	File name for the list output.
-listonly	N	Only list the affected tables. Write the affected tables to a file but do not execute the SQL. If you use listonly without specifying a product file, IT Analytics writes the list of tables to the dw_cleandb.log file in C:\Program Files\HP\FPA\ContentPacks \Core\Foundation\log.
-product <product>	N	Name of the product for which to clean the data from the database.

Return codes

0 – Success

2 – Error

If an error occurs, verify that this directory contains the required jdbc.jar file:

C:\Program Files\HP\FPA\Foundation\lib\

Example

dw_cleandb.bat -product PPM

dw_config_loader

Purpose

Use this script to load this file into the metadata repository:

C:\Program Files\HP\FPA\Foundation\conf\dataSources.xml

User

Administrator

Syntax

dw_config_loader [-verbose]

[-help]

Table 5 dw_config_loader.bat options

Option	Required?	Description
-verbose	N	Produce more detailed output.
-help	N	Display command syntax.

Return codes

0 – Success

1 – Success with warnings

>1 – Errors

Examples

dw_config_loader -verbose

dw_deploy_biar_files

Purpose

Use this script to deploy biar files to a local or remote BOE server. The deployment process automatically customizes the universe data connections.

User

ETL developer

Syntax

dw_deploy_biar_files [-BOEAdminPwd <*password*>]
-BOEAdminUser <*user*>
-BOEHostname <*hostname*>
[-BOEPort <*webport*>]
-file <*filename*> | -topdir <*directory*>
[-help]

Table 6 dw_deploy_biar_files.bat options

Option	Required?	Description
-BOEAdminPwd *password*	N	Password for the SAP BusinessObjects Enterprise XI 3.1 administrator. The default password is blank.
-BOEAdminUser *user*	Y	Name of the user with the rights to import .biar files.
-BOEHostname *hostname*	Y	SAP BusinessObjects Enterprise XI 3.1 server name where the .biar files are to be imported.
-BOEPort *webport*	N	SAP BusinessObjects Enterprise XI 3.1 web application port number where the .biar files are to be imported. The default value is 8080.
Choose one of the following:	Y	
• **-file *path_and_file name***		File name and path to a single .biar file to be deployed.
• **-topdir** *path_and_directory_name*		Directory and path to collection of .biar files to be deployed.
-help	N	Display command syntax.

Example

dw_deploy_biar_files -BOEHostname xxxxxx.xxx.com -BOEAdminUser Administrator -BOEAdminPwd secret -BOEPort 9090 -topdir “C:\FPA\presentation files”

dw_ds_gen

Purpose

Use this script to generate one or more datastores. BODS imports these datastores to enable BODS jobs to connect to the database.

User

ETL developer

Syntax

dw_ds_gen -datastore <dws | dwst | dwt | dwabc | PPM | AM | SM | all>

-outputdir <*directory*>

[-verbose]

[-help]

Table 7 dw_ds_gen.bat options

Option	Required?	Description
-datastore	Y	Generate the specified data source (dws, dwst, dwt, dwabc, PPM or AM). Specify all to generate all sources.
-outputdir *directory_name*	Y	Path and name of the target directory where the data source files are to be generated.
-verbose	N	Produce more detailed output.
-help	N	Display command syntax.

Examples

dw_ds_gen -datastore all -outputdir c:\datastores

dw_ds_gen -datastore PPM -outputdir c:\datastores\PPM

dw_ds_import

Purpose

Use this script to import source files from a named directory into the metadata repository. For example, to import a collection of files into the datastore directory.

User

ETL developer

Syntax

dw_ds_import -inputdir *directory*

[-help]

Table 8 dw_ds_import.bat options

Option	Required?	Description
-inputdir *directory_name*	Y	Path and name of the directory where the data source files are to be imported.
-help	N	Display command syntax.

Example

dw_ds_import -inputdir "c:\datastore\Source Files"

dw-encryptpasswords

Purpose

This utility runs during the data warehouse Foundation setup process to complete the initial password encryption. Thereafter, if you change any of the related user passwords, you must run dw-encryptpasswords again to replace the old value with the new value.

