VERSION	FEATURE	DESCRIPTION
23.2	Application Working Copies	With the introduction of this new feature, you can now create a copy of your application (Working Copy), make changes in the copy, and merge those changes back into your application (Main). APEX produces a visual diff of the changes between your working copy and main application. You can now do feature development and testing in a working copy of your application, and merge changes back in when you are ready for them to be included in the main application.
23.2	New Workflow Feature	The new Workflow component is implemented in APEX for a fully-integrated workflow solution that lets you automate business processes using an intuitive visual workflow designer.
23.2	New Combobox Item	A new item type, Combobox, is now available
23.2	New Image Upload Item	The new Image Upload item makes it easy to crop, resize, and upload images to your application using on-device processing. You can also configure whether to use the main camera or the selfie camera for mobile devices.
23.2	New QR Code Item	The new QR Code item lets you easily embed scannable QR codes that contain text, URL, phone, email, SMS, or location data. You can also use the associated QR code API to embed QR codes in reports, emails, or other parts of your application.
23.2	Custom Map Backgrounds	You can now add custom map backgrounds under Shared Components, Other Components.
23.2	Faceted Search Enhancements	You can now set the sort direction for distinct LOV-based facets.
23.2	More Attributes for Template Components	Template Component plug-ins are no longer capped at 25 attributes. You can now create more complex template components because APEX no longer restricts you to only 25 attributes.

23.2	Improved Shared Component Subscriptions	Subscription functionality is now available for the following Shared Components:
23.2	Quick SQL Updates	Create, maintain, and review application data models with minimal typing, lightning-fast SQL generation, and a built-in entity relationship diagram.
23.2	Improvements to REST Source Infrastructure	There are now multiple improvements for REST Data Sources, including support of data types for REST Source parameters, validation for regular expressions, and smaller enhancements for the programming interface for REST Source Plug-Ins.
23.2	REST Source Catalogs from OpenAPI Documents	APEX can now generate a REST Source Catalog from OpenAPI documents.
23.2	OData Connector as a Native REST Source Type	he OData protocol is used by SAP, Microsoft, and other software providers as the protocol for their REST APIs. APEX can now provide connectivity to OData REST APIs out of the box. Support is currently limited to read only (Reports, Charts, etc.). Support for DML (Forms, Editable IG) is planned for a future release.
23.2	Support for Fusion Apps Extensions	You can now create REST data sources to query, insert, update, and delete data from Fusion Apps REST APIs. After defining your REST Data Sources, use them with any APEX regions to build custom experiences for Fusion Applications data. They take full advantage of APEX features like REST synchronization to improve performance and local post-processing to join remote data to local tables and further filter it using the power of SQL.
23.2	Approvals Component Enhancements	

23.2	Action Tasks	Building on the task framework introduced in the Approvals Component, Action Tasks are tasks that do not require approval. Use action tasks for scenarios where users need to add data to a form, upload a file, verify information, or do other work to complete the task. You can add an action task as a step in an APEX workflow.
23.2	Simplified Create Application Wizard	When creating a new application, you now have the option to enter an app name and click Create Application to immediately create the application without going through the Create Application Wizard. The simplified Create Application Wizard generates a new application with a single page and default settings.
23.2	Simplified Application Export	Exporting applications, pages, and components is now centralized and standardized, making exports more user-friendly. When you export, APEX now only displays the essential, customizable export content, providing a more intuitive experience.
23.2	Simplified Application Import	The import wizard is streamlined and simplified to make importing easier than ever. Install apps with or without supporting objects, pages, and components in just a few steps.
23.2	Improvements to Background Page Processing	
23.2	Populate List Item Subentries with List Reference	Child items of a static list item can now be populated by referencing a list, with the ability to nest lists up to 10 levels. The referenced list can be static or dynamic. Use the List Utilization report to easily identify list and sublist relations.

23.2	Translate Default Reports	APEX can now translate default reports in Interactive Report and Interactive Grid. The XLIFF file now includes default report translatable texts, including the report name, filter name, highlight name, and chart axis labels. For interactive grids, you can translate the Report Aggregate tooltip, and for interactive reports, you can translate the label and format mask for computations, pivot aggregates, and group by functions.
23.2	Ubiquitous Search	With Oracle Database 23c Ubiquitous Database Search, you can use the DBMS_SEARCH Pl/SQL package for indexing of multiple schema objects in a single index. APEX supports Ubiquitous Search indexes by providing a new search type in the Search Configuration wizard: Oracle Ubiquitous Search.
23.2	New Instance Parameters for APEX_INSTANCE_ADMIN	Two new parameters are now available in APEX_INSTANCE_ADMIN:
23.2	EMP/DEPT Dataset Support in Arabic and Italian	The EMP/DEPT dataset is now available in Arabic and Italian.
23.2	Store Static Resources in Oracle Cloud Object Storage	Static application files, including images, CSS, and JavaScript files, can now be stored in Oracle Cloud Object Storage.
23.2	Utility Apps Available in Gallery	Utility apps are ready-to-use apps that simplify common APEX application development tasks. If available, the Utility App category shows in the App Gallery.
23.2	JavaScript API Updates	
23.2	JavaScript Library Upgrades	

