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Clarity Housekeeping and Maintenance

Your Guides:
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Agenda

- Introduction
- Keeping Clarity Healthy
 - Why is housekeeping required?
 - When to perform housekeeping?
 - Housekeeping Recommendations
- Rego's Approach
 - Rego's Recommendations
 - Rego's Health Check Assets

Introduction



Introductions

- Take 5 Minutes
- Turn to a Person Near You
- Introduce Yourself
- Business Cards

Understanding Clarity and Housekeeping

- Clarity is flexible and customizable, both in their latest MUX and Clarity Studio. Admins can:
 - Implement modules like: Custom Investments, Roadmaps, Demand/Project Management, Resources, Financials, etc.
 - Customize Objects, Attributes, Blueprints, and more, through:
 - Clarity Studio
 - Modern UX Administration
 - Implement automations and background processing of data through Jobs, Processes, and Business Rules.
- This same flexibility requires maintenance and housekeeping to keep the application healthy.
- Like any other application, resources are finite. Admins need to monitor: activity (user, automations, APIs), configuration and data.

Quick Round Table

- Does your organization perform any Clarity maintenance activities?
- Describe the activities performed in your organization:
 - Processes
 - Jobs
 - Configuration changes
- How often are this activities performed?
 - On a schedule?
 - On deployments/implementations?
 - When an issue occurs?

Keeping Clarity Healthy



Why is Housekeeping Required?

- Software Maintenance is the process of modifying a system or component without modifying the software itself to:
 - Improve Performance
 - Adapt to latest usage and changes
 - Deliver the service without faults or issues
 - Retire unused functionality/customizations
- Housekeeping is key during the multiple stages of the maintenance process to ensure:
 - Latent risks and issues can be identified and avoided
 - Monitor the impact of releases and/or implementations
 - Ensure the best performance and service is provided

When to Perform Housekeeping?

- When to perform Maintenance/Housekeeping
 - As a Preventive Process:
 - On a scheduled basis
 - Monitoring key metrics and thresholds
 - As an Adaptive Process:
 - When the software is upgraded, or new functionality is released
 - After implementing changes or customizations
 - Decommissioning/Cleaning up previous functionality
 - As a Corrective Process:
 - When a fault is detected
 - When performance issues occur

What Does Housekeeping Involve?

- Processes
 - Processing Capacity:
 - Number of processes running and throughput
 - Number of processes in error state
 - Common failing processes
 - Historic papertrail
- Jobs
 - Review Job schedules
 - Monitor Job Failures
 - New jobs and changes (Specially with MUX, several jobs have been released)
 - Financial Processing
 - Jobs
 - Invalid Transactions
 - Timesheets without transactions
 - DWH Processing
- Configuration and Customizations
 - Clarity Studio
 - MUX Administration

Housekeeping - Processes

- Monitoring Process executions:
 - Volatile/Historic data can accumulate between executions, messages, action items and/or notifications.
 - Executions consume application resources and can generate performance overhead when they:
 - Remain in Error State
 - Long running processes
 - Old initiated instances
 - High throughput
- Must be monitored routinely and during implementations. Using the organizer helps identify and monitor process executions.

Organizer - Initiated

PROCESS NAME: time

PROCESS ID:

PRIMARY OBJECT:

FROM START DATE:

TO START DATE:

STATUS: All

INITIATED BY:

Process	ID	Primary Object	Object Name	Progress	Steps In Progress	Status	Messages	Initiated By	Start Date	Finish Date
Time Tracking Stalker - Resource v13	rego_time_stalking_v13			Progress bar		Running		Clarity Administrator	9/2/22 1:00 PM	9/2/22 1:00 PM
Timesheet Validations	pf_ts_validations			Start	Start	Error		Clarity Administrator	9/2/22 1:18 PM	

