

The background of the image is a photograph of a large, multi-story building with a prominent central dome and many windows, situated behind a line of trees. In the foreground, there is a body of water with a small sailboat. The entire image has a dark blue overlay. At the bottom, there is a horizontal bar with a colorful geometric pattern in shades of blue, green, yellow, and orange.

ODTUG Kscope25

dallas - ft worth june 15 - 19

Welcome

JON DIXON



linktr.ee/jondixonus



APEX



ORDS



EBS & Fusion



Database

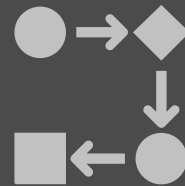
AGENDA



Why?



Automations



Background
Page
Processes



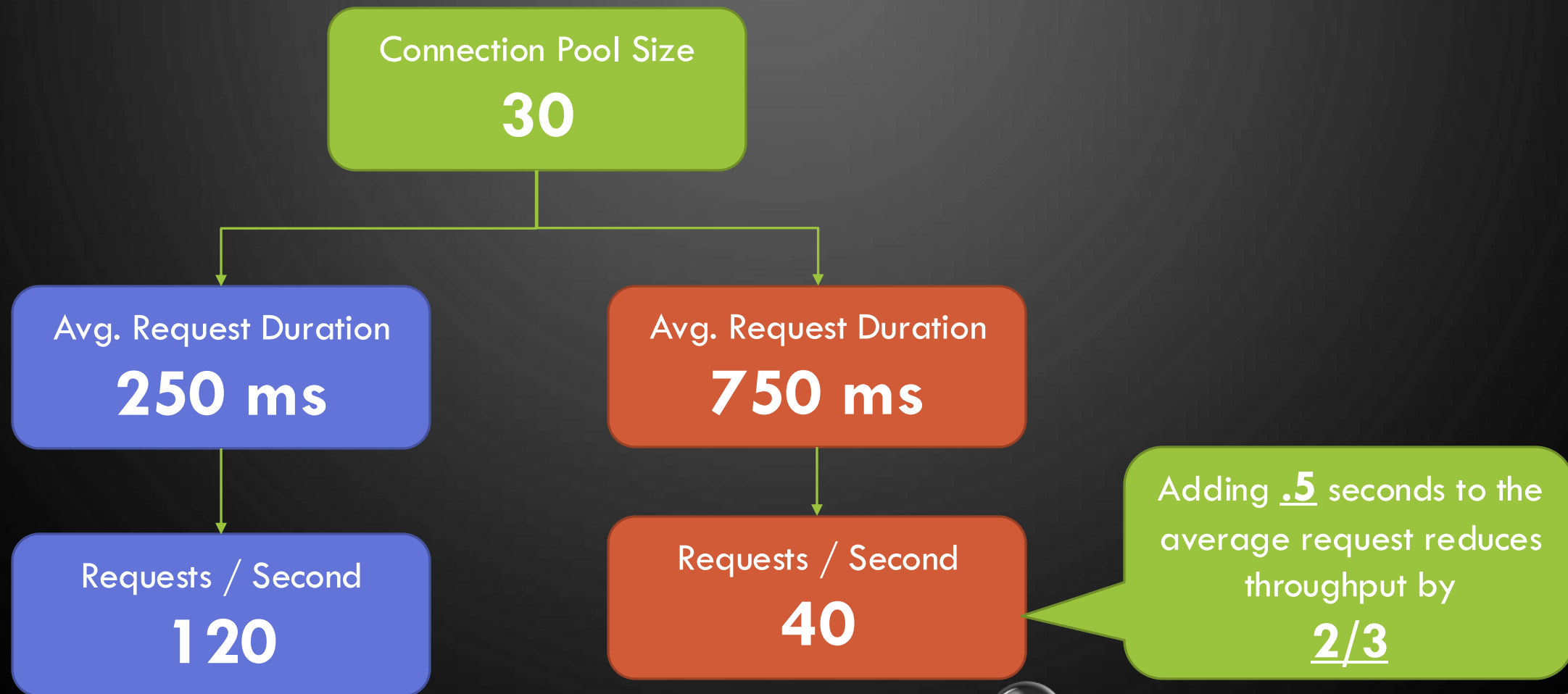
APEX
Background
Jobs



WHY USE BACKGROUND PROCESSING?