23.1	Template Components	Template Components are a new plug-in type for building re-usable UI components with support for actions, menus, and custom attributes within Page Designer. These components can be rendered standalone as regions displaying one or multiple rows of data, and can also be within reports as partials for a column.
23.1	PWA Push Notifications	Low-code push notifications are now available with a single switch. Users on all devices, desktop and mobile, can opt-in to receive push notifications.
23.1	Modernized Object Browser	The Object Browser delivers a more accessible and streamlined user experience that makes managing database objects easier.
23.1	Page Processing Improvements	New features are available to streamline and better manage page processing.
23.1	REST Data Source Enhancements	REST Data Sources are updated to provide more control over source discovery and responses.
23.1	Property Graph Support	APEX now supports building APEX components based on Property Graph queries, a feature introduced in Oracle Database 23c. Build APEX Page Components, shared LOVs, Automations, and Search Configurations directly on a Property Graph using SQL queries.
23.1	SQL Developer Web Integration	You can now open SQL Developer Web directly from the SQL Workshop menu in the menu bar. This feature requires ORDS version 23.1, and is configured at the instance level.
23.1	Capture ECID in APEX Webservice Log	You can now pass the Execution Context ID (ECID) to external web services for end-to-end tracing with the Pass ECID application setting. If this attribute is switched on, customers can relate external web service calls to page calls in APEX.
23.1	Application Continuity	A new application security attribute, Session State Commit, controls how changes to session and item values and the accompanying commits are handled:

23.1	APEX Administrator Digest	Monitor the health of your instances, workspaces, and schemas with metrics and trend charts in the new APEX Administrator Digest. Reports in the summary dashboard include daily metrics for the previous day:
23.1	Auto-Provisioning Restrictions	Instance Administrators can now easily manage the auto-provisioning of workspaces with a new UI and API that allows you to define and manage a list of email patterns. Query a block list when auto-provisioning a workspace to restrict email addresses that match the pattern on the block list. Automatic Provisioning must be enabled for this restriction to work.
23.1	New Application Administration API Package	You can now programmatically interface with admin jobs through the new APEX_APPLICATION_ADMIN package. This package contains existing APIs moved from APEX_UTIL
23.1	New Color Picker	There is a new web component-based color picker with JET-compatible color objects. You can create the color picker dynamically and change options at runtime to re-render it. The new color picker replaces the old one in Theme Roller, Page Designer, and Interactive Report/Interactive Grid highlighting dialogs.
23.1	Import and Export in Theme Roller	You can now import and export theme styles directly from Theme Roller in JSON format. Use the Additional Options menu in Theme Roller to import, export, or reset a theme style.
23.1	Region Display Selector Enhancements	The item plug-in infrastructure is extended to support 25 attributes, up from 15. The apex_application_page_items dictionary view is extended to show these new attributes.
23.1	Plug-In Attributes Updates	The item plug-in infrastructure is extended to support 25 attributes, up from 15. The apex_application_page_items dictionary view is extended to show these new attributes.

23.1	Improved App Icon Fidelity	When creating an application or changing application icons, APEX now generates two new icon files in Shared Component, Application Static Files. These new icons styles support PWAs for all operating systems, including Windows, macOS, Android, and iOS.
23.1	Translation of Runtime Messages into Icelandic	APEX now supports the translation of runtime messages into Icelandic, extending our language support to 32 languages.
23.1	Save and Run Page from Code Editor	You can now run standard pages in Page Designer directly from a code editor dialog without closing it first. Use the new Save and Run Page button in the editor toolbar or the default keyboard shortcut (Alt+F8).
23.1	Context-Sensitive APEX Help	Links to documentation resources in internal applications are updated to redirect to the appropriate book or chapter. This improves the quality of all documentation links from within APEX App Builder, SQL Workshop, and other internal applications.
23.1	Multi-Tenant Authentication	The new Configuration Procedure attribute allows you to use a procedure to dynamically configure authentication at runtime. The authentication procedure runs at least once per session. You can use the procedure to specify the authentication_name, substitutions, and the tenant_id.
23.1	Approvals Component Enhancements	A new due date parameter is now available for tasks.
23.1	JavaScript API Updates	
23.1	JavaScript Library Upgrades	
22.2	Application Search	There is new declarative search functionality for APEX:
22.2	Invoke API Process Type	The new Invoke API page-level process type allows you to execute procedures and functions completely declaratively, without having to write PL/SQL code:

22.2	New Dynamic Content Region	There is a new native region type: Dynamic Content. Dynamic Content regions are similar to PL/SQL Dynamic Content regions with the following differences:
22.2	Approvals Functionality Updated	The approvals component has new functionality.
22.2	Page Item Session State Data Type – CLOB	Prior to this release, Page Items had an implicit session state data type of VARCHAR2. This means the value rendered on the screen, submitted, computed, and validated, was a String, capped at either 4k or 32k bytes in length depending on the database configuration. In APEX 22.2, the internal infrastructure of page items and session state is reworked to support different data types. The first additional supported data type is CLOB.
22.2	Date Picker	The new Date Picker is built from the ground up for APEX and provides a streamlined user experience that is faster, more accessible, and lighter weight.
22.2	Support for Template Directives in Classic and Interactive Reports	APEX now supports Template Directives for columns that have an HTML expression in Classic Reports and Interactive Reports.
22.2	Number Page Item Enhancement	A new attribute, Virtual Keyboard, is now available on the Number page item. You can use this attribute to configure the type of virtual keyboard to use on mobile devices when editing a Number page item:
22.2	Vector-Based Map Support	APEX now supports Vector-Based Map Tiles in the map region. There are three layers available:
22.2	Progressive Web App Enhancements	he Progressive Web App (PWA) feature has new functionality.
22.2	Naming Actions of Dynamic Actions	You can now name actions of dynamic actions with a custom description for better self-documentation in Page Designer.

22.2	Landmark Support for Regions	Landmarks redefine how screen reader users understand the structure of a web page. Building on previous support in APEX, regions now have full control over how they present as landmarks. Regions either use a template default or override their landmark at page level.
22.2	Debounce and Throttle Dynamic Actions	You can now set the Dynamic Action Execution Type, Time, and Immediate properties to control when actions execute:
22.2	Updated Rich Text Editor	
22.2	Drawer Modal Dialog Template	The latest Universal Theme includes Drawer Dialog Template. This template can be selected if the page mode is Modal Dialog.
22.2	Updated Global Search (Spotlight Search)	
22.2	JavaScript API Updates	
22.2	PL/SQL API Updates	
22.2	JavaScript Library Upgrades	
22.1	Approvals and Unified Task List	Create approval tasks with new processing elements, and easily manage the progress of tasks from a single Unified Task List for easy maintenance.
22.1	Create Page Wizard	The Create Page wizard is drastically simplified to make it easier than ever before to create pages in your APEX apps. The streamlined wizard applies smart defaults, minimizes user input, improves page navigation, and more.
22.1	Export Application Metadata in JSON or YAML Format	Application Export now has a readable/diffable version in JSON or YAML format.
22.1	Natural Search on Row Search	A new attribute, Tokenize Row Search, is added to the Application Definition page. Previously, any component that executed a row search performed an exact match search. Search terms are now applied more generally.

22.1	Region Sort Page Item	The new Sort Order item type lets you easily configure sorting options for your regions. This is particularly useful for region types that do not support ordering on their own, such as the Cards region.
22.1	Markdown and Rich Text Enhancements	A more consistent content styling is now available across all components (classic report, interactive report, interactive grid, display only item, markdown editor item, and rich text editor item). The Markdown Editor page item now displays as a Display Only item in Read Only mode to stay consistent with other components.
22.1	Customizing the PWA Service Worker	Advanced users can tap into the full power of Progressive Web Apps (PWAs) by adding their own service worker code. Customizing the Service Worker gives users the ability to: Implement push notifications Enable offline mode Perform background synchronization
22.1	Persistent Authentication	Persistent Authentication allows users to open an application without having to sign in each time. Once you enable Persistent Authentication on the instance level and check the PWA option in the Application Wizard, the Login page of the generated application automatically contains a Remember Me checkbox.
22.1	Improved Region Images	Region Image and Image Tag Attributes previously were available in the Property Editor for all regions, regardless of the template and including regions without a template. Now, Region Image and Image Tag Attributes have been deprecated, and are not available for regions that don’t have a template defined.
22.1	Data Generator	Use the Data Generator to quickly prototype data by creating blueprints with tables, columns, and custom data sources.
22.1	Application Icons	Application Icons are redesigned. Upload your application icon once, and let APEX propagate it to your application at runtime.

