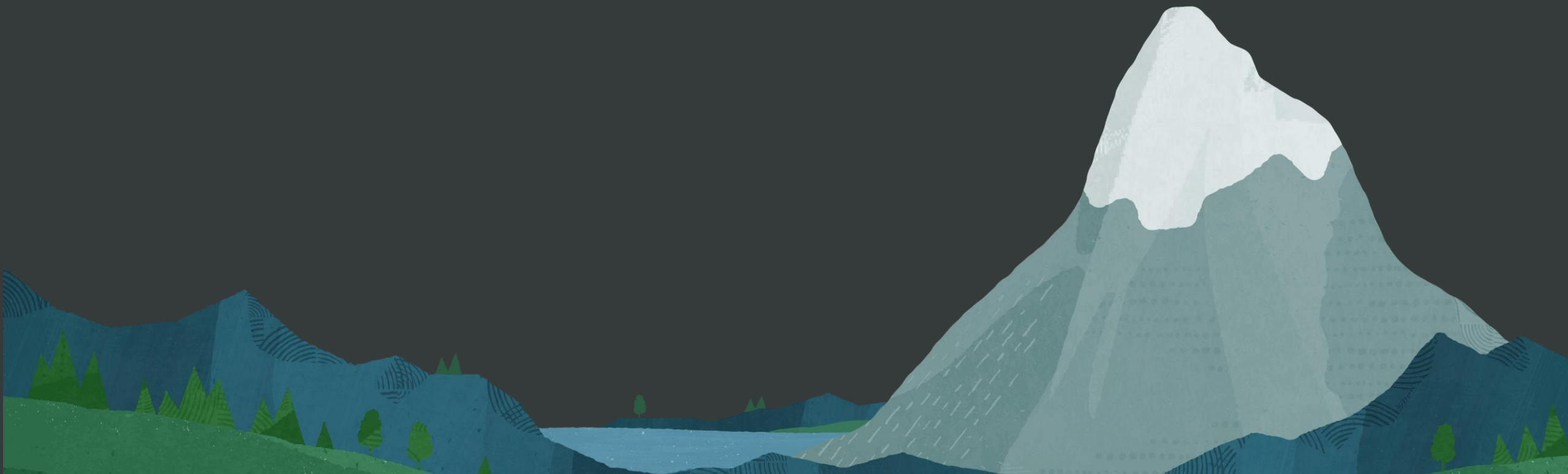
ORACLE | APEX

Oracle APEX 24.2

New Features



*" We're now building a lot of our applications in **APEX**. And our productivity gains are, again, a factor of **10**. And we build the applications in **one tenth** the time, or **one tenth** the amount of people, or at **one tenth** the cost. But these are not typical low-code applications. These are applications that can scale to **millions** of users and all over the world."*

- Larry Ellison

Founder & CTO, Oracle

What’s New in Oracle APEX 24.2?

- AI-Assisted Development
- Provide RAG Data for AI Calls
- Integrating with Fusion Applications
- New and Updated Components
- Developer Experience
- User Experience
- Additional Updates and Enhancements

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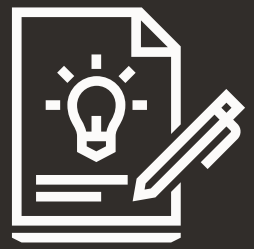
Oracle APEX 24.2: What's New?



