CLARITY PPM ACADEMY 2019



ON TRACK







Keeping Clarity lean and mean.

Application administration best practices









Introductions

Let us introduce ourselves





Introduce Yourself

Help grow the Clarity PPM Community

 Turn to a person near you (preferably someone you don't know)

Introduce Yourself

Swap Business Cards



Agenda

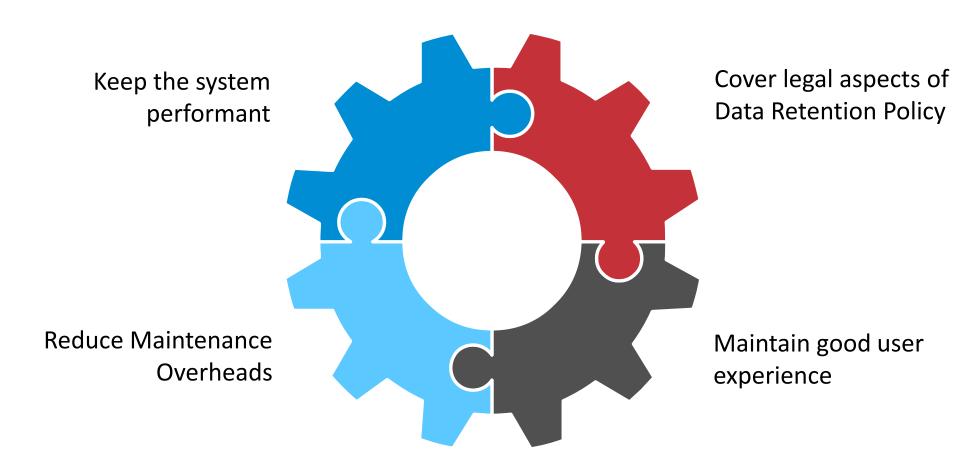
Keeping Clarity lean and mean.

Application administration best practices



Keeping Clarity Lean & Mean

WHY



HOW

Keeping Clarity lean and mean







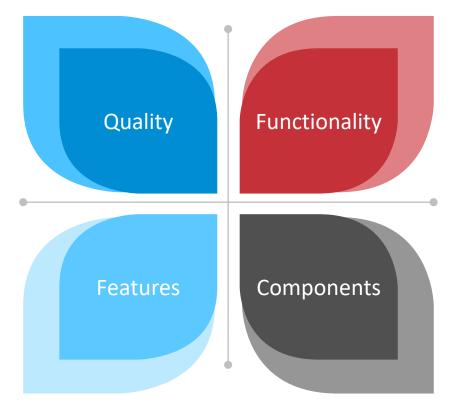
Review

Keeping Clarity lean and mean



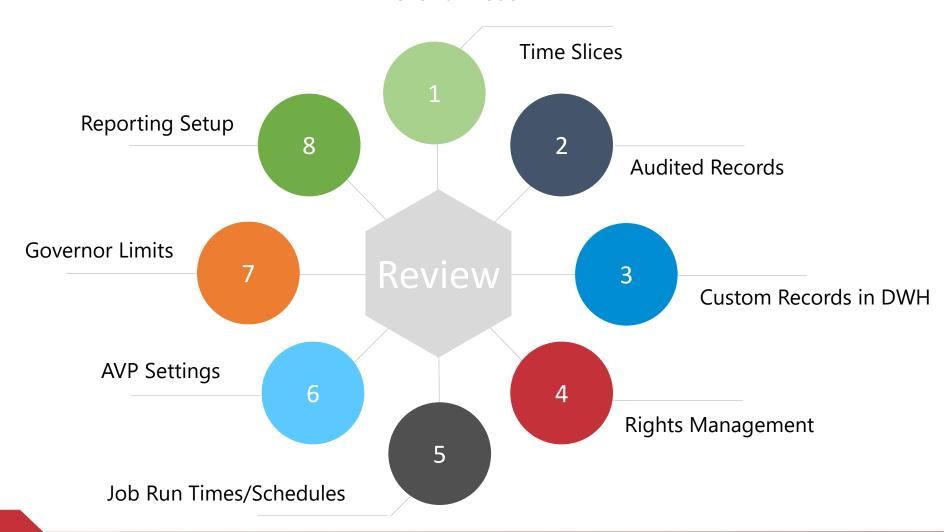
Review

- A formal assessment of application with the intention of instituting change if necessary.
- Review of an application includes validation of :



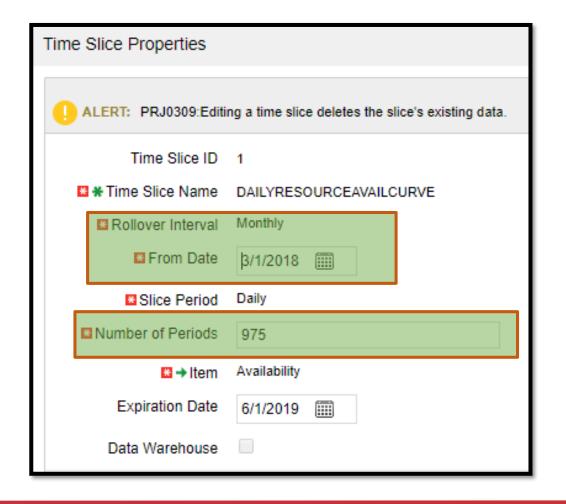
Review

Different Areas



Review: Time Slices

- Time slicing extracts BLOB's data into a readable flat table.
- The data in the tables depend on the time slice window.
- Ensure following settings in time slice window are configured properly
 - Rollover Interval
 - From Date
 - Number of Periods