The affected passwords control access to the data warehouse and data warehouse sources, such as Asset Manager or Project and Portfolio Management. When you specify a new password value, the utility replaces the existing password value with an encrypted value in these files:

C:\Program Files\HP\FPA\Foundation\conf\dataSources.xml
or
C:\Program Files\HP\FPA\Foundation\conf\dwplatform.properties

User

Administrator

Syntax

dw-encryptpasswords (*-option <password> -option <password> ...* | -encrypt *<password>*)
[-help]

Table 9 dw-encryptpasswords.bat options

Option	Required?	Description
Choose one of the following options to update the data warehouse configuration (dwplatform.properties) file:		
• **-AbcDBAdminPwd** *password*	N	Encrypt the ABC database administration login password.
• **-AbcDBOwnerPwd** *password*	N	Encrypt the ABC database owner login password.
• **-AllSchemasAdminPwd** ***password***	N	Encrypt the passwords for all non-specific administrator accounts with the same password value.
• **-AllSchemasOwnerPwd** ***password***	N	Encrypt the passwords for all non-specific owner accounts with the same password value.
• **-DSManagementConsolePwd** *password*	N	Encrypt the BODS Management Console login password.
• **-DSRepositoryPwd** *password*	N	Encrypt the BODS repository login password.
• -**MetadataDBAdminPwd** *password*	N	Encrypt the metadata repository administration login password.
• -**MetadataDBOwnerPwd** *password*	N	Change the metadata repository owner login password.

Table 9 dw-encryptpasswords.bat options

Option	Required?	Description
• -**RDSTargetDBAdminPwd** *password*	N	Change the target database administration login password.
• -**RDSTargetDBOwnerPwd** *password*	N	Encrypt the target database owner login password.
• -**StagingDBAdminPwd** *password*	N	Encrypt the staging database administration login password.
• -**StagingDBOwnerPwd** *password*	N	Encrypt the staging database owner login password.
• -**StagingTargetDBOwnerPwd** *password*	N	Encrypt the staging database owner staging -target login password.
Choose one of the following options to update the source products configuration (dataSources.xml) file:		
• **-AMPwd** *password*	N	Encrypt the Asset Manager login password.
• **-PPMPwd** *password*	N	Encrypt the Project and Portfolio Management login password.
• **-SMPwd** *password*	N	Encrypt the Service Manager login password.
Other options:		
-encrypt *password*	N	Display the encrypted value of a password text string.
-help	N	Display command syntax.

The encrypted password value is limited to the associated properties or configuration file. Even if you use the same password text string in successive installations of the same software, the encrypted value is unique. Therefore, properties and configuration files are not portable as-is. You must re-encrypt the password for each instance.

Examples

To change the ABC database administrator password, run this command with a new password value:

dw-encryptpasswords **-**AbcDBAdminPwd *paSSw0rd*

The existing value in the dwplatform.properties file is replaced by an encrypted version of *paSSw0rd*:

AbcDBAdminPwd *smkOULucWUdLAa6Qupd2fQ*..

dw_etl_export

Purpose

Use this script to export Data Services jobs, workflows, data flows, and functions to a zip file.

User

ETL developer

Syntax

dw_etl_export -zip <*zipfile*>

[-help]

Table 10 dw_etl_export.bat options

Option	Required?	Description
-zip *zip_file_name*	Y	Export to the specified archive file.
-help	N	Display command syntax.

Example

dw_etl_export -zip c:\etlFiles.zip

dw_etl_import

Purpose

Use this script to import Data Services jobs, workflows, data flows, and functions to a zip file.

User

ETL developer

Syntax

dw_etl_import [-atl <*atlFile*>]
-topdir <*directory*>
[-zip <*zipfile*>]
[-help]

Table 11 dw_etl_import.bat options

Option	Required?	Description
-atl *atl_file_name*	N	Import the specified .atl file.
-topdir *directory_name*	Y	Import all .atl files under a specified directory and subdirectory.
-zip *zip_file_name*	N	Import the contents of the archive file.
-help	N	Display command syntax.

Examples

dw_etl_import -topdir c:\etlFiles

dw_etl_import -topdir "c:\ETL Files"

dw_etl_import -zip c:\etlFiles.zip

dw_etl_import -atl c:\functions.atl

dw_etl_update_containers

Purpose

This script loads .atl files during the installation process.