Quickly create apps - APEX GenDev

Custom Data Models using AI

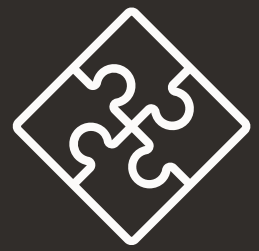
Add AI Capabilities to APEX Apps

AI Configurations

Conditional RAG Sources

Search Configuration using Oracle AI Vector Search

Generate Text with AI



Build Enterprise-ready Apps

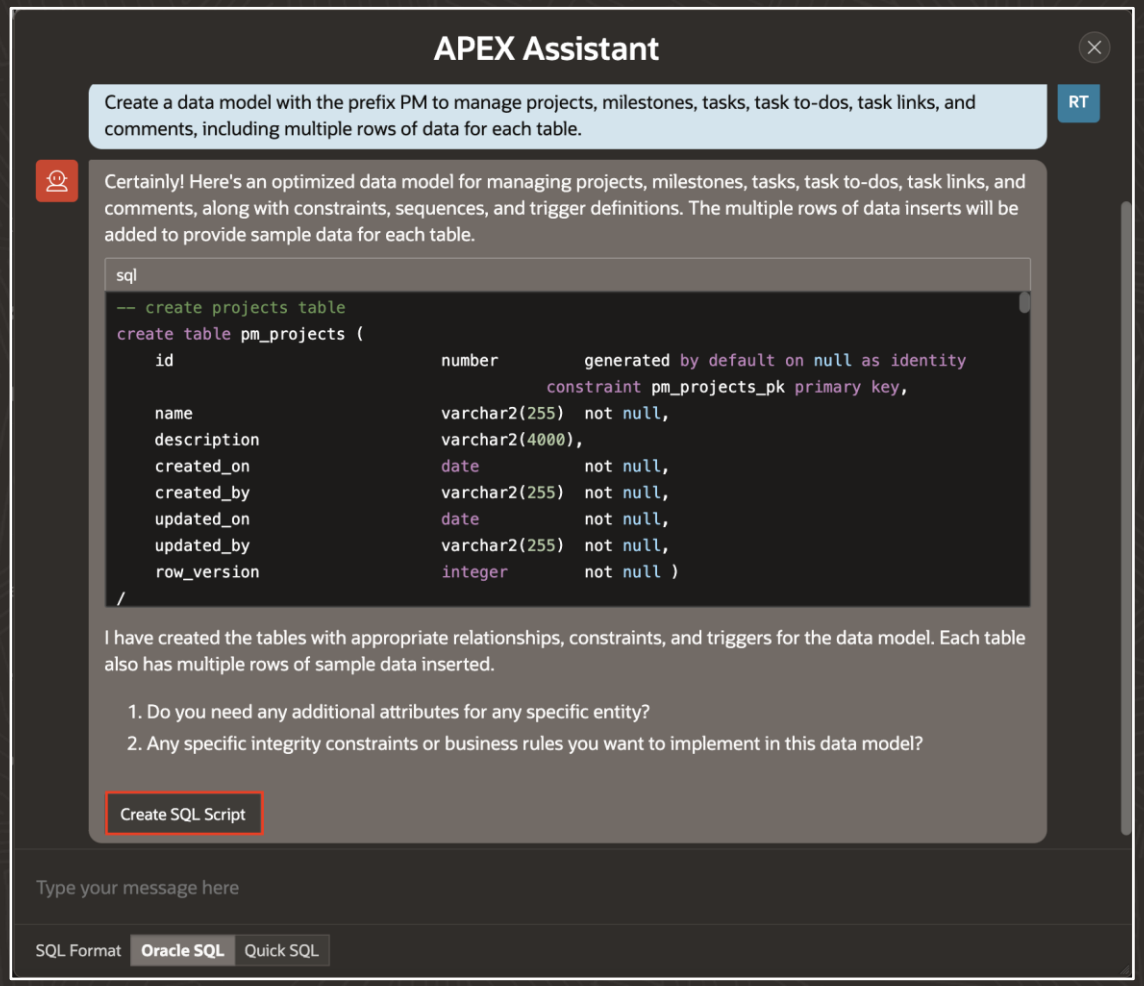
Extend Oracle Fusion Applications

JSON Data Sources

Workflow Templates

AI-Assisted Development

Create a Data Model from a Prompt



Create your Own Schemas from a Prompt

Generate scripts either in Oracle SQL or Quick SQL format

Build a Data Model and generate Sample Data

https://apex.oracle.com/go/blog-create-data-model-using-ai

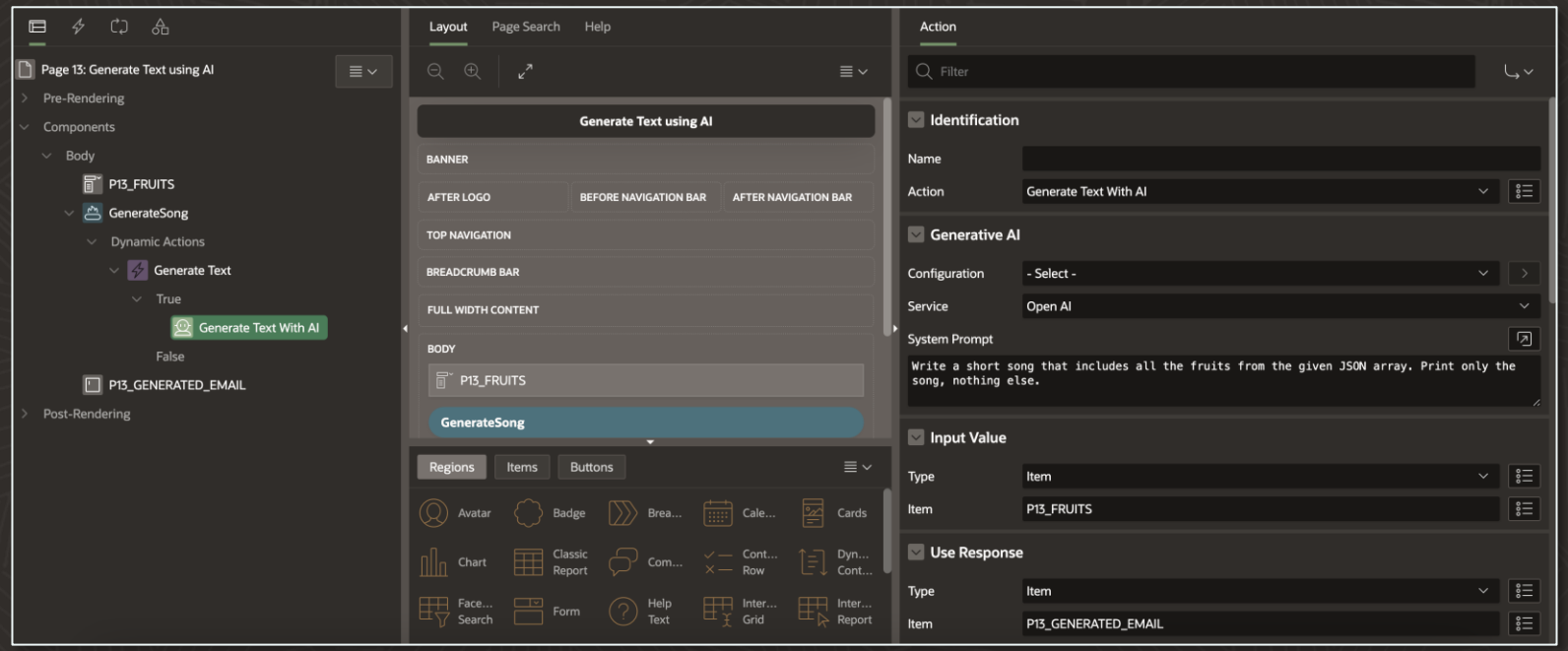
Generate Text with AI - Overview

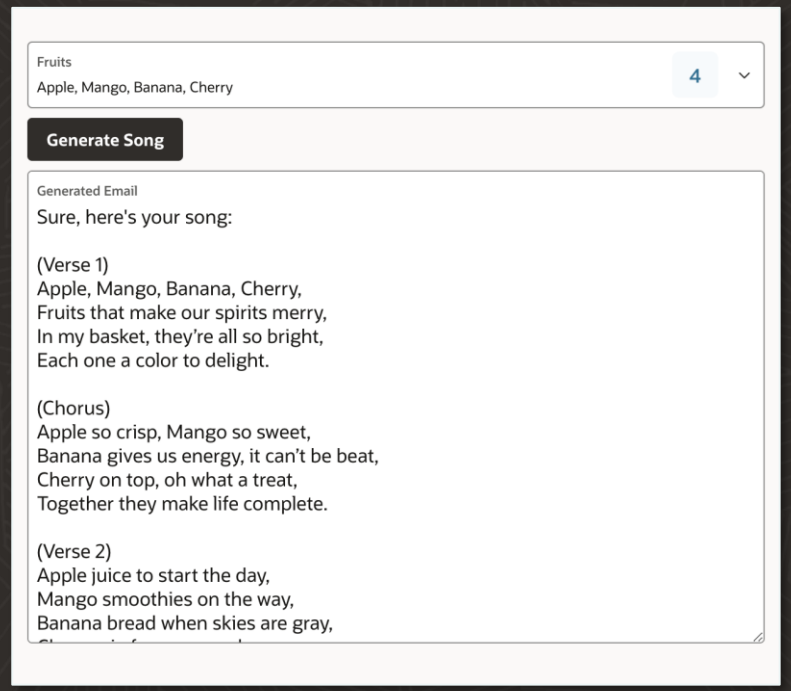
Generate a **one-time response** based on user content

Leverages **Generative AI services**

Can also leverage centralized settings defined in **AI Configurations**

Configurable **System Prompt**, **Input Value**, and **Use Response** attributes





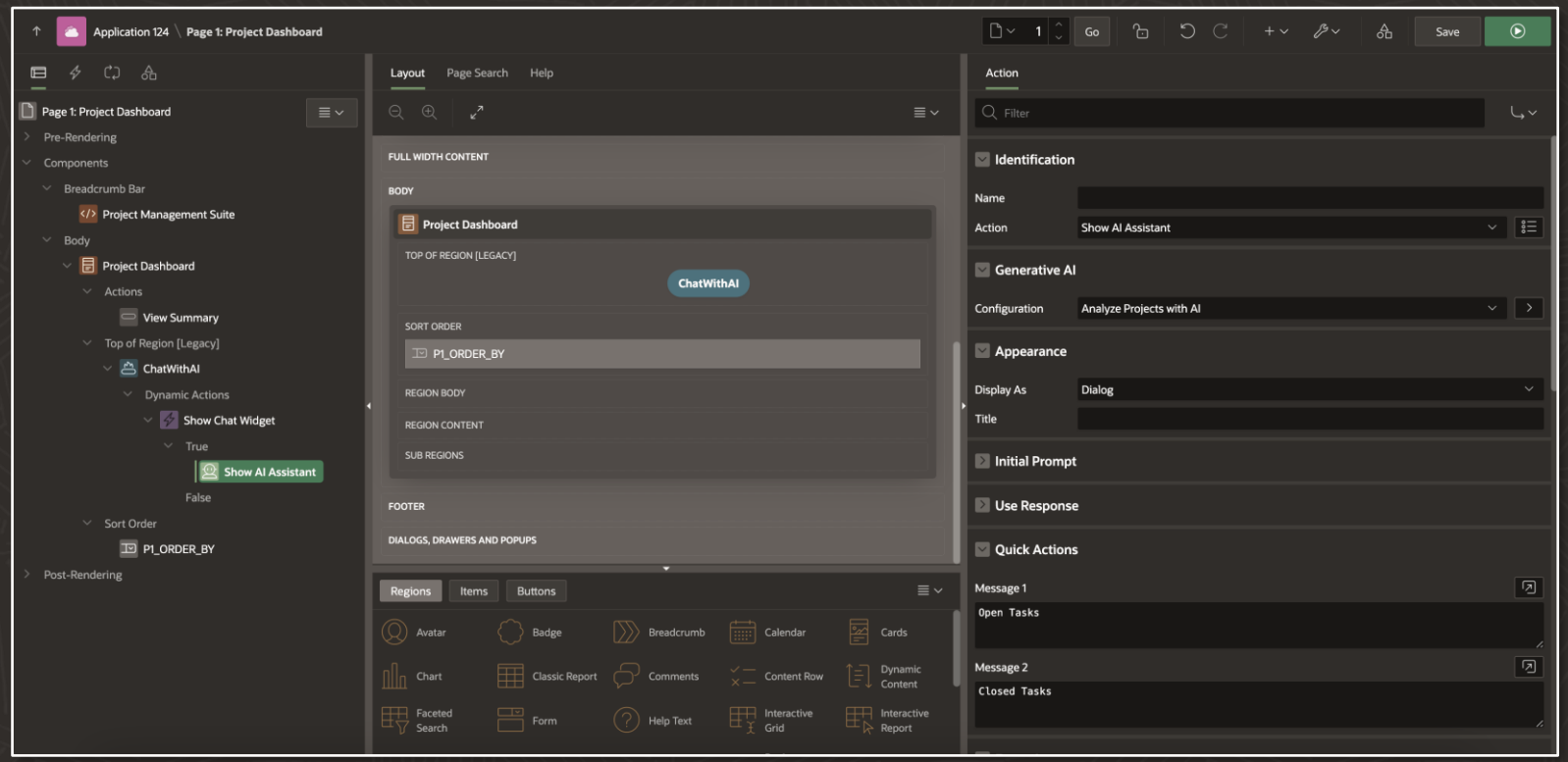
Show AI Assistant Dynamic Action - Overview