Displaying 1 - 2 of 2

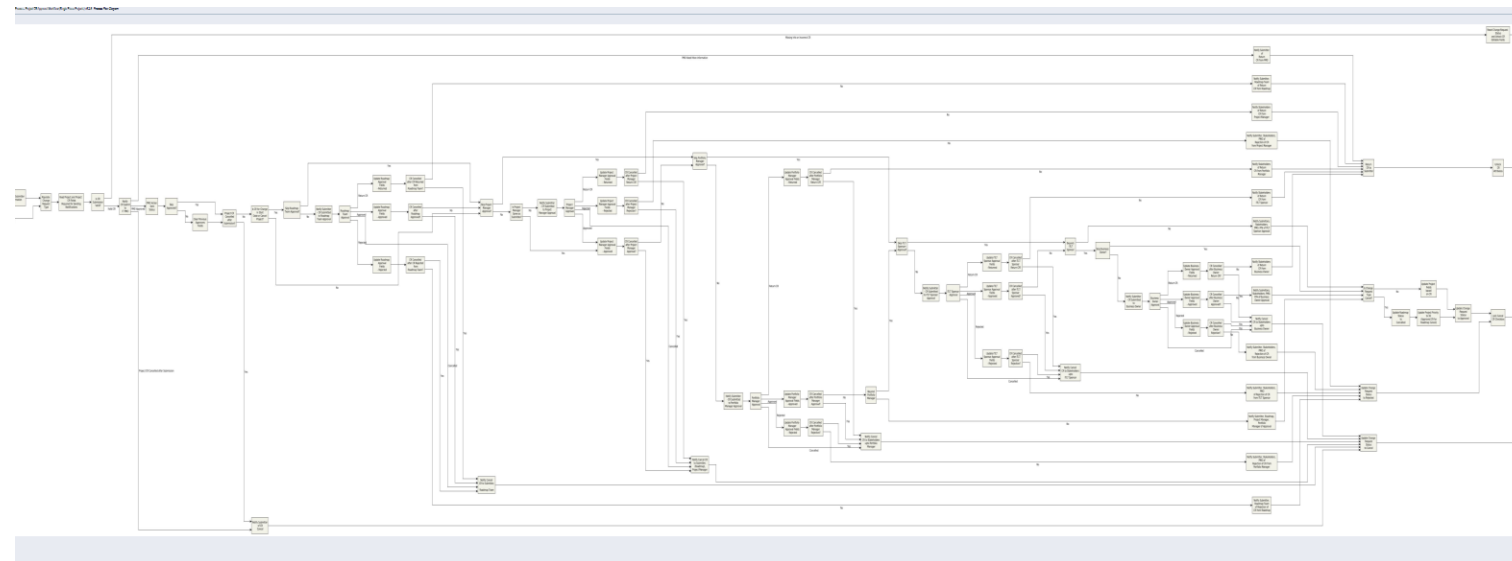
Legend: Running (yellow diamond), Completed (green diamond), Error (red diamond), Aborting (grey diamond), Aborted (orange diamond)

Housekeeping - Processes

- Housekeeping and Maintenance also come into play when developing processes. It is key to ensure best practices:
 - Do the math to calculate executions: how often will they trigger; using schedules and execution times are important for throughput.
 - When setting up conditions for automatic processes, avoid unnecessary executions.
 - Be conscious of subprocesses and calling jobs.
 - Keep processes simple and short lived.
 - Avoid long running processes.
 - Be conscious when using action items or using conditions that depend on additional user activity.
 - Handle errors and logging to avoid leaving a significant paper trail or running instances behind.
 - Avoid depending on user action, or monitor outstanding instances requiring user action.

Process: Timesheet Validations - *Initiated Process Messages*

MESSAGE TYPE	STEP NAME	DESCRIPTION	FROM ERROR DATE	TO ERROR DATE	STATUS	
All					All	
<input type="button" value="FILTER"/> <input type="button" value="SHOW ALL"/> <input type="button" value="CLEAR"/>						
Step	Action	Description	Message	New Assignees	User Action	Date
<input type="checkbox"/>	Start	Validation Logic	Timesheet Data incomplete			9/2/22 1:18 PM
<input type="checkbox"/>	Start	Validation Logic	BPM-0545: An error occurred when executing custom action.			9/2/22 1:18 PM
Displaying 1 - 2 of 2						
<input checked="" type="button" value="RETRY"/> <input checked="" type="button" value="SKIP PROBLEM"/> <input checked="" type="button" value="DELETE"/> <input type="button" value="CANCEL PROCESS"/> <input type="button" value="SHOW DETAILS"/> <input type="button" value="RETURN"/>						
🚫 = System Errors 📄 = Application Errors ⚠️ = Warnings ℹ️ = Information 🟩 = Processed Errors						