User

ETL developer

Syntax

dw_etl_update_containers -topdir <*directory*>

[-verbose]

[-help]

Table 12 dw_etl_update_containers.bat options

Option	Required?	Description
-topdir *directory_name*	Y	Name of the directory that contains all application-specific .atl files.
-verbose	N	Produce more detailed output.
-help	N	Display command syntax.

Return codes

0 – Success

1 – Success with warnings

>1 – Errors

Examples

dw_etl_update_containers -topdir "c:\My Application"

dw_etl_update_containers -topdir c:\MyApplication

dw_foundation_setup

Purpose

Use this script to call the scripts that encrypt passwords, initialize the data warehouse, or load the metadata for data source connections into the database.

Syntax

dw_foundation_setup [-args <*taskArguments*>]

-taskName <*taskName*>

[-verbose]

[-help]

Table 13 dw_foundation_setup.bat options

Option	Required?	Description
-args *task_argument*	N	Name of the task argument.
-taskName *task_name*	Y	Name of the requested task.
-verbose	N	Produce more detailed output.
-help	N	Display command syntax.

You can see the individual tasks and associated arguments called by dw_foundation_setup if you open this file with a text or xml editor:

C:\Program Files\HP\FPA\Foundation\etc\xml\dw_foundation_setup.xml

Return codes

0 – Success

1 – Success with warnings

>1 – Errors

Examples

dw_foundation_setup
-taskName encryptPasswords -args "MetadataDBSystemUserPassword=*xxxxxxxxxx*"

In this example, the existing value in the dwplatform.properties file is replaced by an encrypted version of *xxxxxxxxxx*:

MetadataUserPassword FtS3qnLI2uppwOWWIkSBgQ

To change multiple passwords, run the command with a different taskName and password value:

dw_foundation_setup -taskName encryptPasswords -args "MetadataDBAdminPwd=Vb208"
dw_foundation_setup -taskName encryptPasswords -args "RDSTargetDBAdminPwd=Vb208"
dw_foundation_setup -taskName encryptPasswords -args "StagingDBAdminPwd=Vb208"
dw_foundation_setup -taskName encryptPasswords -args "AbcDBAdminPwd=Vb208"
dw_foundation_setup -taskName encryptPasswords -args "AllSchemasOwnerPwd=DwSch1;"
dw_foundation_setup -taskName encryptPasswords -args "DSRepositoryPwd=DsRep1;"
dw_foundation_setup -taskName encryptPasswords -args "DSManagementConsolePwd=M1;"

dw_initdb

Purpose

Use this script to initialize data warehouse foundation database schemas.

Syntax

dw_init.bat [-confdir <*directory*>]

[-schema <*schemaname*>]

-sqldir <*directory*>

[-help]

Table 14 dw_init.bat option

Option	Required?	Description
-confdir *directory*	N	Name of the directory that contains the .properties file for the designated *schemaname*.
-schema *schemaname*	N	Name of the schema, such as dwmetadata, dws, dwst, or dwt.
-sqldir *directory*	Y	Name of the directory that contains the schema and .properties file.
-help	N	Display command syntax.

Examples

dw_init.bat -sqldir c:\myDbDirectory

dw_init.bat -sqldir c:\myDbDirectory -schema dwmetadata -confdir “c:\my Config Directory”

dw_tz_update_dst

Purpose

Load or update the time zone information for a data source and the data warehouse. Run this utility whenever you deploy new source data or when you change the DwTimeZone value in the dwplatform.properties file. Time zone is expressed in GMT format: GMT +\-*nn*:*nn*.

Syntax

dw_tz_update_dst.bat [-help]

[-verbose]

Table 15 dw_tz_update_dst.bat option

Option	Required?	Description
-help	N	Display command syntax.
-verbose	N	Produce more detailed output.

Return codes:

0 – Success

1 – Success with warnings

>1 – Errors

Example

dw_tz_update_dst -verbose

dw_generateschemas

Purpose

Use this script to generate schemas and tables.