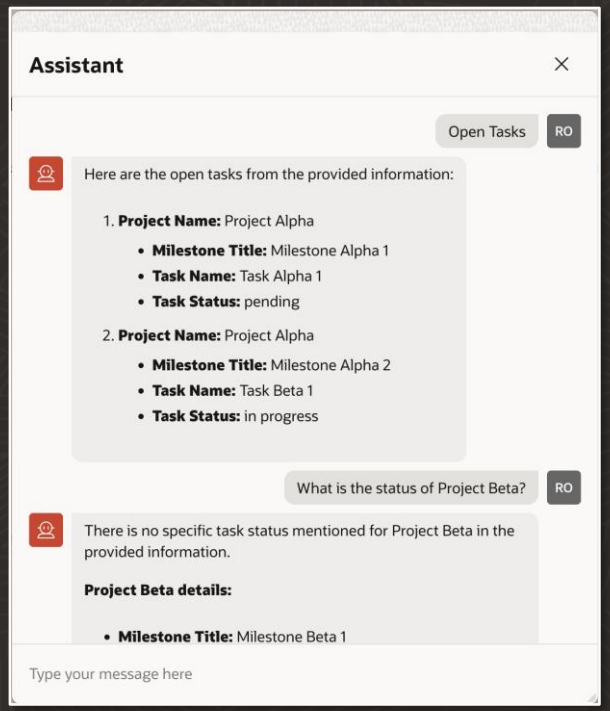
A **Native Dynamic Action** in Oracle APEX which opens an AI Chat User Interface

Leverages **Generative AI Services** configured under Workspace Utilities

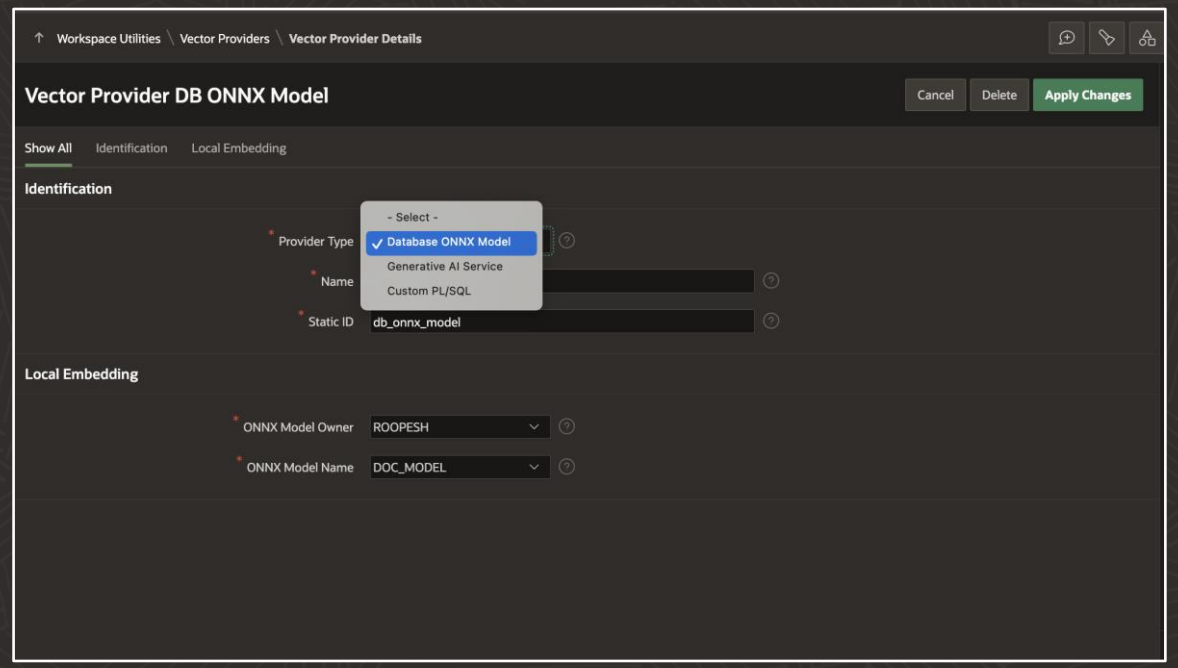
Rendered **Inline** or as a **Dialog**

Configurable **System Prompt** and **Welcome Message**





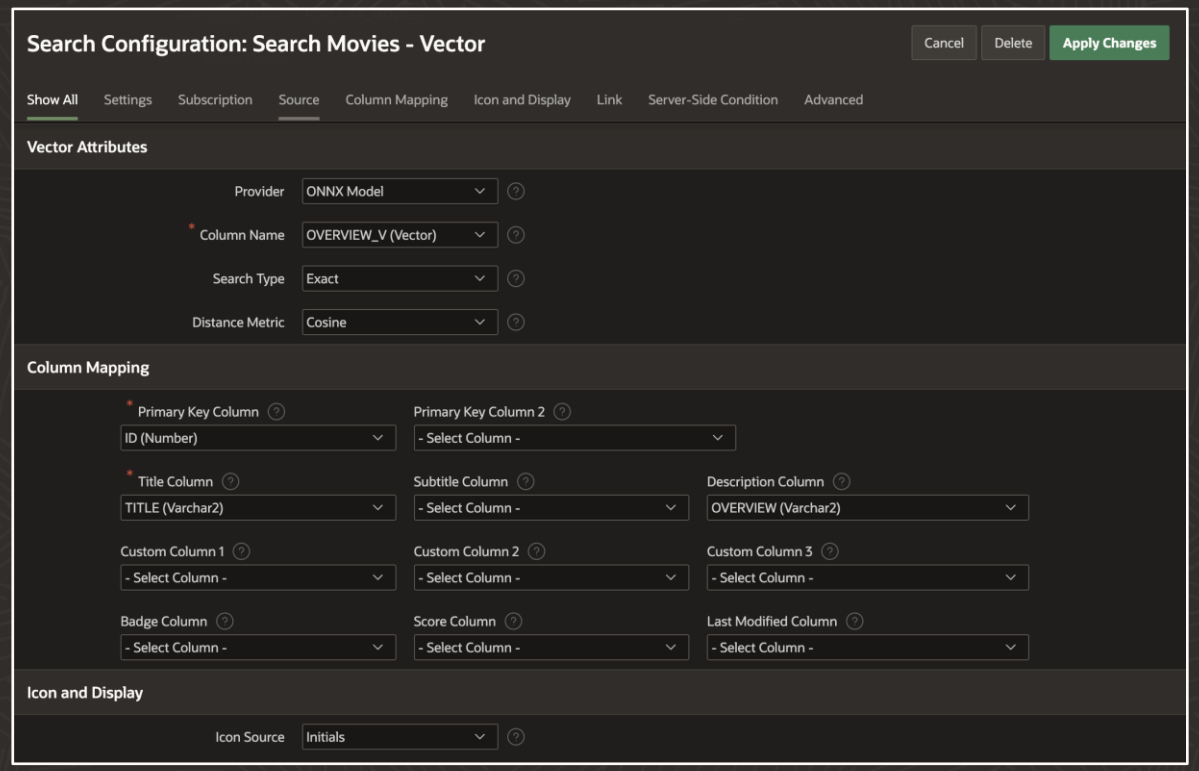
What are Vector Providers?