- Time Based Processing
- Integration Orchestration
- Improved User Experience
- Resource Optimization
 - Protect the Database & ORDS

PROTECT THE ORDS CONNECTION POOL



APEX Automations

Background APEX

OVERVIEW

- Run Code Asynchronously
 - On-Demand / On a Schedule
 - Based on Query / Always
- Execute PL/SQL Code or a REST API
- Implemented With DBMS_SCHEDULER



USE CASES

- Integrations
- Queue Processing
- Purge / Archival
- Application Maintenance
- Log Table Monitoring & Notification
- Polling External Systems (Via REST)
- Digest Emails

SCHEDULING

DBMS_SCHEDULER Syntax

Type	<input type="button" value="On Demand"/> <input checked="" type="button" value="Scheduled"/> <input type="button" value="ⓘ"/>
* Schedule Expression	FREQ=HOURLY; INTERVAL=1; BYMINUTE=0

APEX Interval Builder

Frequency	<input type="button" value="Weekly"/> <input checked="" type="button" value="Daily"/> <input type="button" value="Hourly"/> <input type="button" value="Minutely"/> <input type="button" value="ⓘ"/>
Interval	<input type="text" value="1"/> <input type="button" value="ⓘ"/>
Execution Hour	<input type="text" value="2"/> <input type="button" value="ⓘ"/>
Execution Minute	<input type="text" value="10"/> <input type="button" value="ⓘ"/>

MONITORING

- APEX Views
- APEX Builder
 - Monitor Activity
- Create a Custom APEX Monitoring Page
- Action Logs!

View ↑≡	Comment
APEX_APPL_AUTOMATIONS	Stores the meta data for automations of an application.
APEX_APPL_AUTOMATION_ACTIONS	Identifies actions associated with an automation
APEX_AUTOMATION_LOG	Log of automation executions.
APEX_AUTOMATION_MSG_LOG	Messages of an automation execution.

APEX_AUTOMATION API


- Start / Terminate
- Enable / Disable
- Current Status
- Log Info/Warn/Error
- Last Run

MAJOR CONSIDERATIONS

- Controlled by an APEX Job
 - Runs Every 2 Minutes
- Disabled After App Deployment
- Instance Settings
 - Background Job Class
 - Minimum Execution Cadence (MIN)

The screenshot shows a web interface for managing an instance. At the top, there is a breadcrumb trail: 'Manage Instance' followed by 'Instance Settings'. Below this, the 'Instance Settings' title is displayed on the left, and 'Cancel' and 'Apply Changes' buttons are on the right. A horizontal tab bar contains four tabs: 'Instance Change Request Size', 'Application ID Range', 'Background Jobs' (which is selected and highlighted with a green underline), and 'Administrator'. The 'Background Jobs' section contains two input fields: 'Background Job Class' and 'Minimum Execution Cadence (Minutes)'. Each input field has a small circular help icon (a question mark) to its right.

AUTO ENABLE AUTOMATIONS AFTER DEPLOYMENT

↑

Application 101 \ Supporting Objects \ Scripts
+
🔍

Messages
Prerequisites
Substitutions
Build Options
Validations
Install
Upgrade
Deinstall
Export



🔍

Go

Actions

▼

Cancel
Refresh Checked
Create >

	Lock	Name	Sequence ↑≡	Script	Source
		Activate Automations	10	DECLARE CURSOR cr_app_automations IS SELECT app.application_id , app.workspace , atm.static_id FROM apex_appl_automations atm , apex_applications app WHE...	Manual

