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# Clarity Housekeeping and Maintenance

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# Agenda

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- 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



# Understanding Clarity and Housekeeping



Clarity is flexible and customizable, both in their latest Modern UX (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 these 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?



## 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 paper trail



## Jobs

- Review Job schedules
- Monitor Job Failures
- New jobs and changes
  - (Especially with MUX, several jobs have been released)
- Financial Processing
  - Jobs
  - Invalid Transactions
  - Timesheets without transactions
- DWH Processing

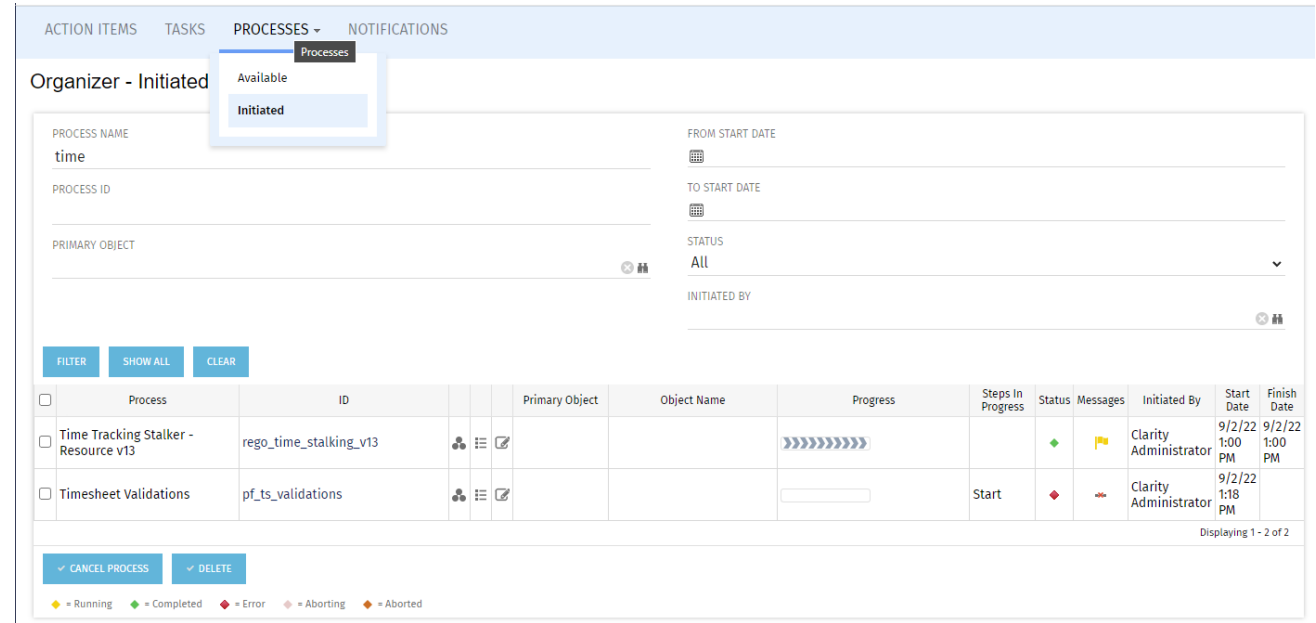


## Configuration and Customizations

- 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

Available  
Initiated

PROCESS NAME  
time

PROCESS ID

PRIMARY OBJECT

FROM START DATE

TO START DATE

STATUS  
All

INITIATED BY

FILTER SHOW ALL CLEAR

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			»»»»»»»»		Running		Clarity Administrator	9/2/22 1:00 PM	9/2/22 1:00 PM
Timesheet Validations	pf_ts_validations				Start	Error		Clarity Administrator	9/2/22 1:18 PM	

Displaying 1 - 2 of 2

CANCEL PROCESS DELETE

Running Completed Error Aborting Aborted



# 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: All

STEP NAME:

DESCRIPTION:

FROM ERROR DATE:

TO ERROR DATE:

STATUS: All

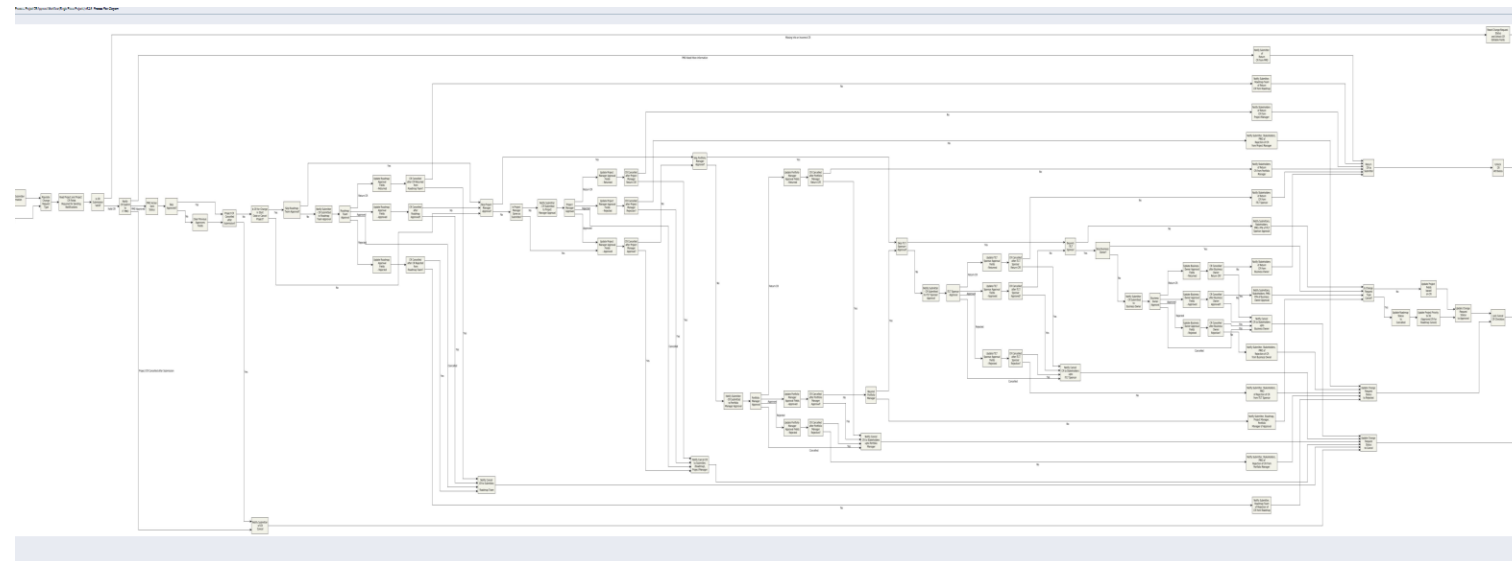
**FILTER** **SHOW ALL** **CLEAR**

<input type="checkbox"/>	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

**RETRY** **SKIP PROBLEM** **DELETE** **CANCEL PROCESS** **SHOW DETAILS** **RETURN**

☐ = System Errors 
 ☐ = Application Errors 
 ☐ = Warnings 
 ☐ = Information 
 ☐ = Processed Errors



# Housekeeping - Jobs



Jobs in Clarity serve multiple purposes, providing background processing for any intensive/data updates. It's critical to ensure the calculations and rollup across the app are consistent, including:

- Time Slicing
- DWH Jobs
- Financial Processing
- Running Processes on a schedule



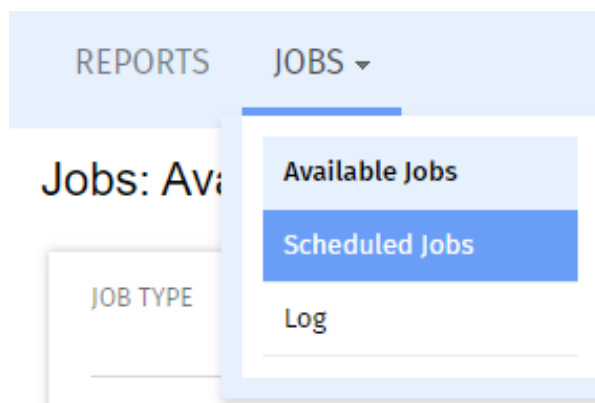
Even though executions are logged, they normally don't represent a significant risk for volume. They can still be cleaned up via jobs.



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:

- It's 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 weekly.