- A Vector Provider enables you to convert text into an embedding
- Available Provider Types: Database ONNX Model, Generative AI Service, Custom PL/SQL
- Vector Providers are stored at the Workspace level
- Use APEX_AI.GET_VECTOR_EMBEDDINGS PL/SQL API to generate embeddings

https://apex.oracle.com/go/search-configurations-vector

Vector Search Support in Search Configurations - Overview

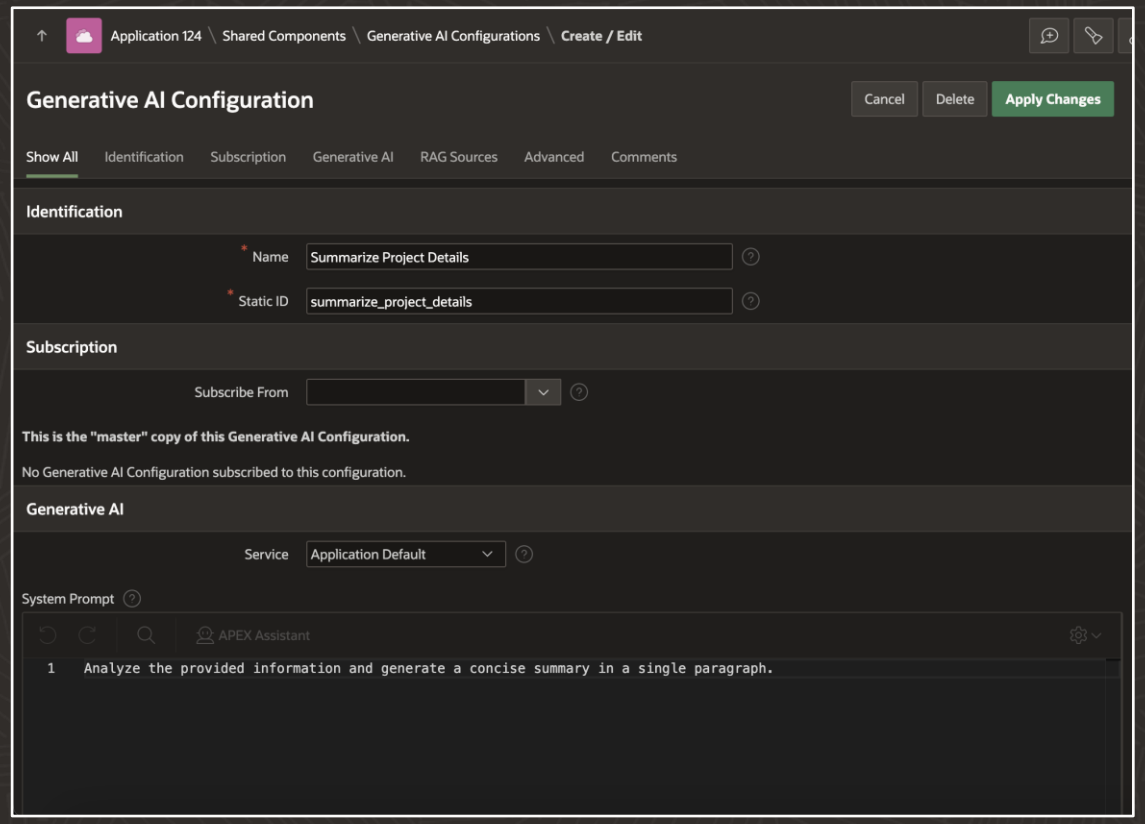


- Available exclusively on Oracle Database 23ai
- Create Search Configurations on the table with Vector Data type columns
- Configure Index Usage, Distance Metrics, Max Vector Distance, and Max Results
- Results are returned based on Vector Similarity

https://apex.oracle.com/go/search-configurations-vector

Provide RAG Data for AI Calls

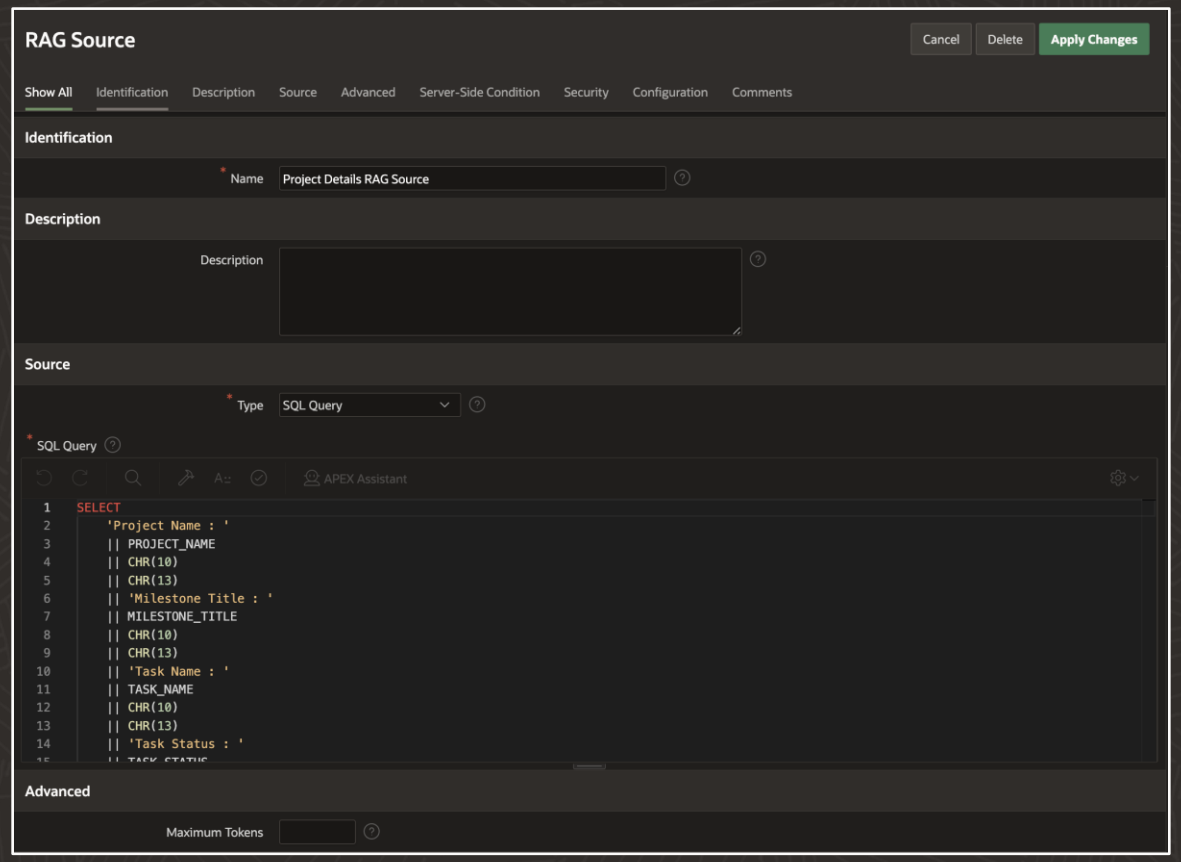
What are AI Configurations?



- AI Configurations centralize key Generative AI settings.
- Customizable System Prompt, Welcome Message, and RAG Sources.
- Use it in both the Show AI Assistant and Generate Text with AI Dynamic Actions
- Accessible via the APEX_AI PL/SQL API for seamless integration.

https://apex.oracle.com/go/blog-ai-config-and-rag-sources

RAG Sources - Overview

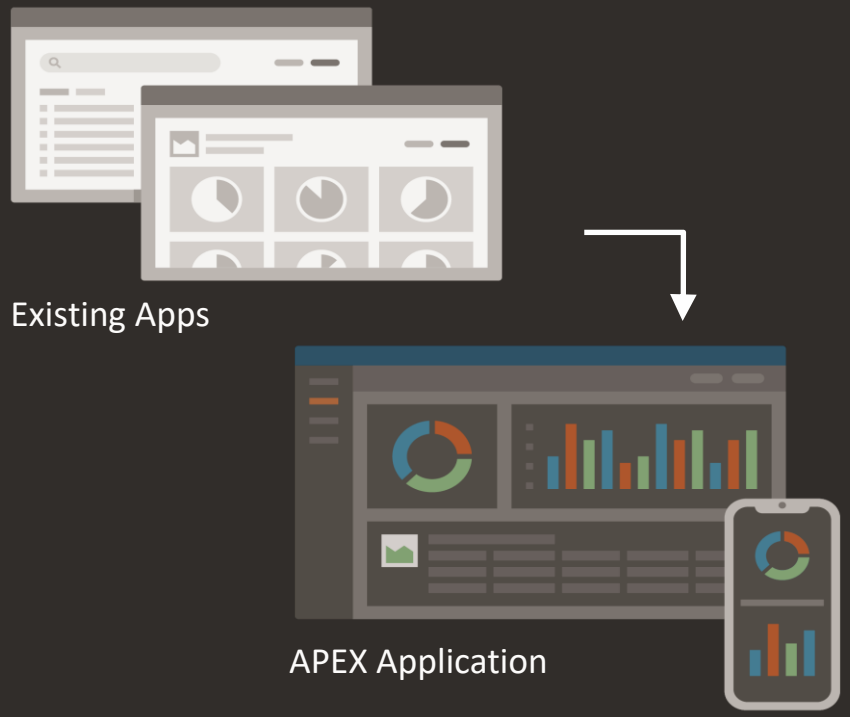


- Use RAG Sources to enrich AI conversations with application-specific data.
- Can include SQL Queries, Function Bodies Returning CLOB, or Static Text.
- Use Authorization Schemes or Server-side Conditions to control which RAG data is included.
- Use APEX$AI_ALL_USER_PROMPTS and APEX$AI_LAST_USER_PROMPT bind variables for custom RAG logic
- Utilize the AI Configuration in Show AI Assistant and Generate Text with AI Dynamic Actions

https://apex.oracle.com/go/blog-ai-config-and-rag-sources

Integrating with Fusion Applications

Integrating with Fusion Applications



- Quickly start Fusion Applications projects with the new Fusion Integration option, featuring pre-configured SSO, identity propagation, and testable REST setups.
- Easily build APEX apps using any Fusion REST APIs, including the latest /api/boss endpoints.
- Automatically discover supported API operations and data profiles.
- Optimize performance by delegating tasks like filtering and sorting to APIs, transferring only necessary data.