AUTO ENABLE AUTOMATIONS AFTER DEPLOYMENT

```
DECLARE
  CURSOR cr_app_automations IS
    SELECT app.application_id, app.workspace, atm.static_id
    FROM   apex_appl_automations atm
           , apex_applications      app
    WHERE  app.application_id = atm.application_id
    AND    app.alias          = 'BACKGROUND-APEX';
BEGIN
  -- Loop through all Automations for the Application.
  FOR r_app_automation IN cr_app_automations LOOP
    -- Set the Workspace / Security Group for the Application.
    apex_util.set_security_group_id
      (p_security_group_id => apex_util.find_security_group_id
       (p_workspace => r_app_automation.workspace));

    -- Enable the Automation.
    apex_automation.enable
      (p_application_id => r_app_automation.application_id,
       p_static_id      => r_app_automation.static_id);
  END LOOP;
END;
```


BEST PRACTICES

- Plan the Schedule Across Your Instance
- Access Logs Via A Separate APEX App
- Monitor & Action Logs
- Daily Digest Email

APEX Automations

Demo

Background APEX

Background Page Processes

Background APEX



OVERVIEW

- Initiated from an APEX Page
- Run Code Asynchronously (PL/SQL, REST, MLE)
- Pass Session State
- Capture & Display Progress
- Control Parallel Executions

USE CASES

- Generate Embeddings for RAG
- Build a ZIP of Invoice Files for Audit
- Generate Data for Complex Reports
- Start An Integration

SETTING LIMITS

Level	Setting
Instance	Background Page Process Job Class
Workspace <small>* On-Premise Only</small>	Maximum Background Page Process Jobs
Application	Maximum Background Page Process Jobs
Page Process	Execution Limit (Running or Queued) Serialization (Utilizes Context)

APIS & LOGS

APEX_BACKGROUND_PROCESS

Terminate

Get Status & Progress

Set Progress (1 of 10)

Set Status (Message)

LOGS

APEX_APPL_PAGE_BG_PROC_STATUS

CONSIDERATIONS

- Deployment – Handling Running Processes
- Serial Vs Parallel Execution
- Resource Consumption
- Keep the User Informed On Progress
- Monitor from Debug or Active Sessions

Background Page Processes

Demo

Background APEX

REST Data Source Synchronizations

Background APEX

OVERVIEW

- Scheduling Same as Automations
- Assign Parameters Dynamically Using Steps
- Logs posted to APEX_REST_SOURCE_SYNC_LOG
- Run Via PL/SQL Using APEX_REST_SOURCE_SYNC

CONSIDERATIONS

- Plan the Schedule Across Your Instance
- Access Logs Via A Separate APEX App
- Monitor & Action Logs
- Daily Digest Email

**Same as
Automations**

APEX Product Background Jobs

Background APEX

OVERVIEW

- Scheduler / Co-Ordinator Jobs
- Queue Handlers
- Maintenance Jobs
- Workflow Jobs