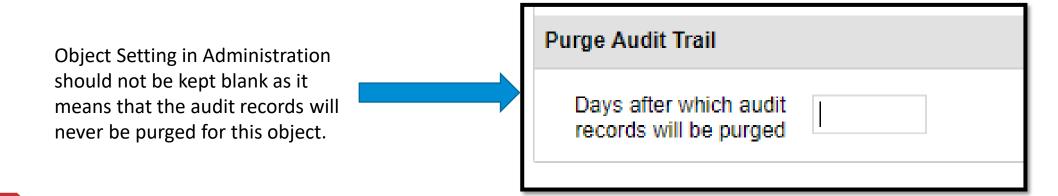
Review: Time Slices

- For Monthly & Daily slices, 'From Date' should be on the 1st of the month.
- No daily slice definitions should cover a range of over 2 years.
- If you need past historical data to be sliced, use monthly time slices.
- Some Specific Recommendations:

Slice Period	Slice Name	Curve	From date	Number of Periods
Daily	Estimates	DAILYRESOURCEESTCURVE	Start of the current month	400 days
Daily	Actuals	DAILYRESOURCEACTCURVE	Start of the current month, going back 1 year	740 days
Daily	Baseline	DAILYRESOURCEBASECURVE	Start of the current month, going back 1 year	740 days
Daily	Availability	DAILYRESOURCEAVAILCURVE	Start of the current month, going back 1 year	740 days
Daily	Allocation	DAILYRESOURCEALLOCCURVE	Start of the current month, going back 1 year	740 days
Monthly	FISCAL time slice ID		Start of the current month, going back 1 year	72 Months

Review: Audited Records

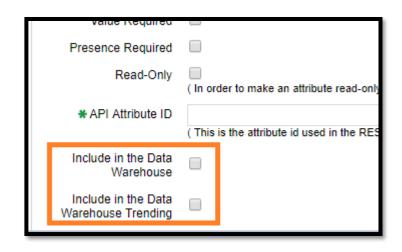
- If an object's attribute is audit enabled, it creates records on each and every insert/update/delete on that attribute.
- Excessive auditing could potentially slow down your system and would create huge audit information.
- Ensure audit records are purged (archived elsewhere) on regular intervals.
- Admin Purpose custom objects are not audited until necessary.

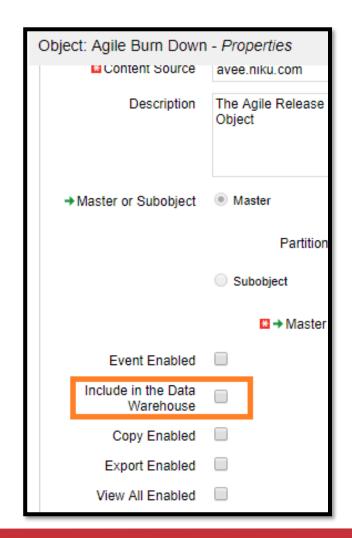


Review: Custom records in DWH

Don't include in DWH unnecessarily

- Custom objects should not be included for DWH if not needed for reporting.
- Only attributes needed for reporting should be included for DWH



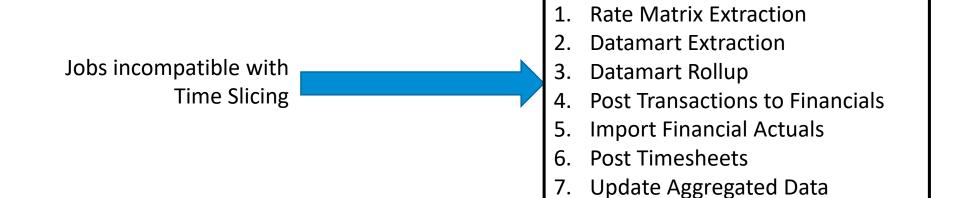


Review: Access Rights

- Refrain from giving individual instance rights as far as possible.
- Rights should preferably be assigned using groups & OBS.
- Investigate if the rights from inactive users can be removed.
- Duplication of rights should be avoided as far as possible.

Review: Job Run Times/Schedules

- Ensure Jobs are not scheduled more frequently than required.
- Review if the jobs are taking longer than expected
 - Further investigation is needed to identify the issue
 - Consider if job schedule needs to be adjusted
- Incompatible jobs are not scheduled to run simultaneously



Review: Job Run Times/Schedules

- Make sure that the job run sequence is correctly defined.
- Avoid running the following jobs during normal peak production business hours:
 - Rate Matrix Extraction (also known as Full run)
 - which runs with job parameters:
 - Extract Cost for Schedulers (optional)
 - Prepare Matrix Data
 - Update Matrix Data
 - Datamart Extraction
 - Datamart Rollup
 - Load Data Warehouse (Full Run)

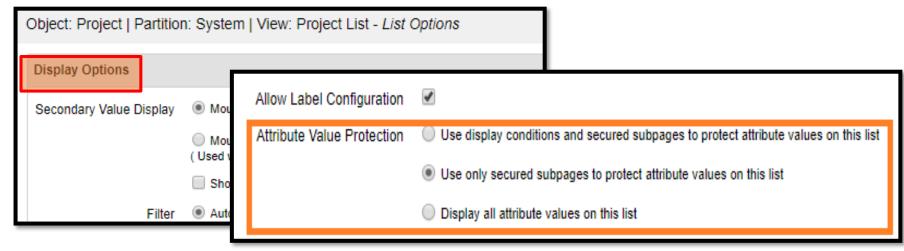
Typical sequence of Job runs

- Time Slicing job (run every minute)
- 2. Investment Allocation job (run every day)
- 3. Rate Matrix Extraction (also known as *Incremental* run) which runs with options:
 - I. Extract Cost for Schedulers (optional)
 - II. Prepare Matrix Data
 - III. Update Matrix Data
 - IV. Incremental
- 4. Post Timesheets
- 5. Purge Temporary Aggregated Data
- 6. Update Aggregated Data
- 7. Update Earned Value History
- 8. Update Earned Value Totals
- 9. Create Earned-Value Snapshots
- 10. Update Business Objects Report Tables
- 11. If you use the financial posting module:
 - I. Post Transactions to Financials
 - II. Post to WIP
 - III. Import Financial Actuals



Review: AVP Settings

 AVP(Attribute Value Protection) settings are used to restrict the attribute display in list views.