https://apex.oracle.com/go/fusion-app

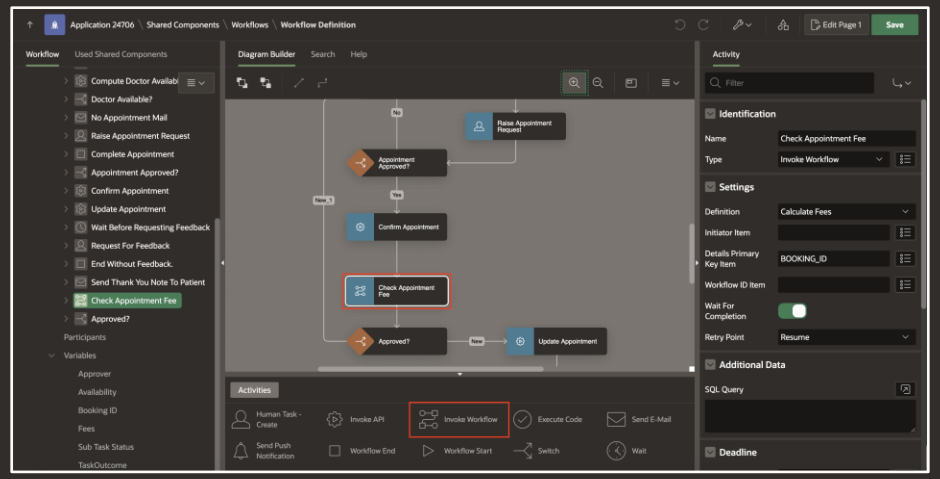
New and Updated Components

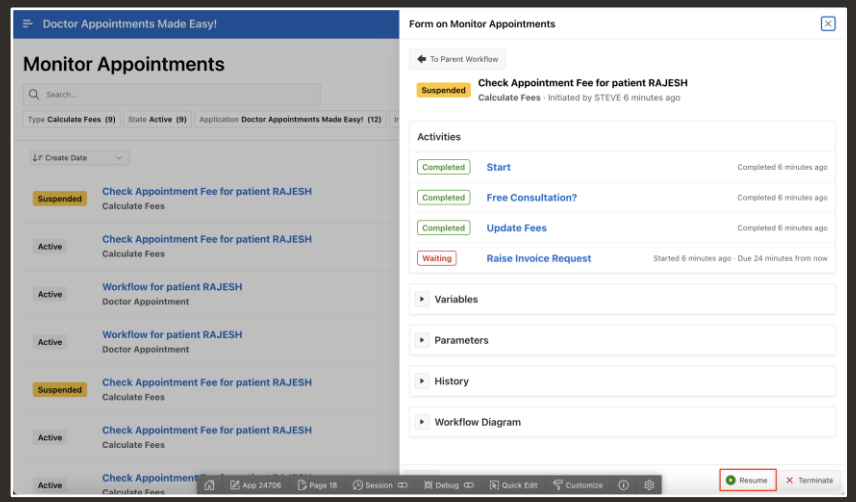
JSON Data Sources

- Create a JSON-based Data Source in Shared Components.
- Oracle APEX auto-converts JSON, including nested structures, into rows and columns using Data Profiles.
- Build Reports, Charts, and Forms directly on JSON data —no JSON functions required.
- Use APEX_EXEC PL/SQL API to treat JSON as relational tables with full DML support.
- Integrate seamlessly with Automations, LOVs, and Report Queries.

https://apex.oracle.com/go/json-sources-blog

Workflow Enhancements



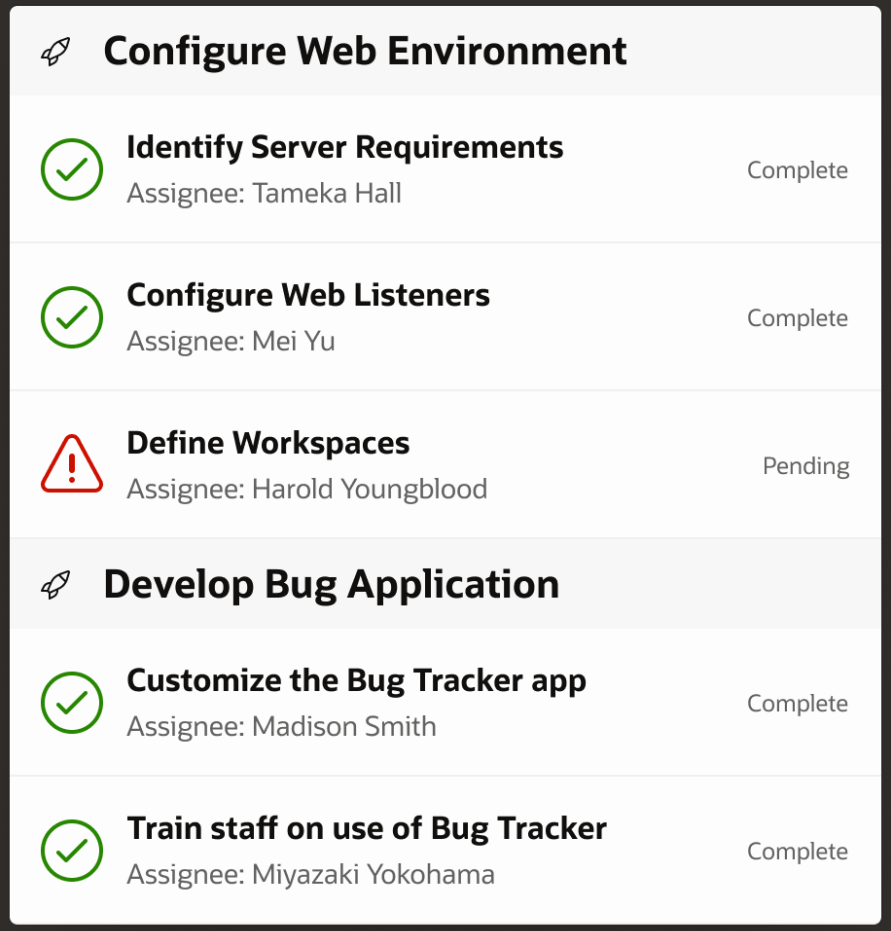


- Easily structure and reuse workflows by calling one workflow from another using the new Invoke Workflow activity with input and output parameters
- Copy Workflow definitions between applications to save time and avoid re-modeling similar workflows
- Resume suspended workflows at any activity to quickly address issues or errors
- Workflow variables and parameters now support the CLOB data type
- The Create Page wizard now generates simplified human task and workflow pages using Template Components, menus, and modal dialogs for easier customization

