

# Using Pentaho's Operations Mart

**Elena Neill**  
**Hitachi Vantara**  
Product Support Engineer Lead  
February 27, 2018

**What is Ops Mart?**

**Looking under the Hood**

**Getting started**

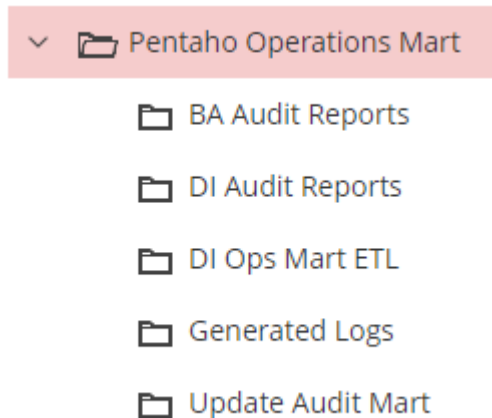
**Running sample reports**

**Special Cases**

# What is Ops Mart?

# What is Operations Mart?

- Collection of tables, schemas, transformations and reports
- Built on top of audit table (BA Ops Mart) and log tables (DI Ops Mart)
- Provides an easy way to audit system usage and evaluate system performance
- Can be extended to fit your needs



# How can Ops Mart help you?

## AUDITING



## RESOURCE PLANNING



## PERFORMANCE ROOT CAUSE ANALYSIS



- Who is logging on
- How many times are they logging on and for how long
- What reports is each user running
- What reports have errored
- What are the most used reports



- How many jobs, reports are scheduled at specific times / days
  - What is the best time to schedule new reports / etl
- Compare number of users / usage through time
  - How will the system scale



Aid in identifying what caused performance issues in the environment:

- What was running at the time of the performance issue
- How long was this job/report running at the time of the problem





# Looking under the Hood

Ops Mart Process for both BA and DI follow the same basic flow



# BA/DI Ops Mart – How they differ

	BA	DI
Where is data collected?	Database: Hibernate Table: pro_audit	Database: pentaho_dilogs Tables: trans_log, job_log, jobentry_log, step_log, transperf_log ...
How is the data transformed?	Update Audit Data : xaction run from PUC	Update_Dimensions_then_Logging_Dat amart: Job run from PDI or PUC
Where to find the reports?	BA Audit Reports	DI Audit Reports
How to clean the data	Clean BA Ops Mart : set ba.cleanup.max.age=30 to set days to keep	Clean_up_PDI_Operations_Mart.: set max_age to set days to keep

# BA Ops Mart Process Overview

**USER**

Logs on to PUC

Creates /  
Runs Objects  
in PUC

Runs BA Ops  
Mart Reports

**ADMIN**

Configures  
Ops Mart

Runs Update  
Audit Data  
Mart

Runs BA Ops  
Mart Reports

**SYSTEM**

Listener / Auditor

**DATABASE**

Created ops  
mart tables:

dim\_\*  
fact\_\*

Updated audit  
table:

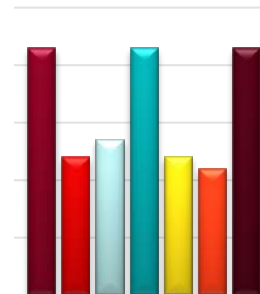
pro\_audit

Updated audit  
table:

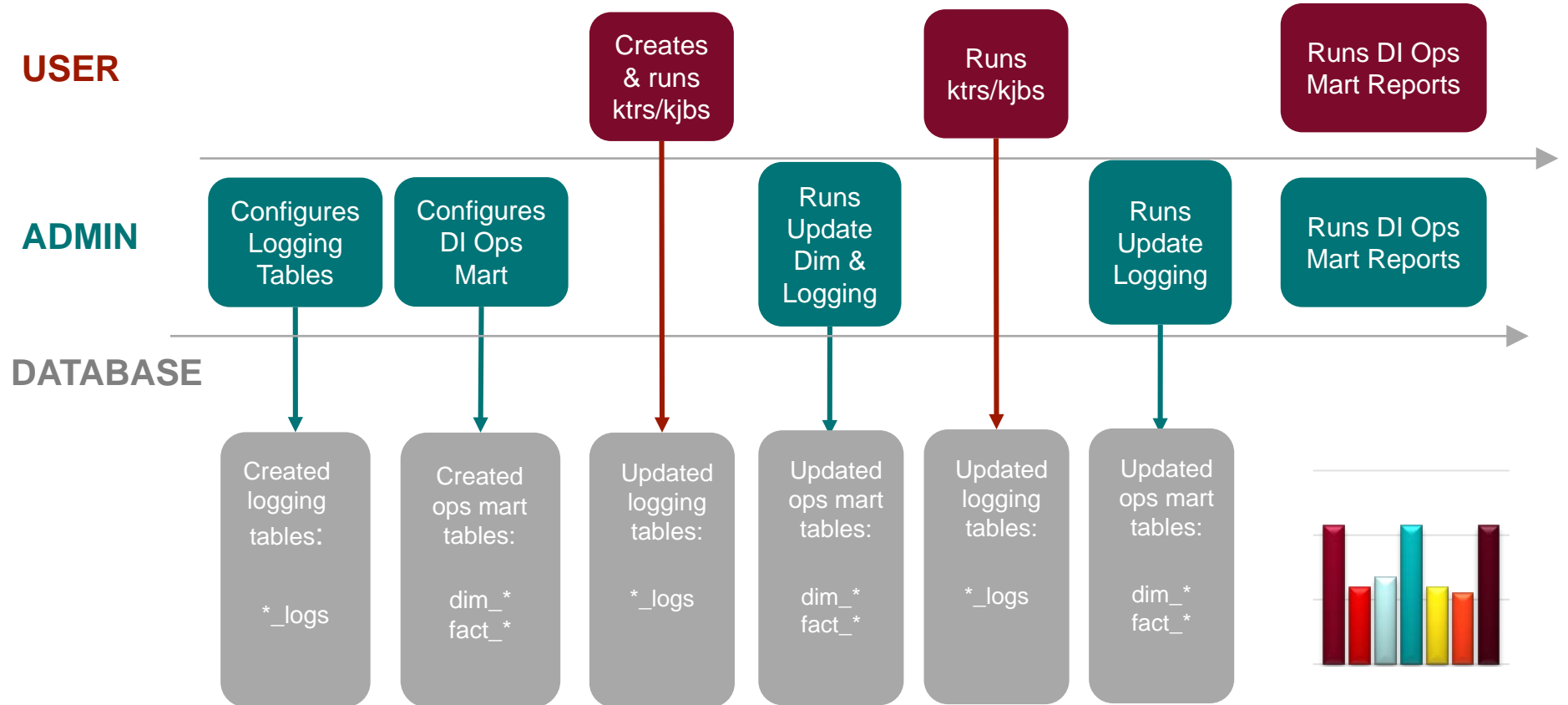
pro\_audit

Updated ops  
mart tables:

dim\_\*  
fact\_\*



# DI Ops Mart Process Overview



# Getting started. How to get Ops Mart running.

# BA Operations Mart

- Create dimension and fact tables:
  - *pentaho\_mart\_postgres.sql*
- Update JNDI connections
  - *Audit*
  - *pentaho\_operations\_mart*
  - *PDI\_Operations\_Mart*
- Load objects into repository (default-content folder)
  - *pentaho\_operations\_mart-etl.zip*
  - *pentaho\_operations\_mart-operations-bi.zip*





# Updating the BA Ops Mart Schema

- Update Date and Time Dimensions
  - Run *Update Audit Mart Date & Time*
  - Only required to run once
- Update Dimensions and Fact tables
  - Run / Schedule *Update BA Audit Data*
- Schedule *Clean BA Audit Data*
- Optional: Update permissions on above xactions



Detailed instructions: [Configuring BA Ops Mart Video](#)

# DI Operations Mart

- Create logging tables:
  - *pentaho\_logging\_postgresql.sql*
- Create dimension and fact tables:
  - *pentaho\_mart\_postgres.sql*
- Load objects into repository
  - *pentaho\_operations\_mart-etl.zip*
  - *pentaho\_operations\_mart-operations-di.zip*