22.1	Effortless App Gallery Installs	Sample and Starter Apps can once again be installed directly from the Gallery. This feature had been removed in Oracle Application Express 21.1.
22.1	Session Overrides	There is a new Developer Toolbar option for Session Overrides that allows you to set APEX session variables at runtime.
22.1	File URL Enhancements	
22.1	Add Workspace Static Files to Component Export	Export Workspace Static Files using Component Export.
22.1	Subscription Support for Lists	Like many other Shared Components, lists now support the subscription feature.
22.1	REST Sources	Introduces a new REST Source Type, REST Enabled SQL Query.
22.1	Code Editor Enhancements	There is a new editor setting for Bracket Pair Colorization.
22.1	New JavaScript Initialization Code Attribute	The JavaScript Initialization Code attribute is added to the Faceted Search, Smart Filters, and Cards regions. This allows advanced customization of the region during initialization.
22.1	Plug-In Support for Faceted Search/Smart Filters	Plug-in developers can now make a region plug-in compatible with Faceted Search and Smart Filters. Region plug-ins can then be connected to a Faceted Search or Smart Filters region in Page Designer. At runtime, the region automatically refreshes as the filters change. Data is automatically filtered
22.1	Email Template Updates	Specific attributes of email templates now support template directives.
22.1	JavaScript Library Upgrades	
22.1	JavaScript API Updates	
22.1	PL/SQL API Updates	

21.2	Smart Filters	Smart Filters is a new search component that enables users to quickly narrow data down with filters suggestions or search terms. Developers can use this component to provide users with a simplified search experience that eliminates clutter and provides a single control to instantly find information.
21.2	Progressive Web Apps	Your apps can easily be defined as Progressive Web Apps (PWAs) to take advantage of advanced caching and improved performance. These apps can also be installed on your smartphone of choice with device-specific installation instructions.
21.2	Universal Theme & UI Updates	Take greater control over your application's user interface with additional component positions across page templates, modal dialog drawers, improved accessibility, smoother page loading, and much more. The updated Reference App now provides live Template Option previews, documented CSS variables, and a new Theme Version menu in the header to quickly jump to Reference Apps for previous versions of the Universal Theme.
21.2	Faceted Search Enhancements	Faceted search now has declarative support for multi-value columns, has improved accessibility, and gives you more control over how a facet is displayed.
21.2	Updated Alert and Confirm Dialogs	
21.2	Geocoding and Map Items	Geocode your addresses and display a map as a page item without an API key.
21.2	REST Catalogs and Improvements	Users can now search and browse through a catalog that contains metadata about REST Services and create APEX REST Data Sources based on REST Service metadata within the catalog. In addition, there is built-in pagination support for Simple HTTP REST Data Sources.

21.2	Improved Report Downloads, Subscriptions, and Printing	
21.2	Improved Editors	
21.2	Environment Setup	
21.2	Email and Email Template Enhancements	
21.2	Additional Features	
21.2	JavaScript Library Upgrades	
21.2	JavaScript (jsDoc) Updates	
21.2	Data Package	
21.2	Font APEX Enhancements	
21.2	New Copyright Banner for Application Export	
21.1	Native Map Region Type	Visualize location data on a map with the new native Map Component.
21.1	Native Markdown Support	New public PL/SQL API APEX_MARKDOWN to convert Markdown into HTML on the server. APEX_MARKDOWN implements the Commonmark specification, v0.29.
21.1	Universal Theme Enhancements	Enhanced Redwood Light Theme Style which is more inline with the Redwood Design System. New Row CSS Classes Page Designer attribute added to to Region, Page Item, and Item Buttons. New Theme Style Page CSS Classes attribute added to Theme Styles (see Using Theme Styles).
21.1	Import Application Export as ZIP	App Builder now supports the import of an application export which has been created as a ZIP file.
21.1	Additional Lazy Loading Support	Classic and Interactive Reports now support Lazy Loading.

21.1	New Application Data Loading	New Application Data Loading functonality supports CSV, XLSX, XML and JSON formats. Optional Facets with end user customization.
21.1	Faceted Search Enhancements	In Page Designer, Facets and Facet Groups now have two new Advanced attributes called Display Toggling and Initially Displayed.
21.1	New Date Picker Item Type	The new Date Picker is a modern, accessible item type based on the Oracle JET date components.
21.1	REST Data Sources	Support for CSV data.
21.1	New Color Picker Item Type	The new Color Picker replaces the old one and adds new configuration options. It utilizes the Oracle JET Color Spectrum component.
21.1	Report Printing	Support for Complex Text layout languages, Hebrew, and Arabic when exporting to PDF.
21.1	Developer Experience	
21.1	JavaScript Library Upgrades	
21.1	Application and Page Checksum	View the application and page checksums to compare different application deployments and determine if the application or pages are different.
21.1	New JavaScript APIs	
21.1	FullCalendar Upgraded to v5	
21.1	Font APEX Icons	
21.1	Miscellaneous	

Author



- Patrick

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