https://apex.oracle.com/go/callable-workflows

https://apex.oracle.com/go/resume-workflows

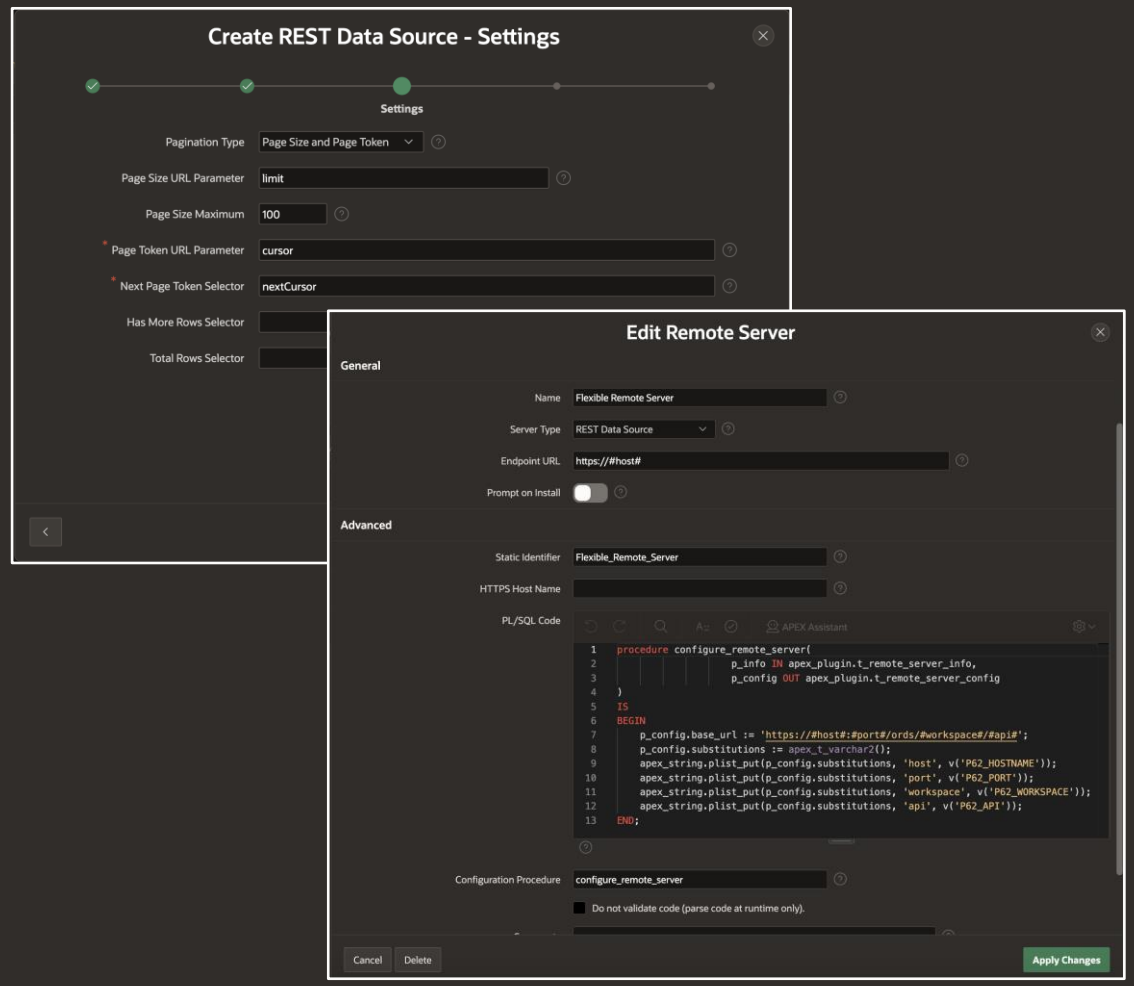
Template Components Enhancements



Template Components now support **grouping**, allowing developers to easily add **grouping headers**, similar to control breaks, for organized data presentation.

Simply define the grouping columns, set the region **Order By**, and provide an appropriate group title – APEX handles the rest.

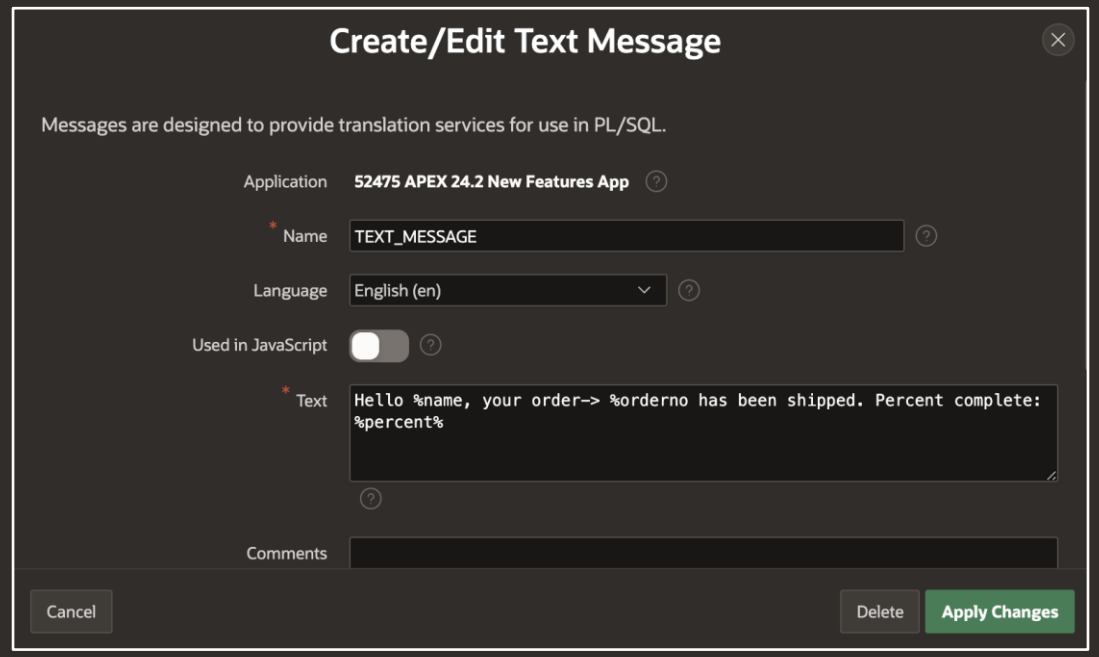
REST Source Enhancements

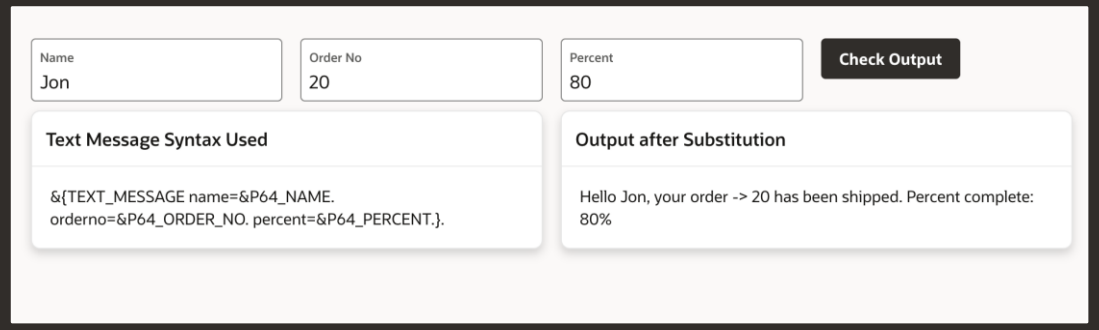


- **Simple HTTP** REST Data Sources now support REST Services with **token-based pagination** for better integration with APIs.
- **Flexible derivation** of the Base URL for a Remote Server in REST Data Sources, REST SQL, and Authentication using a **PL/SQL procedure**
- Flexible Remote Server can make APEX invoke dynamic endpoints based on **current app**, **tenant**, or **environment settings**
- Set the scope of a **Web Credential** programmatically with the **APEX_CREDENTIAL** API