- Update JNDI connections
  - *live\_logging\_info*
  - *pentaho\_operations\_mart*
  - *PDI\_Operations\_Mart*
- Set default database / schema / tables
  - *kettle.properties*



# Updating the DI Ops Mart Schema

- Update Date and Time Dimensions
  - Run *Fill\_in\_DIM\_DATE\_and\_DIM\_TIME*
  - Equivalent to *Update Audit Mart Date & Time*
- Update dimension for objects and log tables:
  - Run / Schedule *Update\_Dimensions\_then\_Logging\_Datamart*
  - Needed after any new ktr/kjbs are created
- Update dimensions and fact tables:
  - Run / Schedule *Update\_Logging\_Datamart*



# Updating the DI Ops Mart Schema

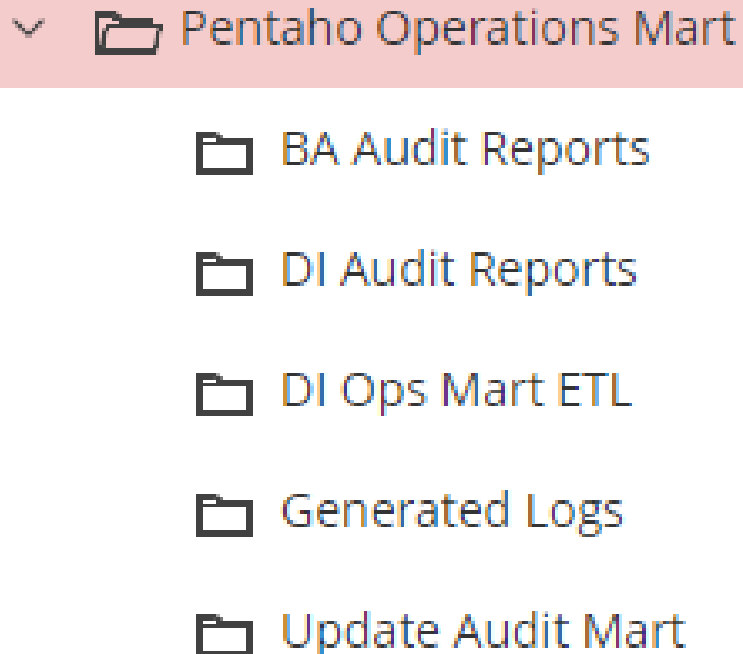
- Optional: Update permissions to the jobs/transformations
  - *Pentaho Operations Mart / DI Ops Mart ETL*
- Schedule cleanup of fact and dimension tables:
  - *Clean\_up\_PDI\_Operations\_Mart*



Detailed instructions: [\*Configuring DI Ops Mart Video\*](#)

# Running the sample reports

- Sample BA/DI Audit Reports are available in Pentaho's User Console
- Reports include:
  - Session Duration Counts
  - Content Request Day of Month
  - Content Duration