Clarity PPM

REPORTS JOBS

Jobs: Scheduled Jobs

JOB NAME  
JOB TYPE  
All  
JOB ID  
CATEGORY  
All

JOB STATUS  
All  
FROM SCHEDULED DATE  
TO SCHEDULED DATE  
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.

For example, an environment with **500** resources, daily slices covering 5 years automatically becomes:

$$500 * 5 * 365 = \mathbf{912,500 \text{ records}}$$

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 webservices, 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.



# Modern UX 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 (i.e., 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**

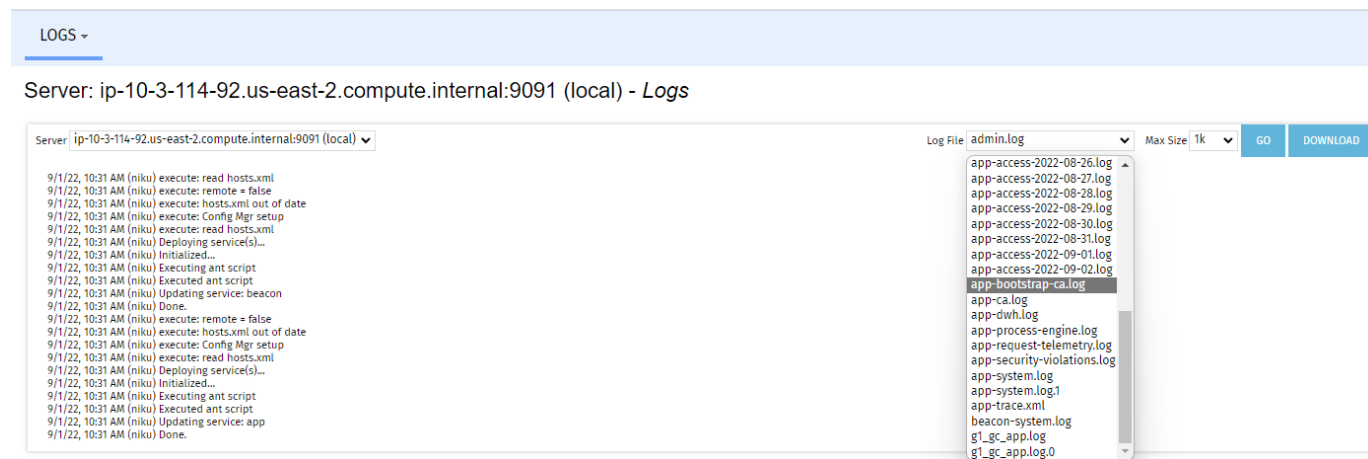
- Can only be implemented at the Group level.
- **Pro:** Adds more granularity to the restrictions that can be imposed upon a view.
- **Con:** Adds additional load to page rendering since secured fields need to be individually evaluated for access restrictions.

# 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.



## Rego Health Check Dashboard

- Provides real-time statistics on key health metrics.



## RegoXchange

- Library of assets and resources to manage Clarity.
- Avoid re-inventing the wheel and implement customizations developed and reviewed by our consultants.
- 100s of new assets every year.



# 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



# Rego's Health Check Dashboard

**The Rego Health Checks dashboard provides real-time metrics in 4 key areas.**

It can be used by admins to continually monitor the health of an environment.

## 1. Process Engine / Processes

- Defined and Initiated Processes
- Long Running Processes
- Common Failing Processes
- Process Engine Throughput
- Top Logging Processes

## 2. Housekeeping

- Confirm scheduled jobs
- Confirm Audit Retention
- Instance Rights
- Common Instance Pages
- Time Reporting Periods
- Fiscal Type Periods
- Active Users and Resources
- Active Investments

PROCESS ENGINE / PROCESSES						
HOUSEKEEPING						
ENVIRONMENT & CONFIGURATION HEALTH						
JOB HEALTH						
Rego Health Checks: Process Engine / Processes						
PE.1 - 4 - Defined and Initiated Processes						
Health Check Code ▲	Recommendation	Total	Oldest Date	Info Messages	Warning Messages	Error Messages
PE.1	Active Processes	322	4/17/14			
PE.2	Number of Process Instances in Completed State	43,971	7/2/25	1,574,389	24,913	7
PE.3	Number of Process Instances in Error State	243	9/19/24	150,503	19,327	2,049
PE.4	Number of Process Instances in Running State	1	6/20/25	0	0	0