https://apex.oracle.com/go/242-rest-data-source-enhancements

Improvements to Text Messages

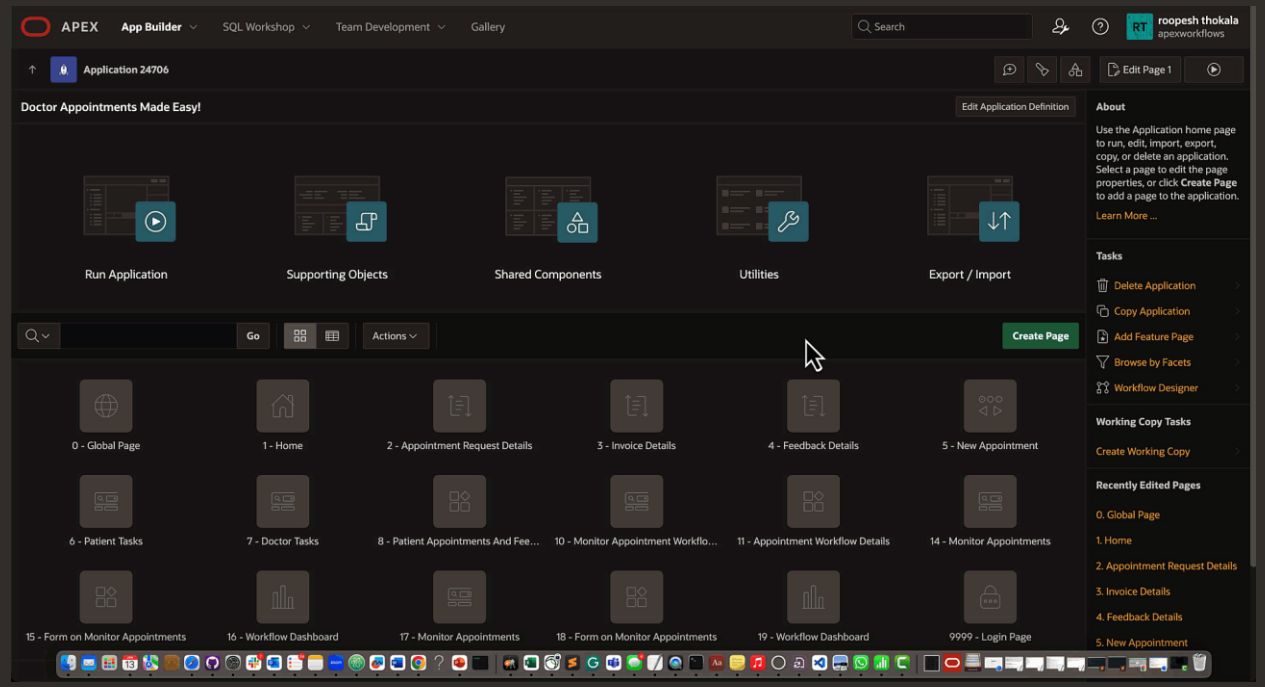




- Enhanced support for **substitution syntax**, simplifying how **Text Messages** are used in applications.
- **Shortened syntax** makes referencing Text Messages faster and more intuitive.
- **Named substitution parameters** improve code clarity and support more than ten substitutions in a single message.
- Easy **search** and **selection** of Text Messages directly within Page Designer for seamless development.

Developer Experience

Understanding Application Object Dependencies



- Easily scan and report **database object dependencies** for entire applications or specific pages
- Visualize dependencies in a **hierarchical tree format** and access **direct links** to detected references
- **Separates system dependencies** from schema objects developers manage
- Includes a **search filter** for streamlined navigation and code review of object references
- Enhances the **APEX_APP_OBJECT_DEPENDENCY API** with improved performance, bug fixes, and expanded detection capabilities

https://apex.oracle.com/go/242-db-object

General Builder Enhancements

Export and Import Pages across Workspaces

- Move pages seamlessly between different APEX environments by exporting one or more pages from one workspace, then importing them into an application in another workspace.

Builder Extensions

- Instance administrators can auto-subscribe workspaces to Extension Menu entries, eliminating manual subscriptions.

Simpler List Edit Experience

- The Edit List page now offers a more intuitive interface, with List details in an Interactive Report and bulk editing through a separate Grid Edit page.

Page Designer Enhancements

- Extend HTML title and breadcrumb with page and app information. Declaratively make modal dialog pages resizable with a new page attribute to switch the resizable setting on or off.

User Experience

Universal Theme Updates

Country Flags in Font APEX 2.4

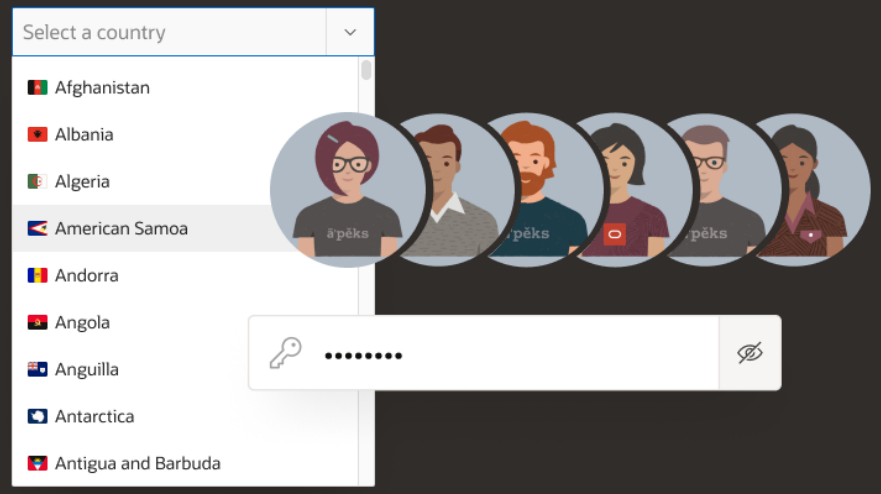
- Font APEX 2.4 adds over 250 colorful country flag icons to the Universal Theme.

Content Row Grouping

- The Content Row region type has been updated to support Template Components' new Grouping feature, which includes support for both a title and an icon in group headings.

Multiple Avatars

- The ability to create regions of multiple Avatars is now supported, with new configuration options for spacing and stacking Avatars.



Universal Theme Updates - Continued

New Utility Classes

- A number of new utility classes for Typography, Shadows, Flex Order, Padding, and Margin give developers further control over their applications' style and layout.

Password Visibility

- A new password visibility toggle for Password items lets users view or hide an entered password.

Performance

- Universal Theme is now stored in a Centrally located theme repository, improving performance, reducing export file size, and streamlining CI/CD processes.

Additional Theme Updates

- Updates to Universal Theme include better dynamic toolbar support for mobile browsers and enhancements to Redwood Light.

Accessibility Improvements

Read-Only Elements

- Read-only elements in App Builder now support improved accessible rendering, enhancing features introduced in the 24.1 release.

Builder Heading Improvements

- Heading levels in App Builder have been refined to address hierarchy issues for better accessibility.

ARIA Live Regions

- ARIA live regions in APEX have been modularized for enhanced accessibility, ensuring consistent live message handling for screen reader users.

OpenTelemetry Support

Utilize OpenTelemetry features in APEX applications to meet industry standards for instrumenting and collecting client-side telemetry data.

UX Analysis

- Gain deeper insights into UX performance by using OpenTelemetry to gather data on resource fetch timings, AJAX/XHR requests, and user interactions.

Declarative Telemetry Configuration

- Set up Client Logging Service (CLS) endpoints and Token Relay URLs easily from Workspace Utilities, and configure OpenTelemetry settings per application.

Additional Updates & Enhancements

Excel Support for Document Generator

The **Document Generator Integration service** has been improved to support Excel templates as Report Layouts

Generate documents in new formats:

- DOCX to DOCX
- XLSX to PDF
- XLSX to XLSX

https://apex.oracle.com/go/docgen-enhancements

Select Many Improvements

- New **Comma-separated List** display option allows adding a counter button to items.
- The counter shows the **number of selected values**.
- Pressing the counter opens a dropdown with only the selected values.

https://apex.oracle.com/go/242-sm-enhancements

Faceted Search Enhancements

- Faceted Search now supports **Add Filter Dialog** for displaying multiple facets conveniently on the page.
- New **synchronization feature** for Faceted Search and Smart Filters regions enables the quick creation of new facets for existing regions.

https://apex.oracle.com/go/242-sm-enhancements

Search Page Improvements

- **Improved UI** for Search Pages created from Search Configurations.
- Search Input Field now includes:
  - Default search icon
  - Clear-on-ESC functionality
  - Placeholder text
- Standard **default messages** have been added for the Search Results region to avoid an empty results region before any search has happened.

Additional Updated and Enhancements - Continued

Outdated App Translation Information

- When running a translated version of an application, developers will be notified if the translated version is not up-to-date with the primary language.

Unlimited Attributes for Item Plug-Ins

- Item Plug-ins now support unlimited attributes, utilizing the enhanced infrastructure introduced in 23.2 and 24.1 releases for Template Components and Regions.

Declarative Pagination Control

- Developers can now control pagination behaviour with the Refresh Dynamic Action on Interactive Reports.
- While the default resets pagination, developers can configure reports to maintain the current pagination and scrollbar position after a refresh.