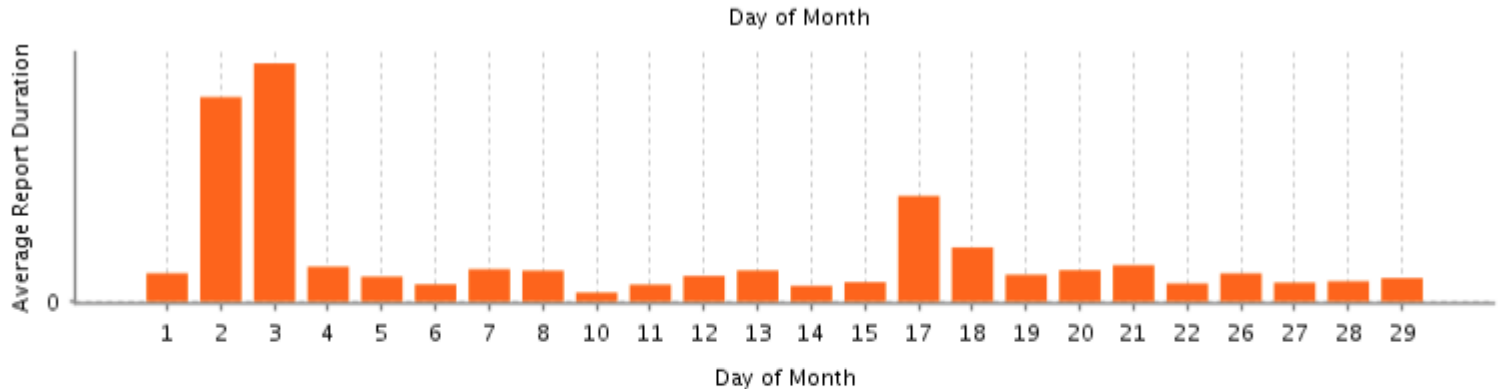


- Who has logged on in the last 24 hours / 7 days / 30 days /All Time and what is the total duration of their sessions.
- Can be easily extended to add details on days they logged on and duration for each day

## Session Duration & Counts - All Time

User	Session Duration (sec)	# of Logins
aabti	7,366	1
aaman	7,269	1
admin	356,384	116
amil	22,147	3
areze	14,599	2

- Compare amount of logins and reports run for each day of the month



Day of Month	# of Logins	# of Report Requests	Total Report Duration	Average Report Duration
1	17	651	101.9	0.1
2	1	17	19.3	0.6
3	2	15	19.2	0.7
4	17	525	101.4	0.1

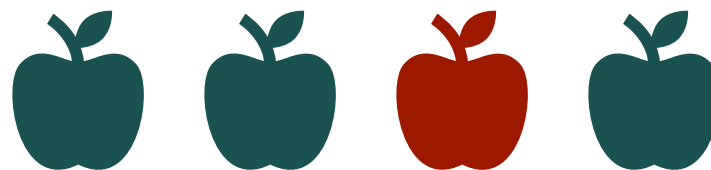
- Shows total duration of content for last 24 hours / week / 30 days
- Can be easily extended to add details and filter by day/hour

## Content Duration - All Time

Content	Duration (sec)
/public/pentaho-operations-mart/update_audit_mart_data/UpdateAuditData.xaction	76,270.02
input file = /public/pentaho-operations-mart/update_audit_mart_data/UpdateAuditData.xaction:outputFile = /public/pentaho-operations-mart/generated_logs/UpdateAuditData.*	65,696.35
/public/Sales Pipeline Dashboards/Sales Pipeline Reports/Longterm 10% above customer type 12 months.xanalyzer	5,943.75
/public/Sales Pipeline Dashboards/Sales Pipeline Reports/Longterm 10% above stage 12 months.xanalyzer	3,432.85

# Special Cases

- Non Postgres repository database
  - MS SQL Server
  - MySQL
  - Oracle
- Separate BA / DI Servers
  - Configuration changes
- Extending Operations Mart



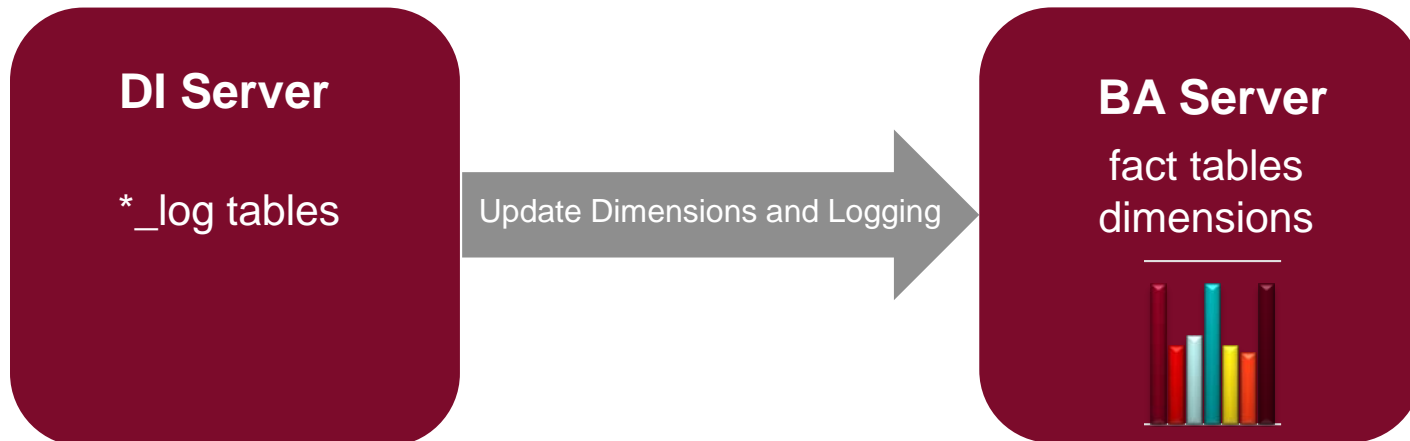
Video Discussion: [Ops Mart Special Cases](#)