- Secured pages are recommended over display conditions.
- If security is not needed in list view, use display all.

AVP Setting	Display of column value in List View
Use Display Conditions & Secured Subpages	Checks are done for each attribute column if the attribute is on a secured subpage and the end-user has the appropriate right. Checks are done on each row of the attribute column if the value for the attribute on the row meets the display condition criteria
Use only Secured subpages	Checks are done for each attribute column if the attribute is on a secured subpage and the end-user has the appropriate right.
Display all attributes	No Checks





Review: AVP Settings

Queries to identify the objects and views with AVP setting set as full

```
SELECT
    code AS OBJECT VIEW,
    CASE
        WHEN use display conds for security = 0
        THEN 'SECURE SUBPAGES'
        WHEN use display conds for security = 1
        THEN 'FULL AVP'
        ELSE 'LOWEST'
     END AS AVP SETTING
FROM cmn grids
WHERE principal type = 'SYSTEM
   AND (USE DISPLAY CONDS FOR SECURITY=1
   OR use display conds for security =2)
   AND (dal type ='object'
   OR dal type ='system')
    AND code IS NOT NULL
```

To identify objects

```
SELECT
    code AS OBJECT VIEW,
    CASE
        WHEN use_display_conds_for_security = 0
        THEN 'SECURE SUBPAGES'
        WHEN use display conds for security = 1
        THEN 'FULL AVP'
        ELSE 'LOWEST'
      END AS AVP SETTING
FROM cmn grids
WHERE principal type = 'USER'
    AND (USE DISPLAY CONDS FOR SECURITY=1
    OR use display conds for security =2)
    AND (dal type = object)
    OR dal type ='system')
    AND code IS NOT NULL
```

To identify Custom Views

Review: AVP Settings

Queries to update AVP setting (Approved by Product Development team)

```
UPDATE cmn_grids
SET use_display_conds_for_security=0
WHERE id IN
    ( SELECT id
        FROM cmn grids
        WHERE principal type ='SYSTEM'
        AND (USE_DISPLAY_CONDS_FOR_SECURITY=1
        OR use_display_conds_for_security =2)
        AND (dal_type ='object'
        OR dal_type ='system')
)
```

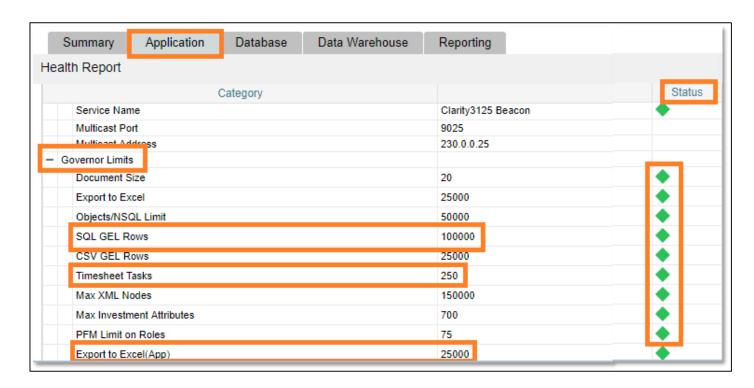
```
UPDATE cmn_grids
SET use_display_conds_for_security=0
WHERE id IN
    ( SELECT id
         FROM cmn_grids
         WHERE principal_type ='USER
         AND (USE_DISPLAY_CONDS_FOR_SECURITY=1
         OR use_display_conds_for_security =2)
         AND (dal_type ='object'
         OR dal_type ='system')
)
```

To update Object Lists

To update grids customized by users derived from objects

Review: Governor Limits

- Governor limits are the maximum rows allowed for different areas in PPM i.e. number of rows in excel export, number of rows in GEL script.
- Path to obtain the settings from Application:
 - Administration \rightarrow Security & Diagnostics \rightarrow Health Report \rightarrow Application \rightarrow Governor Limits



- These limits help performance and should not be violated as far as possible.
- In cases where larger volume of data is needed, alternate ways like Jasper reports, interfaces etc. should be considered.

Review: Governor Limits

- If changing the Governor limits is really the need, below is path to governor limit settings on server:
 - [Clarity Home]/config/governor.properties

Governor.properties file

```
#Maximum Document upload Size
DMS DOCUMENT MAX SIZE=20
#Maximum rows for Export to Excel
E2E MAX ROWS=25000
#Maximum row limit for Objects and NSQL Portlets
MAX_FETCH_LIMIT=50000
#Maximum GEL rows allowed
MAX SQL GEL ROWS=100000
#Maximum GEL CSV rows allowed
MAX CSV GEL ROWS=25000
#Maximum tasks allowed in a timesheet
MAX TIMESHEET TASKS=250
#Maximum allowed XML nodes in a XOG read
MAX XML NODES=150000
#Maximum attributes allowed in a PFM Portfolio
PFM LIMITS MAX INV ATTRS=700
#Maximum roles allowed
PFM LIMITS MAX ROLES=75
#Maximum rows for Export to Excel, application le
E2E MAX ROWS APP=25000
#Timer for Export to Excel.
E2E TIMER=600
#Maximum todos allowed per task
MAX TODOS PER TASK=25
#Maximum documents allowed for Upload
```

Review: Reporting Setup

- JasperSoft server can be setup as Standalone or Clustered.
 - Standalone server is used for both the concurrent and scheduled executions.
 - In Clustered environment, you can choose to have a separate report scheduler instance.
- Ability to separate out scheduled reports onto a different server removes the load from the main server, improving the performance of concurrent reports.
- Increasing the export page limit for JasperSoft reports is not recommended.

Review: Tomcat Logs

- The tomcat logs provide the overall analysis for the system
- In the recent versions, tomcat logs can also be imported into Clarity.
- They provide vital information like :
 - Top 20 slow pages
 - Frequently Viewed pages
 - Data Peaks
- It can help us in finding patterns and trends in the system.