Additional Updated and Enhancements - Continued

Substitution String for MAIN_APP_ID

- When application logic depends on the application ID, developers can use a new substitution string MAIN_APP_ID to reliably reference the main application ID, even when running in a working copy.

Modernized Popup LOV

- Popup LOV search attributes have been updated to be consistent with new LOV components like Select One, Select Many, and Combobox.
- Enhanced search capabilities with Match Type and Case Sensitive attributes.

Map Region Labels

- Map regions have been enhanced to provide full support for right-to-left text rendering. This fixes an outstanding bug regarding displaying RTL labels in Map regions.

Content-Security-Policy

- This release enhances support for content-security-policy, eliminating unsafe inline styles, script tags, and JavaScript pseudo URLs across the APEX platform.

PL/SQL API Updates

APEX_APPLICATION_ADMIN

- New SET_REMOTE_SERVER procedure to programmatically set the Base URL of a Remote Server object

APEX_CREDENTIAL

- New SET_SCOPE procedure to programmatically change the "scope" attribute of a Web Credential

APEX_PAGE

- New parameter p_absolute_url of type boolean added to the function GET_URL. When set to false, its default, it automatically determines if an absolute URL is needed. When set to true, an absolute URL is always generated

APEX_REGION

- New GET_ID function to return the ID of a region for a named region on a page of your app

PL/SQL API Updates

APEX_SHARED_COMPONENT

- The new APEX_SHARED_COMPONENT package contains two APIs for working with shared components: REFRESH and PUBLISH. It is only available in full APEX installations.

APEX_LANG

- Updated CREATE_MESSAGE procedure
  - New p_metadata parameter to optionally add any additional supporting data for a Text Message - e.g. Fusion teams will use to add additional data in JSON format
  - New p_comment parameter to optionally add comments against a Text Message
- New overloaded UPDATE_MESSAGE procedure
  - Provides full set of parameters - p_id, p_name, p_language, p_message_text, p_used_in_javascript, p_metadata, p_comment
- New GET_MESSAGE function
  - Formats a Text Message with named substitution variables 'Hello %name is your birthday on %fulldob?'

JavaScript Library Upgrades

- cropperjs 1.6.2
- DOMPurify 3.1.6
- Font APEX 2.4
- FullCalendar 6.1.15
- jQuery Migrate 3.5.2
- Less.js 4.2.0
- Map Region: Upgrade Mapbox to MapLibre 4.6.0
- MarkedJS 14.1.0
- Monaco Editor 0.51.0
- Oracle JET 17.0.2
- Oracle Rich Text Library 2.0.1
- PrismJS 1.29.0
- Terser 5.31.3
- Turndown 7.2.0

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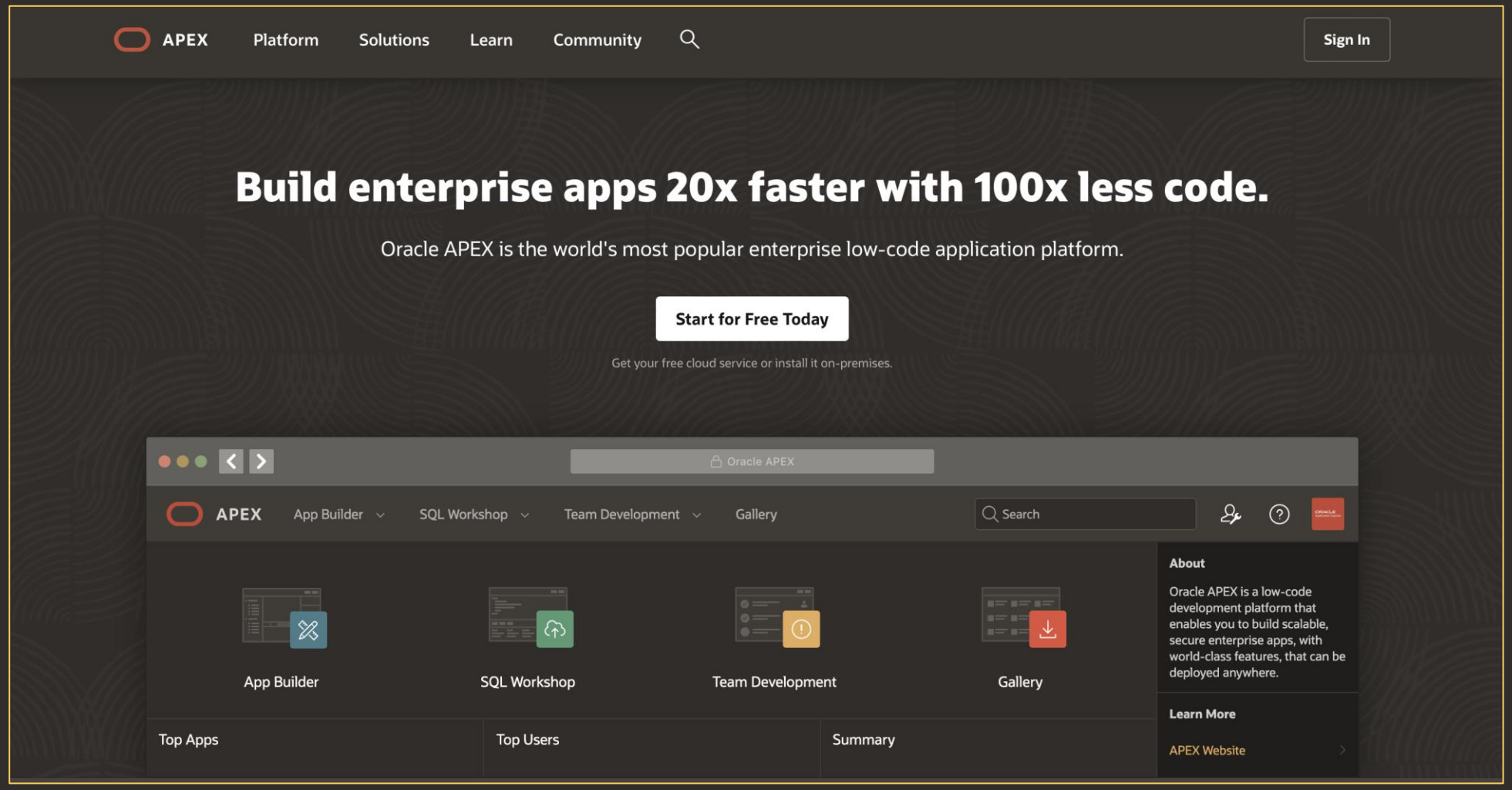

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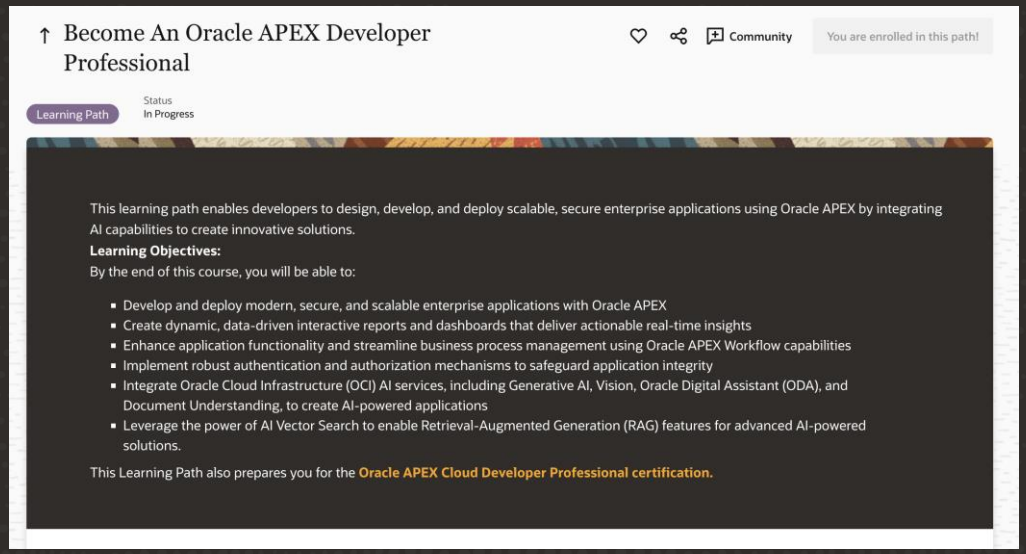

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