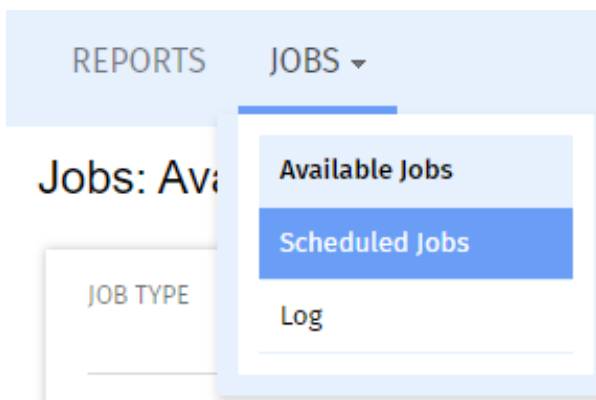


Housekeeping - Jobs

- Jobs in Clarity serve multiple purposes, providing background processing for any intensive/data updates, critical to ensure the calculations and rollup across the app are consistent, like:
 - Time Slicing
 - DWH Jobs
 - Financial Processing
 - Running Processes on a schedule
- Even though executions are logged, they normally don't represent a significant risk for volume. They can still be cleaned up via jobs.
- When it comes to housekeeping, it is key to monitor the schedules and ensure they run to best fit the organization without disrupting user traffic/activities.

Housekeeping - Jobs

- All available jobs can be visualized under: Administration -> Reports and Jobs, in some cases some jobs are not active unless required
- Schedules and executions can be reviewed under: Home -> Reports and Jobs -> Jobs
- Easily visualize all scheduled jobs by filtering with “Recurring” jobs
- Quick Tips:
 - Its always best to schedule using CRON expressions, using the other options are sensitive to time zones depending on the logged in user
 - Ensure related jobs are properly scheduled in the expected order and setup incompatibilities as needed
 - Ensure the job schedules are shared through an admin group
 - Ensure failure notifications are in place to identify potential issues
 - Be mindful of schedules, i.e. posting transactions every 5 minutes when Timesheets and Financial transactions are entered wee kly



Clarity PPM CA Hi, Clarity Administrator

REPORTS **JOBS**

Jobs: Scheduled Jobs

JOB NAME:

JOB STATUS: **All**

JOB TYPE: **All**

FROM SCHEDULED DATE:

JOB ID:

TO SCHEDULED DATE:

CATEGORY: **All**

RECURRENCE: **Recurring**

FILTER **SHOW ALL** **CLEAR**

<input type="checkbox"/>	Job	Job Type	Job ID	Job Status	Scheduled
<input type="checkbox"/>	Import Financial Actuals	Import Financial Actuals	1002	Scheduled	9/3/22 2:30 PM
<input type="checkbox"/>	Remove Job Logs and Report Library entries	Remove Job Logs and Report Library entries	5226044	Scheduled	9/4/22 3:17 AM
<input type="checkbox"/>	Index contents and documents for searches	Index contents and documents for searches	50000	Scheduled	9/3/22 3:00 PM

Additional Housekeeping – Volatile Data

- Certain components and activities in Clarity will retain data for auditing or monitoring purposes.
- This should be considered volatile data and only kept for day-to-day activities without dependency for governance or auditing purposes.
- It is key to ensure retention and jobs are configured to avoid configuration and proper maintenance takes place to avoid an increase in load times for certain locations/queries within Clarity:
 - Audit Trail
 - Clarity mechanism to detect new, updated or deleted instances. Logging on a per attribute basis.
 - Ensure retention is configured and “Purge Audit Trail” job is configured.
 - Only audit fields required by governance, monitoring, etc. “Select All” approach is not recommended.
 - Time Slices
 - Time Slices are flat structures within Clarity derived from Time scaled values. These structures are populated by the Time Slicing job, which allow for queries, portlets, and reports to be built against them.
 - Because of this flat structure, data can easily become high volume.
i.e. An environment with 500 resources, daily slices covering 5 years automatically becomes:
 $500 * 5 * 365 = 912,500$ records
 - Setup required to ensure the data is available based on the organization’s expectation.
- Other volatile components:
 - Notifications
 - Job Instances
 - Process Instances
 - Action Items

Housekeeping – Access Rights

- Instance Rights play a key role in Clarity and they can be assigned via: Instance, OBS, and Global rights; but not all rights are created equal.
- Security is vital for data governance; this must be reviewed both for compliance and housekeeping purposes.
- Rights are validated on every action, as you load a screen, a record, through webservice, etc. Therefore, high volume can impact the application.
- Rights can also impact your licensing, given specific rights will increase the licensing level required.
- Recommendations:
 - Assign rights through Groups or OBS, instead of assigning directly to a user.
 - Avoid duplicating rights i.e. Edit Rights supersede View Rights.
 - Minimize the use of instance rights.
 - When developing integrations or processes that rely on XOG, each insert will automatically assign instance rights. Use dedicated accounts and clean those up on a recurring basis, or avoid this paper trail by leveraging the REST API.
 - Review your permission model at least once a year.
- Potential Symptoms:
 - Slowness throughout the application
 - Portlets with SECURITY clauses perform slower
 - Degradation happened over time without significant changes to the environment

