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Oracle APEX 19.1 New Features



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Step Up to Modern Cloud Development

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What's New in Oracle APEX 19.1?

- **New Form Region**
- **REST Enabled Forms**
- **New Data Loading**
- **JET Chart Enhancements**
- **Oracle JET and jQuery Library Upgrades**
- **Interactive Grid Enhancements**
- **Dark Mode and Universal Theme Enhancements**
- **Miscellaneous Enhancements**

New Form Region

Oracle APEX 19.1: New Form Region

- Oracle APEX 19.1 introduces a new region type: **Form Region**
- Form data source is now at region level
 - ✓ Enables multiple Form regions on a page
- Supports Data Sources: Local Database, REST Enabled SQL Service and Web Source
- Supports Source Type: Table, SQL and PL/SQL Function body returning SQL Query

The screenshot displays the Oracle APEX Page Designer interface for 'Application 1566' in 'Page Designer' mode. The main workspace shows a 'Form' region with a 'DIALOG HEADER' and 'CONTENT BODY'. The 'CONTENT BODY' contains a 'Form' region with three items: 'P3_EMPNO', 'P3_ENAME', 'P3_JOB', and 'P3_HIREDATE'. The 'Form' region is highlighted with a blue bar. The 'Regions' tab is active, showing the 'Form' region selected. The 'Source' section is highlighted with a green box, showing the configuration for the 'Form' region's data source. The 'Source' section includes a 'Location' dropdown set to 'Local Database' and a 'Type' dropdown set to 'SQL Query'. Below the 'Source' section, the 'SQL Query' text area contains the following query:

```
select e.empno, e.ename, e.job, e.hiredate,
e.sal,
e.comm, e.deptno,
(select dname from dept where deptno =
e.deptno ) as dname
from emp e
where deptno = 10
```

The 'Page Items to Submit' section is also visible, with a 'Submit' button. The 'Optimizer Hint' section is empty. The 'Form' region is also highlighted with a green box in the 'Regions' tab.

New Form Region: Features

- Page item source references Region (and not Table)
- Page Rendering based on Region (and not Table)
- Synchronizes page items with Form Query
- Includes additional settings under Attributes

The 'Attributes' configuration panel is shown with the following settings:

- Edit**
 - Enabled: Yes No
 - Allowed Operations: Add Row, Update Row, Delete Row
 - Allowed Row Operations Column: - Select -
 - Lost Update Type: Row Values
- Edit Authorization**
 - Add: - Select -
 - Update: - Select -
 - Delete: - Select -

The 'Page Item' configuration panel is shown with the following settings:

- Layout**
 - Sequence: 50
 - Region: Form
 - Start New Row: Yes No
 - Column: Automatic
 - Column Span: Automatic
 - Column CSS Classes: [Menu]
 - Column Attributes: [Menu]
- Appearance**
- Validation**
- Advanced**
- Source**
 - Form Region: Form
 - Column: SAL

Form – Automatic Row Processing (DML)

- Target Type determines where Oracle APEX executes the DML processing: Region Source, Table / View, PL/SQL Code
- Adds more flexibility for:
 - ✓ Lost update detection
 - ✓ Lock row

The screenshot displays the Oracle APEX Page Designer interface for 'Application 1566'. The central workspace shows a 'Form' process with a 'DIALOG HEADER' and 'CONTENT BODY'. The 'ITEMS' section lists 'P3_ENAME', 'P3_JOB', and 'P3_HIREDATE'. The right-hand 'Process' configuration pane is expanded to show the 'Settings' section, where the 'Target Type' is set to 'Region Source', 'Prevent Lost Updates' is 'Yes', 'Lock Row' is 'Yes', and 'Return Primary Key(s) after Insert' is 'Yes'. The 'Identification' section shows the process name as 'Process form Form' and the type as 'Form - Automatic Row Processing (DML)'. The left-hand pane shows the process flow, with 'Process form Form' selected under the 'Processing' phase.

REST Enabled Forms

Oracle APEX 18.x REST Capabilities: Review

- Read data using REST Enabled SQL
- Read data from REST Web Source
- Utilize in Reports, Charts, Calendars, Trees...
- Defined for the application
- Fully declarative

Oracle APEX 19.1: REST Enabled Forms

- Oracle APEX 19.1 allows you to create forms on REST services declaratively
- Oracle APEX 19.1 extends declarative support to:
 - ✓ Write data using REST Enabled SQL
 - ✓ Write data to REST Web Source

The image displays two screenshots from the Oracle APEX 19.1 declarative interface, illustrating the configuration of a REST-enabled form.