Syntax

dw_generateschemas [-aggregates]
[-application <*application*> | all]
[-autoloadingmode true | false]
[-interface]
[-noninteractive]
[-product <*product*> | all]
[-staging]
[-target]
[-verbose]
[-help]

Table 16 dw_generateschemas.bat options

Option	Required?	Description
-aggregates	N	Generate or update the aggregation tables.
-application *application_name* | all	N	Load the named application or load all applications. All is the default if you are in non-interactive mode.
-autoloadingmode	N	Specify true or false. True is the default value.
-interface	N	Generate the SQL script files to create the interface.
-noninteractive	N	Run this script without prompting for user input. Use all default values.
-product *product_name* | all	N	Load the specified product. All is the default value.
-staging	N	Generate or update the staging tables.
-target	N	Generate or update the target tables.
-verbose	N	Produce more detailed output.
-help	N	Display command syntax.

Interfaces will always be written to a file, whether autoloadingmode is on or not. Each interface for a Data Source Connection is written to a separate file. If you do not specify a specific phase, all phases execute.

Example

dw_generateschemas -application myApp -autoloadingmode true -target

dw_importdefs

Purpose

Use this script to load entity model definition files (dimensions, facts, consolidations, aggregations, extractions, and source integrations) into the metadata repository.

Syntax

dw_importdefs [-xmlfile <*xmlfile*> | -topdir <*directory*>]

[-verbose]

[-help]

Table 17 dw_etl_update_containers.bat options

Option	Required?	Description
-topdir *directory_name*	N	Name of the directory that contains all the XML files (and subdirectories) to load into the metadata repository.
-xmlfile *file_name*	N	Name of the file to load into the metadata repository.
-verbose	N	Produce more detailed output.
-help	N	Display command syntax.

Return codes

0 – Success

1 – Success with warnings

>1 – Errors

Examples

dw_importdefs -xmlfile "..\sampledata\sample file.xml"

dw_importdefs -topdir c:\sampledir

dw_importdefs

B Naming Conventions

IT Analytics uses a variety of naming conventions for consistency in the data warehouse.

Data Warehouse Naming Conventions

Table 18 describes table and field naming conventions.

Table 18 Naming Conventions

Type	_Value	Description
Table Name Suffixes	_DIM	Dimension or bridge table.
	_FACT	Fact table.
	_MS	Monthly snapshot table that shows the last known value for the data at the end of a month.
	_HIER	Hierarchy table.
	_AGG	Aggregate roll up table.
Field Name Prefixes	MD_	Metadata. Used for all fields that exist just for data warehouse internal processes.
	SRC_	Source. Used for all field drawn from the source for ETL purposes only (not pushed to the target).
	PK_	Primary key.
	FLAG_	A binary field: Y/N.
	DATE_	A date type.
	DURATION_	A measure representing a length of time.
	COUNT_	A measure representing a raw count.
	AVG_	A measure representing an average roll up.
	MAX_	A measure representing a maximum roll up.
	MIN_	A measure representing a minimum roll up.
	PCT_	A measure representing a percentage.
Field Name Suffixes	_ID	A surrogate key field that is primary or foreign.
	_BASE	A financial amount, currency, or exchange rate in the default currency of the data warehouse.
	_UTC	A date expressed in the UTC time zone.
	_LOC	For dates: a date expressed in the default display time zone for the data warehouse. For money: a financial amount, currency, or exchange rate in the original currency of the source data.

BODS Naming Conventions

Table 19 describes the naming conventions used by tables that are part of the BODS ETL process.

Table 19 Naming Conventions

Category	Description	Naming Convention and Examples
Datastore	Connection to database with source application views	Datastore names have a prefix with the datastore name and a suffix of _DS. The format is: <SOURCE APP>_DS **Examples**: • AMVIEW_DS • PPMVIEW_DS • SMVIEW_DS
	Connection to transactional entity staging database	• SRCSTAGING_DS
	Connection to target entity staging database	• DWSTAGING_DS
	Connection to data warehouse database	• DW_DS
Datastore Alias	Alias user for source application view	Alias names have a prefix with the source application name and a suffix of _ALIAS. The format is: <SOURCE APP>_ALIAS **Examples**: • AMVIEW_ALIAS
	Alias user for transactional entity staging database	• SRCSTAGING_ALIAS
	Alias user for target entity staging database	• DWSTAGING_ALIAS
	Alias user for data warehouse database	• DW_ALIAS
Project	Allows you to group jobs that have dependent schedule or belong to the same application	Project names have a prefix with the source application name or purpose of the project and a suffix of _PJ. The format is: <DESCRIPTION>_PJ **Example**: FPA_PJ