Housekeeping – Volatile Data

Job	Description
Clean User Session	This job removes expired session-based user data stored in the product for the logged in resource.
Purge Picklist Data	This job removes purged picklist data that may have accumulated over time for deleted pick lists and values.
Delete Process Instance	This job deletes process instances with a status of <i>Done</i> or <i>Aborted</i> .
Purge Audit Trail	This job removes all audit trail records according to their retention period.
Purge Notifications	Deletes system notifications. Notifications are logged under certain conditions like Process/Job executions, action items, or when an event triggers a system notification.
Purge Temporary Aggregated Data	This job cleans up the data that is created as a part of computing aggregated costs for generating chargeback invoices. The job is scheduled to run once a day automatically but can also be run on demand.
Remove Job Logs and Report Library Entries	This job removes old job log entries and report library entries after they have exceeded a specified number of days.
Purge Action Items	Introduced in 16.1.1 to allow organizations to keep Action Items when purging processes.

ModernUX and Studio Recommendations

Objects vs CITs – When do I use them?

- Objects are preferred:
 - As a supportive component to extend core functions of PPM
 - For use as staging tables (lightweight)
 - When roadmaps and hierarchies are not required
 - When the data does not have a financial component
- CITs are preferred:
 - When a data set needs extended capabilities of investment management i.e. tracking admin activities, other work, etc.
 - When there is a financial component to the data (ie. Cost & Budget Plans)
 - When roadmaps and hierarchies are required
 - ***NOTE: CITs cannot be deleted once created**

Object/Investment Attributes

- Recommended limit of 100 attributes per object
- Excessive attributes = degraded performance and potential upgrade failures
- Proper design and structuring of master/sub objects helps prevent these limits from being exceeded

ModernUX and Studio Recommendations

Blueprints, Rules, Views, and FLS

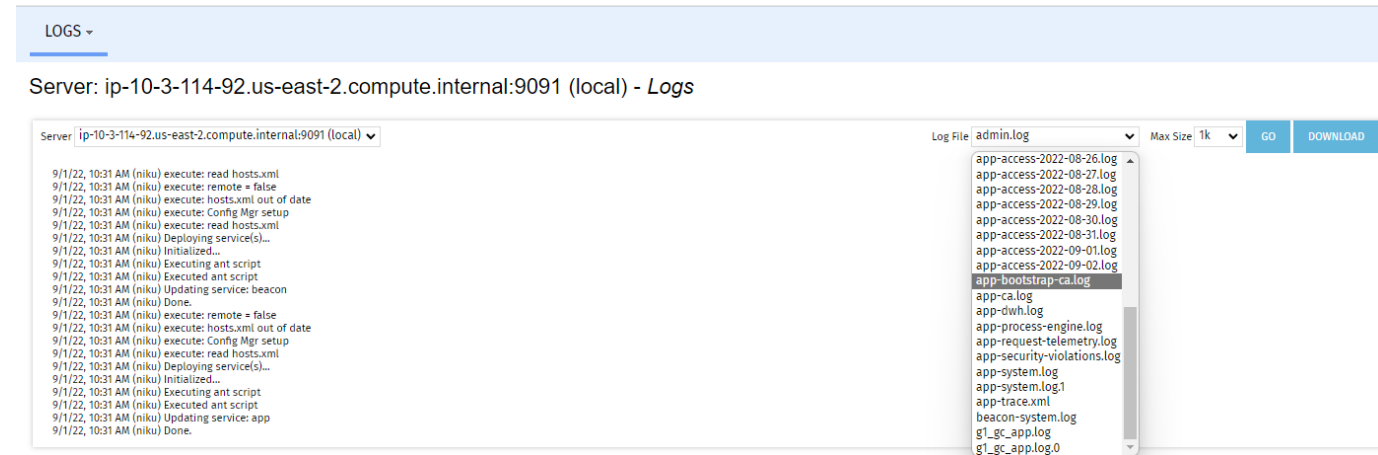
- Blueprints:
 - Leverage multiple Blueprints to transform the visualization of data and avoid excessive data entry.
 - Review Blueprint rules and actions periodically to ensure validity.
 - Disabling attributes, removing groups, etc. can invalidate blueprint rules, process conditions and display conditions (Classic UI).
 - Reuse Page Blueprint for Dashboards in the Classic UI with parameters.
- Rules:
 - Number of rules per Blueprint is limited.
 - More rules = longer load times for page rendering.
 - Consider multiple Blueprints rather than extensive set of rules.
- Views
 - Consider defining recommended/default views for common attributes.
 - Should have limited number of columns selected.
 - Should sparingly include dynamic lookup-based attributes to save on grid loading times.
- FLS
 - Can only be implemented at the Group level.
 - **Pro**: Adds more granularity to the restrictions that can be imposed upon a view.
 - **Con**: Adds additional load to page rendering since secured fields need to be individually evaluated for access restrictions.