Displaying 1 - 4 of 4

PROCESS ENGINE / PROCESSES						
HOUSEKEEPING						
ENVIRONMENT & CONFIGURATION HEALTH						
JOB HEALTH						
Rego Health Checks: Housekeeping						
HK.1-3, HK.5-8 - Confirm Scheduled Jobs						
Health Check Code ▲	Recommendation	Scheduled Job Count	Job ID	Job Name	Job Definition Type	Start Date
HK.1	Clean User Session	0			Java	
HK.2	Delete Process Instance	1	6,437,074	Delete Process Instance (Housekeeping)	XBL	6/7/25
HK.3	Purge Audit Trail	0			XBL	
HK.5	Purge Notifications	0			Java	
HK.6	Purge Report Output	0			Java	
HK.7	Remove Job Logs and Report Library entries	1	6,437,075	Remove Job Logs and Report Library entries (Housekeeping)	SQL Stored Procedure	7/1/22
HK.8	Purge Action Items	0			Java	

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# Rego's Health Check Dashboard

**The Rego Health Checks dashboard provides real-time metrics in 4 key areas.**

It can be used by admins to continually monitor the health of an environment.

## 3. Environment & Configuration Health

- Time Slice Ranges Exceeding Limit
- Invalid Transactions Count
- DWH Time Slice Ranges Exceeding Limit

## 4. Job Health

- Confirm scheduled jobs
- Job Monitoring/Sharing
- Time Slicing Job Durations
- Long Running Jobs

PROCESS ENGINE / PROCESSES   HOUSEKEEPING   ENVIRONMENT & CONFIGURATION HEALTH   JOB HEALTH				
Rego Health Checks: Environment & Configuration Health				
ENV.2 - Time Slice Ranges Exceeding Limit				
Period Name	Period Name	Number of Periods	Max Recommended Periods	Issues
Fiscal	Actuals	73	2	Max periods exceeded by 71
Fiscal	Allocation	73	2	Max periods exceeded by 71
Fiscal	Assignment::Actual Cost	73	2	Max periods exceeded by 71
Fiscal	Assignment::ETC Cost	73	2	Max periods exceeded by 71
Fiscal	Availability	73	2	Max periods exceeded by 71
Fiscal	Baseline	73	2	Max periods exceeded by 71

PROCESS ENGINE / PROCESSES

HOUSEKEEPING

ENVIRONMENT & CONFIGURATION HEALTH

JOB HEALTH

Rego Health Checks: Job Health

J.1 - Time Slicing Job Durations

Job Definition Type	Status Code	Average Execution Time (mins) ▲
Time Slicing	COMPLETED	0.12
Time Slicing	FAILED	93.69

Displaying 1 - 2 of 2

# Questions?







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# Elevate Your Professional Expertise with Rego University Certifications

Rego is excited to continue our **certification programs**, designed to enhance your expertise in Clarity administration, leadership, and technical skills. These certifications provide hands-on experience and knowledge to excel in your career.



## Certification Requirements:

- ✓ **Completion:** 12 units per certification track
- ✓ **Eligibility:** Open to all Rego University attendees



## Important Reminder:

To have your certification **credits tracked**, ensure you **complete the class surveys in the app** after each session. This step is critical for certification progress.



# Surveys

Please take a few moments to fill out the class survey.  
Your feedback is extremely important for future events.



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## Instructions for PMI credits

- Access your account at [pmi.org](https://pmi.org)
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- Click on **Visit CCR's** button under the **Report PDU's**
- Click on **Report PDU's**
- Click on **Course or Training**
- Class Provider = **Rego Consulting**
- Class Name = **Rego University**
- 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!  
Don't forget to fill out the class survey.



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- 1 Use [RegoXchange.com](https://RegoXchange.com) for instructions and how-tos.
- 2 Talk with your account managers and your Rego consultants.
- 3 Connect with each other and Clarity experts at [RegoGroups.com](https://RegoGroups.com).
- 4 Sign up for webinars and join in-person Rego groups near you through at [RegoConsulting.com](https://RegoConsulting.com)
- 5 Join us for the next [Rego University](#)!