# Non Postgres Repository Database

- Run database specific scripts to create objects:
  - *pentaho\_logging\_dbtype.sql*
  - *pentaho\_mart\_dbtype.sql*
- Load database specific objects:
  - *pentaho\_operations\_mart-operations-bi\_dbtype.zip*
  - *pentaho\_operations\_mart-operations-di\_dbtype.zip*
- JNDI connections:
  - *Use correct syntax for database type*



- Default configurations are specific to Pentaho Server
- To configure DI Ops Mart when BA / DI are separate:
  - Update JNDI connection *PDI\_Operations\_Mart* to point to the hibernate database used in BA server.



- Create new reports using schemas provided
  - View data the way you want it
- Create new schemas => reports
- Create new ETL => schemas => reports
  - Ex: integrate with outside data





## Help Documentation:

- [https://help.pentaho.com/Documentation/8.0/Setup/Administration/Performance\\_Monitoring](https://help.pentaho.com/Documentation/8.0/Setup/Administration/Performance_Monitoring)
- [https://help.pentaho.com/Documentation/8.0/Setup/Administration/Performance\\_Monitoring/Monitor\\_System\\_Performance\\_Using\\_Pentaho\\_Operations\\_Mart](https://help.pentaho.com/Documentation/8.0/Setup/Administration/Performance_Monitoring/Monitor_System_Performance_Using_Pentaho_Operations_Mart)
- [https://help.pentaho.com/Documentation/8.0/Setup/Administration/Performance\\_Monitoring/Monitor\\_System\\_Performance\\_Using\\_Pentaho\\_Operations\\_Mart/Data\\_Integration\\_Operations\\_Mart](https://help.pentaho.com/Documentation/8.0/Setup/Administration/Performance_Monitoring/Monitor_System_Performance_Using_Pentaho_Operations_Mart/Data_Integration_Operations_Mart)
- [https://help.pentaho.com/Documentation/8.0/Setup/Administration/Performance\\_Monitoring/Monitor\\_System\\_Performance\\_Using\\_Pentaho\\_Operations\\_Mart#Clean\\_Up\\_Operations\\_Mart](https://help.pentaho.com/Documentation/8.0/Setup/Administration/Performance_Monitoring/Monitor_System_Performance_Using_Pentaho_Operations_Mart#Clean_Up_Operations_Mart)
- [https://help.pentaho.com/Documentation/8.0/Setup/Administration/Performance\\_Monitoring/Monitor\\_System\\_Performance\\_Using\\_Pentaho\\_Operations\\_Mart/Data\\_Integration\\_Operations\\_Mart#Clean\\_Up\\_Operations\\_Mart\\_Tables](https://help.pentaho.com/Documentation/8.0/Setup/Administration/Performance_Monitoring/Monitor_System_Performance_Using_Pentaho_Operations_Mart/Data_Integration_Operations_Mart#Clean_Up_Operations_Mart_Tables)

## Operation Mart Best Practices (includes links to videos)

- <https://support.pentaho.com/hc/en-us/articles/360000244806-Guidelines-Pentaho-Operations-Mart>

Questions?

**HITACHI**  
Inspire the Next 