Table 19 Naming Conventions

Category	Description	Naming Convention and Examples
Job Names	Data Integrator job which is a group of objects that you can schedule and execute together	Job names have a prefix with the name of the source application. An internal segment can describe the job purpose. There is a suffix of _JB. The format is: <SOURCE APP>_<PURPOSE>_JB or <PURPOSE>_JB **Examples**: • AM_SOURCE_EXTRACT_JB • DW_JB
Workflows	Defines a decision making process to execute a dataflow	Workflow names have a prefix with the source or target name. A SUB-CATEGORY segment describes the ETL phase. There is suffix of _WF. The format is: <SRC NAME/TARGET NAME>_<SUB-CATEGORY>_WF **Examples**: • AM_AMRIGHTSUSESCOUNT_EXT_WF • AM_MSI_CONTAINER_WF
Dataflows	Data flows extract, transform and load data	Dataflow names have a prefix with the source or target name. A SUB-CATEGORY segment describes the ETL phase. There is a suffix of _DF. The format is: <SRC NAME/TARGET NAME><SUB_CATEGORY>_<ACTION>_DF **Examples**: • AM_AMRIGHTSUSESCOUNT_EXT_DF • AM_SWAUDITDETAIL_MSI_DF
Variables - Global - Local Variables - Parameters	Variables defined in a job Variables defined in a job/ workflow Parameters in a workflow/ dataflow	Variable names have a dollar sign ($) and prefix to identify the type of variable (G for global, L for local, or P for parameter). The suffix identifies the purpose or identifying parameter name. The format is: $G_<PURPOSE> or $L_<PURPOSE> or $P_<PURPOSE> **Examples**: • $G_BATCH_ID • $L_STARTDATE • $P_STATUS
Custom Functions	Script functions in Data Integrator scripting language	Custom function names have a prefix that describes the purpose of the function. and a suffix of _FN. The format is: <PURPOSE>_FN **Example**: STARTJB_FN

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Category	Description	Naming Convention and Examples
Scripts	Scripts created in jobs or work flows. Description can refer to function the script is performing or the name of the table the script is loading	Script names have a prefix that describes the data source or target name. A SUB-CATEGORY segment describes the ETL phase. The suffix is _SC. The format is: <SRC NAME/TARGET NAME> or <SUB_CATEGORY>_SC. **Example**: AM_AMRIGHTSUSESCOUNT_EXT_FAIL_SC
Try/Catch	Specify alternative workflows if errors occur while executing a job	Try/catch names have a prefix that describes the data source or target name. A SUB-CATEGORY segment describes the ETL phase. The suffix is _TRY or _CATCH. The format is: <SRC NAME/TARGET NAME><SUB_CATEGORY>_TRY or <SRC NAME/TARGET NAME><SUB_CATEGORY>_CATCH **Examples**: • AM_AMRIGHTSUSESCOUNT_EXT_TRY • AM_AMRIGHTSUSESCOUNT_EXT_CATCH
Conditionals	Conditionals are single-use objects used to implement if-then-else logic in a work flow	Conditional names have a prefix that describes the data source or target name. A SUB-CATEGORY segment describes the ETL phase. The suffix is _COND. The format is: <SRC NAME/TARGET NAME><SUB_CATEGORY>_COND **Example**: AM_AMRIGHTSUSESCOUNT_EXT_COND
Flat File targets	Flat file extracts of source view	Flat file target names have a prefix that describes the datastore name. Segments describe the source table name, batch ID, and A SUB-CATEGORY segment describes the ETL phase. The suffix is .txt. The format is: <DATASTORENAME (without _DS)>_<SOURCETABLENAME_BATCHID>_<SUB-CATEGORY>.txt **Examples**: AMVIEW_AMRIGHTSUSESCOUNT_' ||$G_Batch_ID\|\|'_EXTRACT_FF.TXT AMVIEW_AMRIGHTSUSESCOUNT_' \|\|$G_Batch_ID||'_EXTRACT_DELETE_FF.TXT

Target and Staging Databases

The first character of the Target and Staging databases name must begin with an alpha character. The DBinit utility will fail if you use database names that begin with numbers.