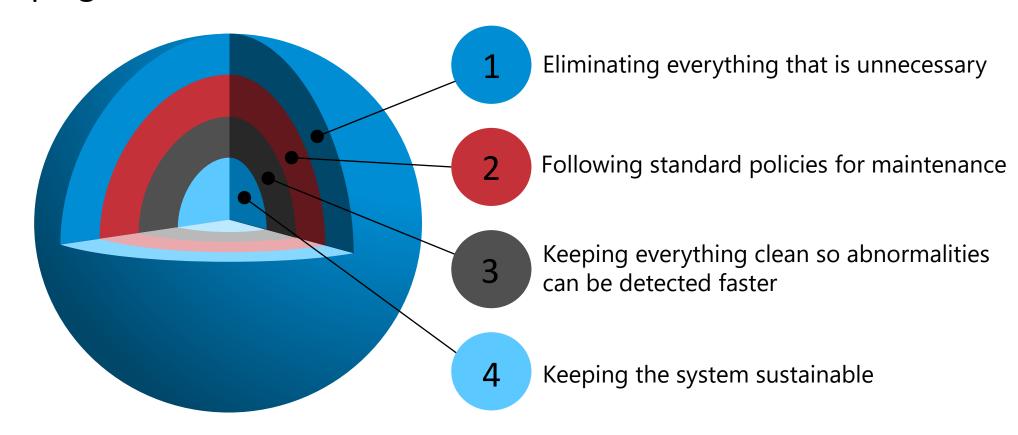
Housekeeping

Keeping Clarity lean and mean.



Housekeeping

Housekeeping can be described as :

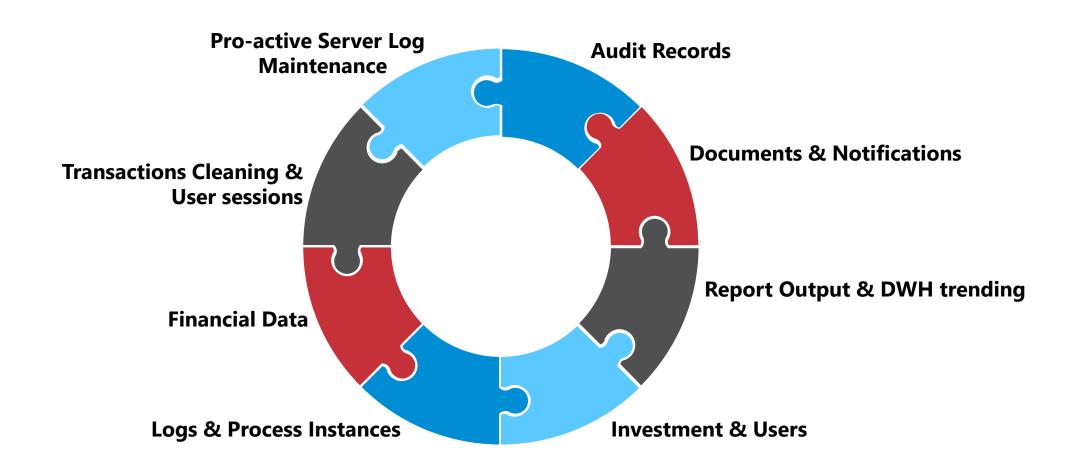




Data Retention Policy is required to drive the housekeeping.

Housekeeping

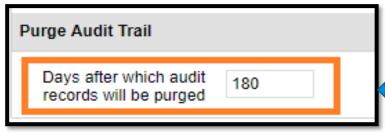
Different areas



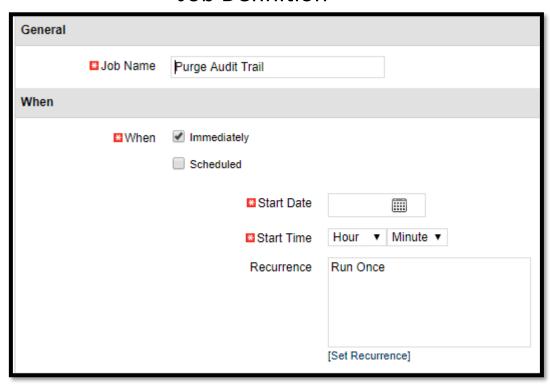


Audit Records

- Related tables:
 - CMN_AUDITS
 - CMN AUDITS TSV
- Recommended Record Threshold
 - Not more than 1 million records
- OOTB Job:
 - Purge Audit Trail
 - Job Parameter : defined on object.
 - Administration → Objects → [Object Name]
 - → Audit trail → Purge Audit Trail



Job Definition



Audit records will never be purged if this field is left blank.







Documents & Notifications

Documents

- Documents table:
 - CLB_DMS_FILES
- OOTB Job
 - Purge Documents
 - This jobs deletes the documents based on specified parameters.
- Do not run it on regular basis unless this is the requirement.



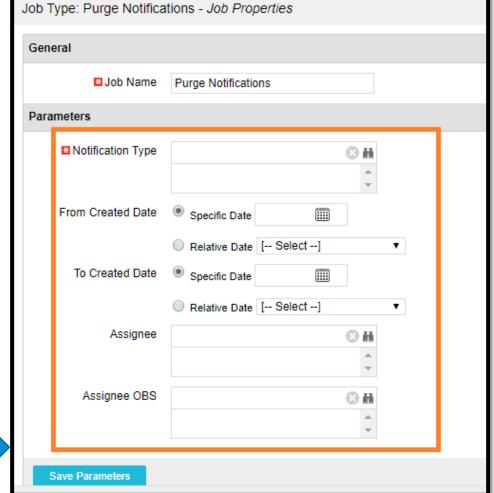
Job Type: Purge Documents - Job Properties				
□Job Name	Purge Documents			
Parameters				
Purge All Documents for the Following Objects				
[Or] Purge Documents and Versions Not Accessed for [n] Days				
[Or] Retain the [n] Most Recent Versions and Purge the Prior Versions				
All Projects				
Project OBS	○ #4			
Specific Project	○ ##			
All Resources				
Resource OBS	○ M			
Specific Resource	⊗ #4			
All Companies				
Company OBS	⊗ ₩			
Specific Company	⊗ #			
Knowledge Store				



Documents & Notifications

Notifications

- Users cannot delete the action items/notifications via UI.
- Notifications table:
 - CLB_NOTIFICATIONS
- OOTB Job
 - Purge Notifications
 - This jobs deletes the notifications based on specified parameters.