Housekeeping – Additional Tips

- Review Clarity logs on a periodic basis for recurring errors. Most portlets, jobs, or processes will log messages on error. Logs can be viewed by admins by navigating to:

`/niku/nu#action:security.logs`

- Use OOTB Health Report to review misconfigurations (key for On Prem Environments).
- Use Performance Portlets and Log Analysis Job to identify slow running components.
- Use Admin Pages to:
 - Monitor running jobs and time slices
 - DWH Volume and errors
- Setup notifications for:
 - Failed Jobs
 - Status on key components or processes



Rego's Approach



Rego's Recommendations

- Be aware of Clarity's capabilities. Clarity is highly customizable, but it is not an app builder.
- When possible, revert to OOTB functionalities. MUX is heavily invested and is catching up to some current workarounds and customizations.
- When customizing:
 - Be mindful of the overhead when deploying a customization and how frequently/concurrently it will run i.e. dynamic lookups, portlets, processes.
 - Standardize naming and API configuration to easily identify customizations.
 - Be conscious and remove unused components (i.e. Objects, Attributes, Lookups, Processes, Job Schedules, DWH configuration).
 - Be aware of MUX configuration: Administration, Blueprints, FLS, Views, Rules, etc.
 - Monitor for faulty or slow Queries, Lookups, Portlets, or Reports.
 - Document and backup customizations. Clarity has no backup capabilities and lower environments are not a backup mechanism.
 - Refresh lower environments frequently.
 - Properly identify, describe, and name your customizations.
- Perform and review your housekeeping configuration on each release and periodically.

Rego's Assets

- Rego's Data Dictionary
 - Identifies and provides details on all attributes within your instance.
- MUX Migrator
 - Easily move configuration between environments for MUX.
- Technical HC
 - Provides a scheduled notification with key metrics of your environment.
 - Can be customized to include additional validations and metrics to monitor key processes.
- RegoXchange
 - Library of assets and resources to manage Clarity.
 - Avoid re-inventing the wheel and implement customizations developed and reviewed by our consultants.



Rego's Technical HC Notification

Daily Health Check - 23-08-2022 05:30:00

Status Summary

category	status
Processes	PROBLEM
Jobs - Failed	PROBLEM
Jobs - Still Running	OK
Jobs - Long Running	OK
Time Slices	OK
Process Engine	OK

Application Checks

category	status	details
Application Access	Validated	Ok
Fiscal Periods	Total Open: 221	
Time Periods	Total Open: 11	
DWH - Full Job	OK	Last Completed: 08-22-2022 23:21:05
DWH - Incremental Job	PROBLEM	Last Completed: 08-23-2022 05:29:22

Failed Processes

Instance ID	Process Name	Initiated By
252488	Idea Approval	Administrator, Process

Failed Jobs

Job Run ID	Job Name	Initiated By
25248885	Load Data Warehouse - Incremental	Administrator, Process

Long Running Jobs

Job/Report Name	Creator	Execution Time (min)
Load Data Warehouse - Incremental	Administrator, Process	180

Time Slice Details

Slice ID	Slice Name	Last Completion
78558558	Resource Availability	01/01/1990

Application Locks

Lock Type	Since	Owner
Project	06/01/2022	Doe, John

Housekeeping

Category	total	Since
Running Processes	1	08-23-2022
Aborted Processes	0	
Error Processes	49	05-10-2022
Job run instances	71092	07-06-2022
Completed Processes	508754	03-31-2022
Audit Trail Records	1753317	05-01-2020

Process Engine Throughput

yesterday	average
4849	3509

Questions?





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- Click on **Report PDU's**
- Click on **Course or Training**
- Class Provider = **Rego Consulting**
- Class Name = **regoUniversity**
- Course **Description**
- Date Started = **Today's Date**
- Date Completed = **Today's Date**
- Hours Completed = **1 PDU per hour of class time**
- Training classes = **Technical**
- Click on **I agree** and **Submit**



Let us know how we can improve!
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