**18 Jobs &
Counting**

Job Name	Job Action	Run Count	State	Last Start	Next Start	Repeat Interval
ORACLE_APEX_AUTOMATIONS	WWV_FLOW_AUTOMATION.EXECUTE_DUE_AUTOMATIONS	11609	SCHEDULED	08-FEB-2025 14:15	08-FEB-2025 14:17	FREQ=MINUTELY;INTERVAL=2;BYSEC=0;BYMINUTE=0;BYHOUR=0;BYDAY=*
ORACLE_APEX_AUTO_APPROVAL	WWV_FLOW_PROVISIONING.AUTO_APPROVE	0	DISABLED			FREQ=MINUTELY;INTERVAL=2
ORACLE_APEX_BACKUP	WWV_FLOW_BACKUP.MAIN	16	SCHEDULED	08-FEB-2025 02:01	09-FEB-2025 02:01	FREQ=DAILY; BYHOUR=2
ORACLE_APEX_BG_PROCESSES	WWV_FLOW_PROCESS_BG.COORDINATOR_JOB	10293	RUNNING	08-FEB-2025 14:15	08-FEB-2025 14:15	FREQ=MINUTELY;INTERVAL=2;BYSEC=0;BYMINUTE=0;BYHOUR=0;BYDAY=*
ORACLE_APEX_DAILY_MAINTENANCE	WWV_FLOW_MAINT.DAILY_MAINTENANCE	16	SCHEDULED	08-FEB-2025 01:00	09-FEB-2025 01:00	FREQ=DAILY;BYHOUR=1;BYMINUTE=0;BYSECOND=0
ORACLE_APEX_DAILY_MAINT_DEV	WWV_FLOW_MAINT_DEV.DAILY_MAINTENANCE	16	SCHEDULED	08-FEB-2025 01:00	09-FEB-2025 01:00	FREQ=DAILY;BYHOUR=1;BYMINUTE=0;BYSECOND=0
ORACLE_APEX_DAILY_METRICS	WWV_FLOW_MAINT.GATHER_ADMIN_DIGEST_METRICS	16	SCHEDULED	08-FEB-2025 02:00	09-FEB-2025 02:00	FREQ=DAILY;BYHOUR=2;BYMINUTE=0;BYSECOND=0
ORACLE_APEX_DICTIONARY_CACHE	WWV_DICTIONARY_CACHE_DEV.DAILY_JOB	16	SCHEDULED	08-FEB-2025 01:00	09-FEB-2025 01:00	FREQ=DAILY;BYHOUR=1;BYMINUTE=0;BYSECOND=0
ORACLE_APEX_ISSUE_EMAILS	WWV_FLOW_ISSUE_NOTIFY_INT.SEND_SUMMARIES	388	SCHEDULED	08-FEB-2025 14:00	08-FEB-2025 15:00	FREQ=HOURLY;BYMINUTE=0;BYSECOND=0
ORACLE_APEX_MAIL_QUEUE	WWV_FLOW_MAIL.PUSH_QUEUE_IMMEDIATE	4652	SCHEDULED	08-FEB-2025 14:15	08-FEB-2025 14:20	FREQ=MINUTELY;BYMINUTE=0;5,10,15
ORACLE_APEX_PURGE_SESSIONS	WWV_FLOW_CACHE.PURGE_SESSIONS	388	SCHEDULED	08-FEB-2025 14:00	08-FEB-2025 15:00	FREQ=HOURLY;BYMINUTE=0
ORACLE_APEX_PWA_PUSH_QUEUE	WWV_FLOW_PWA.PUSH_QUEUE_IMMEDIATE	0	DISABLED			FREQ=MINUTELY;INTERVAL=2;BYSEC=0;BYMINUTE=0;BYHOUR=0;BYDAY=*
ORACLE_APEX_REST_SOURCE_SYNC	WWV_FLOW_WEB_SRC_SYNC.EXECUTE_DUE_WSM_DATA_SYNCS	2328	SCHEDULED	08-FEB-2025 14:10	08-FEB-2025 14:20	FREQ=MINUTELY;BYMINUTE=0;10,20,30
ORACLE_APEX_TASKS_EXPIRE	WWV_FLOW_APPROVAL.EXPIRE_TASKS	0	DISABLED			FREQ=HOURLY;BYMINUTE=0
ORACLE_APEX_TASKS_PURGE	WWV_FLOW_WF_MANAGEMENT.PURGE_TASKS	0	DISABLED			FREQ=DAILY;BYHOUR=2;BYMINUTE=0;BYSECOND=0
ORACLE_APEX_WFS_PURGE	WWV_FLOW_WF_MANAGEMENT.PURGE_WORKFLOWS	0	DISABLED			FREQ=DAILY;BYHOUR=2;BYMINUTE=0;BYSECOND=0
ORACLE_APEX_WF_TIMEOUT	WWV_FLOW_WORKFLOW.HANDLE_TIMEOUT	0	DISABLED			FREQ=DAILY;BYHOUR=2;BYMINUTE=0;BYSECOND=0
ORACLE_APEX_WS_NOTIFICATIONS	WWV_FLOW_IR.DO_NOTIFY	776	SCHEDULED	08-FEB-2025 14:15	08-FEB-2025 14:17	FREQ=MINUTELY;INTERVAL=2;BYSEC=0;BYMINUTE=0;BYHOUR=0;BYDAY=*

Administration Services

> Administrator Digest

> System Schedule Jobs

APEX Background Jobs

Demo

Background APEX



ANY QUESTIONS?



Visit the app for direct access to this session's speaker evaluation!

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speaker evaluation form.