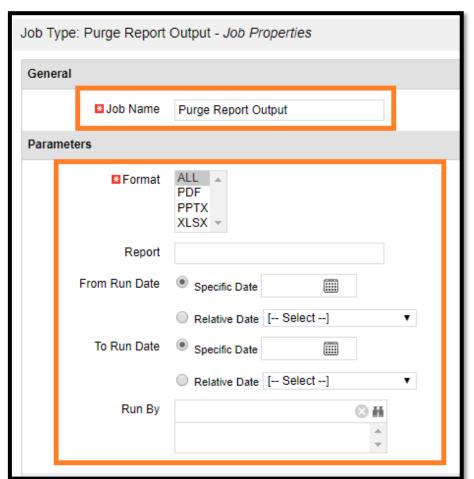




Report Output & DWH Trending

Report Output

- Related tables:
 - CMN_RPT_RUN_REPORTS
- This will reduce the burden on the reports table.
- OOTB Job
 - Purge Report Output
 - This jobs deletes the report output based on format, specific report name, dates and run by parameters.

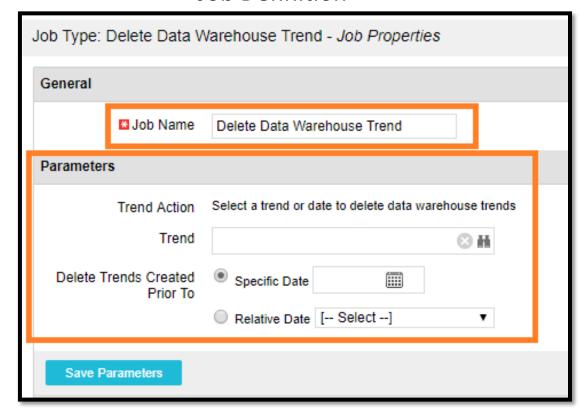




Report Output & DWH Trending

DWH Trending

- If trending is used, then the data will grow rapidly over the period of time.
- Related tables which get cleared:
 - DWH_TRD_INV_INVESTMENT
 - DWH TRD INV INVESTMENT LN
 - DWH_TRD_RES_RESOURCE
 - DWH_TRD_LKP_OBS_UNIT
 - DWH TRD INV OBS MAPPING
 - DWH TRD RES OBS MAPPING
 - DWH TRD INV MONTH FACTS
 - DWH TRD RES MONTH FACTS
 - DWH TRD INV SUM FACTS
- OOTB Job
 - Delete Data Warehouse Trend
 - This job deletes previous snapshots by specifying a named trend or by entering a specific date or relative date.





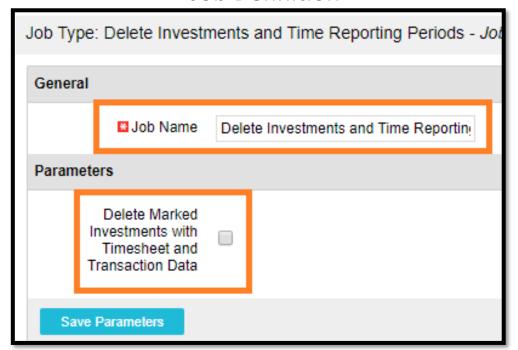




Investments & Users

Investments

- Related objects for which tables get cleared on deletion of investments:
 - Investments
 - Team
 - Tasks
 - Financials
 - Security Groups
 - Timesheets
 - Hierarchy
- OOTB Job
 - Delete Investments and Time Reporting Periods
 - This jobs deletes the data for inactive marked investments and time periods.
- Reduced data results into faster query execution.





Investments & Users

Users

- When a user leaves, the system access related data can be removed which will reduce burden on the security tables.
- This will comply with GDPR Policies.
- It includes:



Removing Group Membership
Security tables become light

03

Making the user inactive Saving a license

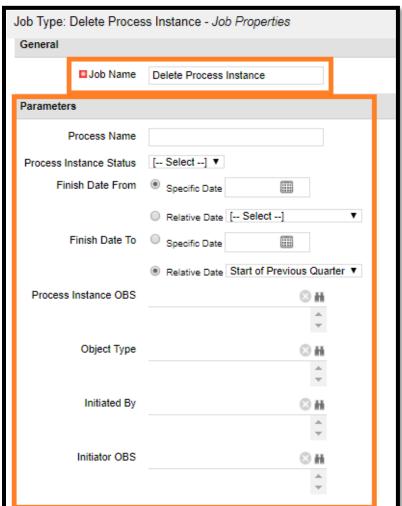




Logs & Process Instances

Process Instances

- Related Tables for process runs:
 - BPM_ERRORS
 - BPM_RUN_STEPS
 - BPM_RUN_PROCESSES
- Heavy process instance tables have major impact on
 - Process run times
 - Process validations
 - BG server
- OOTB Job
 - Delete Process Instance







Logs & Process Instances

Job Logs

- Job runs create data in these tables:
 - CMN_SCH_JOB_LOGS
 - CMN_SCH_JOB_RUNS
- OOTB Job
 - Remove Job Logs and Report Library entries
- Removal of job logs will make execution of jobs faster.

Job Type:	Remove Job L	ogs and Report Library entries - Job	Properties					
General								
	■ Job Name	Remove Job Logs and Report Library €						
Parameters								
☑ Job age for delete								
Report age for delete								
Save P	arameters		1					



Logs & Process Instances

Tomcat Log Analysis Data

- When we run the 'Tomcat access log import/analyse' job, following tables are populated:
 - LOG_DETAILS
 - LOG FILES
 - LOG REPORTDEFS
 - LOG SESSIONS
 - LOG SUMMARY
- Bulky logs will cause slowness in the system analysis portlets.
- OOTB Job
 - Delete Log Analysis Data
- Recommended Record Threshold
 - Not older than 45 days

Job Definition

Job Type: Delete Log Analysis Data - Job Properties						
General						
	■ Job Name	Delete Log Analysis Data				
Parameters						
Log retention in days		30				
Session token retention in days		14				
Save P	arameters					





Financial Data

- Financial data is stored in following tables:
 - FIN_FINANCIALS
 - PPA WIP
 - PPA_WIP_VALUES
 - All other financial tables
- Heavy Financial tables tend to slow down the processing in cost/benefit/budget plans.
- Note:
 - The investment is financially closed before running this job.
 - This should be marked incompatible to itself.
- OOTB Job:
 - Purge Financial Tables
 - This job permanently deletes all financial transactions for the specified project, including WIP entries.

Job Definition

Job Type: Purge Financial Tables - Job Properties						
General						
	■ Job Name	Purge Financial Tables				
Parameters						
	■Investment	⊗ ii	ň			
Save Parameters						
When						



HOUSEKEEPING

Transaction Cleaning & User sessions

Transaction Cleaning

Proper monitoring of transaction Failures

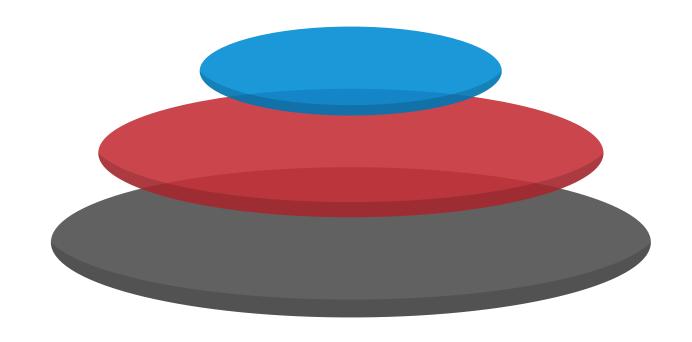
1

Clear Erroneous transactions from IMP_TRANSACTIONIMPORT table

2

Clear any Hold transactions older than a pre-decided time

3

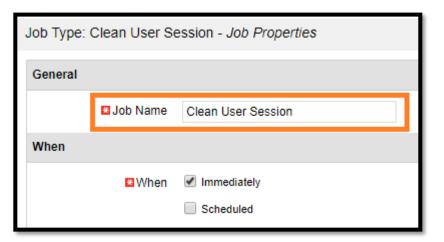




Transaction Cleaning & User sessions

User Sessions

- Related tables:
 - CMN_SESSIONS
 - CMN_SESSION_AUDITS
 - LOG_SESSIONS
- Over a period of time, unmanaged user session table will adversely impact user login time.
- OOTB Jobs:
 - Clean User Sessions
 - Clean Open Expired User Sessions



Job Type: Demo - Clean Open Expired User Sessions - Job Properties					
General					
	■ Job Name	Demo - Clean Open Expired User Sess			
Parameter	S				
Clean Out Open User Sessions Older than					
Save P	arameters				







Pro-active Server Log Maintenance

- The Clarity PPM logs are not deleted automatically.
- Those need to be maintained explicitly.
- The heaviest logs are app-access logs which contain each and every action of the users.
- So, to keep the server space free and system light, the logs should be deleted as per the data retention policies in the organisation.





Monitoring

Keeping Clarity lean and mean.

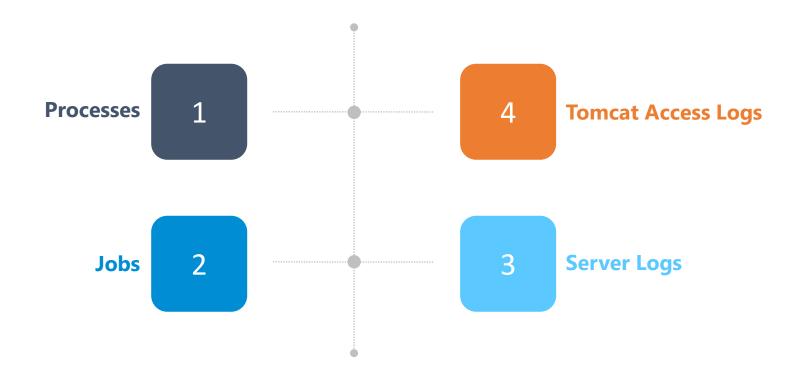


Monitoring

Be Pro-active, not reactive

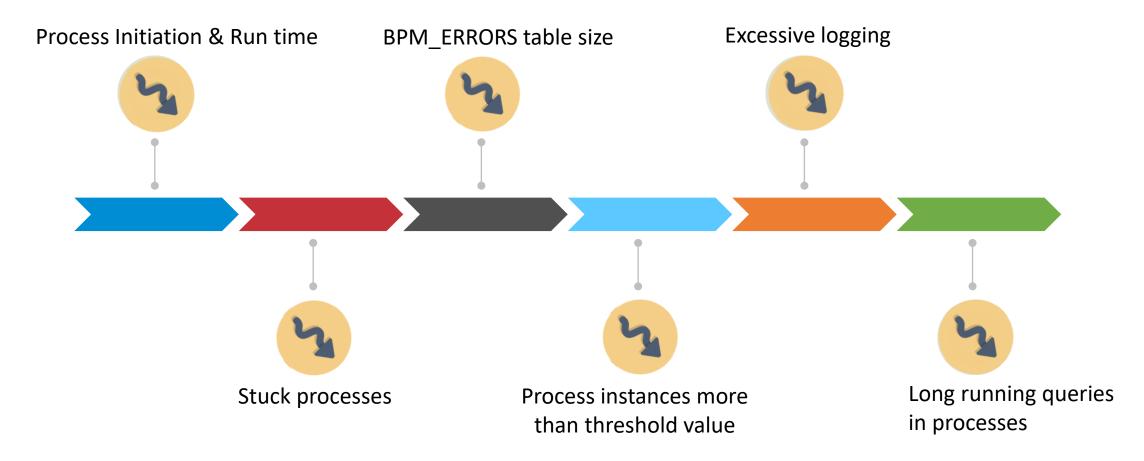
- Operationally, proactive monitoring provides a view into the health and status of services.
- Allows us to understand:
 - How the system is performing,
 - Along with identifying potential areas for upcoming issues.

Monitoring



Monitoring: Processes

Process Checks

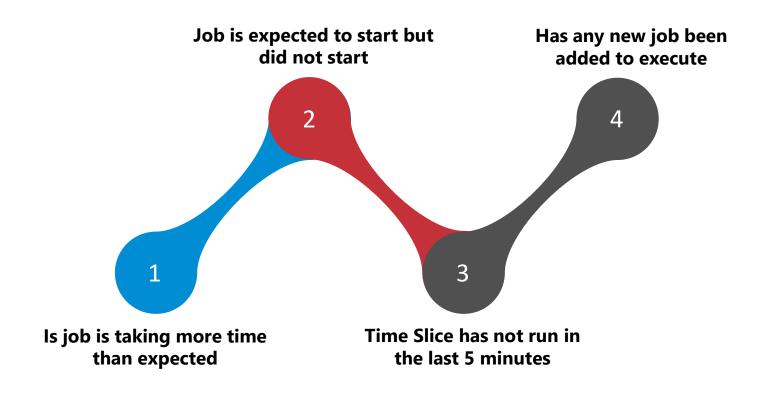


Monitoring: Processes

- Steps to troubleshoot/Analysis:
 - Create a matrix with expected run times for critical processes.
 - Create a matrix with expected number of process instances.

Monitoring : Jobs

Questions for investigation:



Monitoring : Jobs

What and How to monitor

- Steps to troubleshoot/Analysis:
 - Create a catalogue of all scheduled jobs with expected run-times.
 - Any new job found should be added to this catalogue with its expected run time.
 - Try to determine if the longer run time is because of high volume of data/processing in the job

Monitoring: Logs

- app-ca, bg-ca logs daily monitoring for:
 - SQL error alert
 - Application error alerts
- Size of log-files should be monitored.

Monitoring: Tomcat Access Logs

- Available from Clarity PPM 15.3
- Gives the overall system Information within the Clarity PPM Application
- Allows pro-actively monitor the system usage
- Pre-Requisite: 'Tomcat access log import/analyze' job should be scheduled.
- Once the logs are imported, we can analyse the system using 'Security and Diagnostics' section in Administration menu, on following link:
 - Logs Analysis





- The Log Analysis page contains 5 tabs as below: (highlighted as the tabs)
 - System Stats by Hour/Day
 - System stats by Month
 - Daily Page/XOG Views
 - Immediate Reporting Statistics
 - Log Data Export





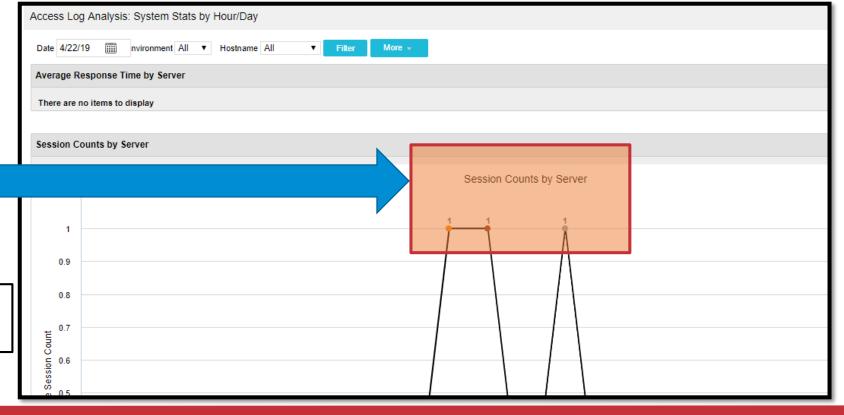




- The 'System Stats by Hour/Day' tab contains three portlets:
 - Average Response Time by Server
 - Session Counts by Server
 - Slow Actions by Day

Session Count on the server for a specific date

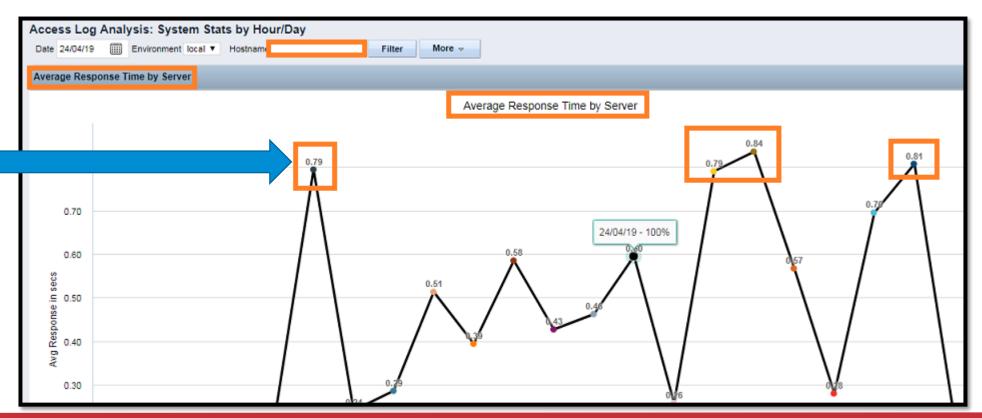
The number of session counts shows the patterns of load on the system on any day





- Average Response Time by Server portlet
 - Peak in response time can be because of heavy queries, jobs, and processes running simultaneously Or a result of excessive user load at that particular time subject to further investigation

Peak of response time in a day





Tomcat Logs

- The 'System Stats by Month' tab contains five portlets:
 - Monthly Page Views
 - Monthly Page Views by Server
 - Monthly Session Counts
 - Monthly XOG Requests
 - Monthly XOG Requests by Server

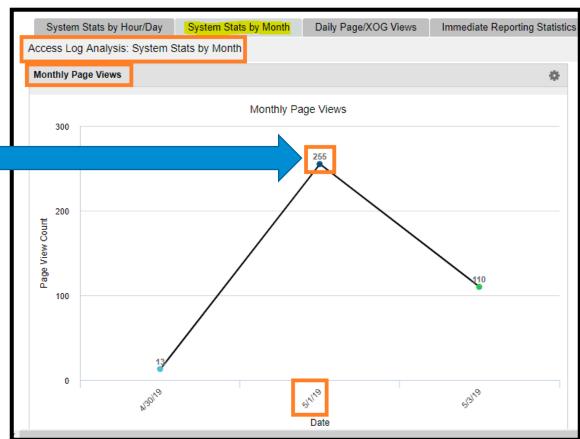


• Different portlets : Monthly Page Views

 Total views on any pages in the system on a particular date in the selected month.

Page view count on 5/1/2019

The number of page views in this portlet shows the usage pattern of pages through out the month

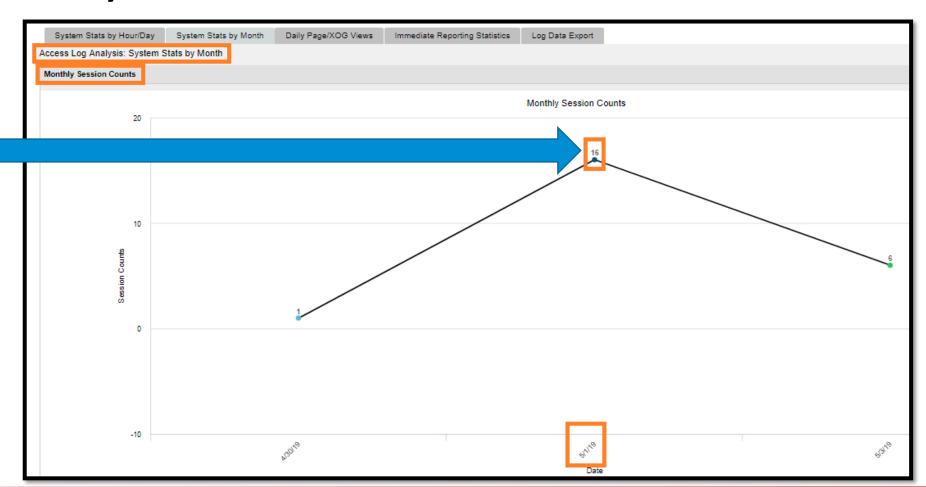




• Different portlets : Monthly Session Counts

Session count on a particular date in specified month

The number of session counts in this portlet shows the user login patterns in the system in a particular month





- The 'Daily Page/XOG Views' tab contains nine portlets:
 - Slow Pages Top 20
 - Page Views by Service
 - Page Views by Server
 - Average Response Time by Day
 - Daily Page Views
 - XOG Requests by Service
 - XOG Requests by Server
 - Average XOG Response Times by Day
 - XOG calls by Day



Most Important portlet is "Slow Pages Top 20".

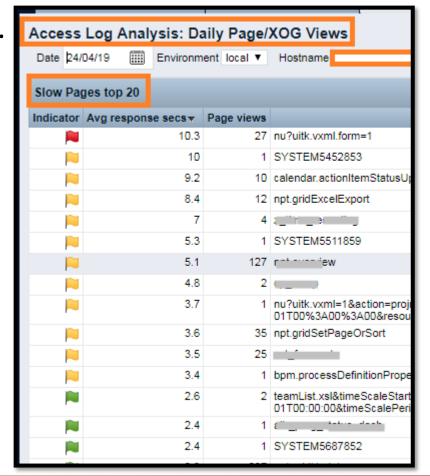






Tomcat Logs

- The 'Slow Pages Top 20' portlet looks like following:
 - Response time less than 3 seconds is fine(marked green).
 - Response time 3-10 seconds is flagged yellow
 - Response time more than 10 seconds is flagged red.





Tomcat Logs

- The tab contains five portlets:
 - Immediate Reports Daily Executions
 - Immediate Reports Daily by Time Consumed (secs)
 - Immediate Reports Daily
 - Immediate Reports Monthly
 - Immediate Reports Breakdown by Month



- The tab contains Log Summary Export portlet
- It can be used to get the export of logs data for a given time interval

Access Log Analysis: Lo	g Data Export			
- Log Summary Export				
Log Julilliary Export				
Environment	All ▼			
Start Date				
End Date				
Filter Show All	Save Filter	Clear		
There are no items to displ	ay			



Questions?

Keeping Clarity lean and mean.

Application administration best practices



Coming up

What's happening in the next session

01

Manage work your way with modern task management

02

How much can be done to configure the Modern UX?

03

Hands-on with Jaspersoft Adhoc Reporting

Thank you for attending

Keeping Clarity lean and mean.

Application administration best practices



Phone

+44 844 736 2500



Email

ppmacademy@pemari.com



Website

www.pemari.com



Let us know how we can improve!

Don't forget to fill out the feedback forms!

References

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Application administration best practices

- CA(Broadcom) Documentation
- CA Communities