The top screenshot shows the **Data Source** configuration step. The progress bar indicates that the first two steps are complete (green checkmarks) and the current step is in progress (blue dot). The **Data Source** is set to **Web Source**, and the **Web Source Module** is set to **Sample Tasks REST Service**. Below this, there is a section for selecting columns to be shown in the report, with a list of columns including **ID (Number)**, **COST (Number)**, and **BUDGET (Number)**.

The bottom screenshot shows the **Create Form - Columns and Primary Key** step. The progress bar indicates that the first three steps are complete (green checkmarks) and the current step is in progress (blue dot). The **Form Page** is selected. Below this, there is a section for selecting columns to be displayed in the form, with a list of columns including **ID (Number)**, **COST (Number)**, **BUDGET (Number)**, **STATUS (Varchar2)**, **CREATED (Date)**, **PROJECT (Varchar2)**, **UPDATED (Date)**, and **END_DATE (Date)**. The **Primary Key Column** is set to **ID (Number)**, and the **Secondary Key Column** is set to **- Select Column -**.

Exposing REST API for a Database Object

REST enable a database object in the Object Browser or by executing PL/SQL block in SQL Workshop > SQL Commands

The image shows two overlapping windows from Oracle SQL Workshop. The top window is the 'SQL Commands' panel, where a PL/SQL block has been entered and is ready to be executed. The bottom window is the 'Object Browser', showing the configuration for the 'SAMPLE\$TASKS_SS' object.

```
begin
  ords.enable_object(
    p_object      => 'SAMPLE$TASKS_SS',
    p_object_alias => 'sample-tasks' );
end;
```

The Object Browser shows the configuration for the 'SAMPLE\$TASKS_SS' object:

- REST Enable Object: Yes No
- Object Alias:
- Authorization Required: Yes No
- RESTful URI:

The 'REST' tab in the Object Browser is highlighted with a green box.

New Data Loading

New Quick and Easy Data Loading

The image shows a composite screenshot of the Oracle APEX interface. On the left, the 'Create an Application' section is visible, with three options: 'New Application', 'From a File' (highlighted with a green border), and 'Productivity App'. On the right, the 'SQL Workshop' navigation menu is shown, with 'Utilities > Data Workshop' selected. Below this, the 'Get Started' section contains two buttons: 'Load Data' (highlighted with a green border) and 'Unload Data'. A red arrow points from the 'Load Data' button to a larger, detailed view of the 'Load Data' dialog box. This dialog box has two tabs: 'Upload a File' (selected) and 'Copy and Paste'. The 'Upload a File' tab contains a large dashed blue box with the text 'Drag and drop file here or' and a 'Choose File' button. Below this, it lists supported formats: 'Supported formats csv, xlsx, txt, xml, json'. A second red arrow points from the 'Available under:' list to the 'Load Data' button.

Available under:

- Create Application From a File
- SQL Workshop > Utilities > Data Workshop

New Quick and Easy Data Loading: Features

- Includes a new drag and drop user interface
- Supports csv, xlsx, txt, xml, and json formats
- Performs automatic column delimiter, type, and size detection
- Supports loading any size file (background processing)

Load Data

Column Headers ? Column Delimiter ? Enclosed By ? File Encoding ?

First line contains headers , ; | # tab None " ' Unicode UTF-8

Preview

i Parsed first 200 rows to sample the column types. The preview below only displays the first 10 columns and 5 rows. To view the full preview, configure data load settings, and set which columns to load, please click **Configure** button. Configure ↗

1	Title	Year	Released	Runtime	Genre	Director	Language	Country	Rating	Production
2	The Shawshank Redemption	1994	14-Oct-94	142	Crime, Drama	Frank Darabont	English	USA	9.3	Columbia Pictures
3	The Godfather	1972	24-Mar-72	175	Crime, Drama	Francis Ford Coppola	English	USA	9.2	Paramount Pictures
4	The Godfather: Part II	1974	20-Dec-74	202	Crime, Drama	Francis Ford Coppola	English	USA	9	Paramount Pictures
5	The Dark Knight	2008	18-Jul-08	152	Action, Crime, Drama	Christopher Nolan	English	USA	9	Warner Bros. Pictures/Legendary

Load to Table

* Table Owner: CHAITANYA ?

* Table Name: MOVIES ?

* Error Table Name: MOVIES_ERR\$?

Primary Keys: SYS_GUID Identity Column ?


Use Column Data Types ?

< Cancel Load Data

New Quick and Easy Data Loading: Features

- Includes a Preview feature
- Error table stores rows that cannot be inserted
- APEX creates a select list of worksheets to choose from, if there are multiple worksheets in an xlsx file

Load Data

 multiple-sheets.xlsx



Settings

Column Headers ? First line contains headers

Select Sheet ?

File Encoding ?

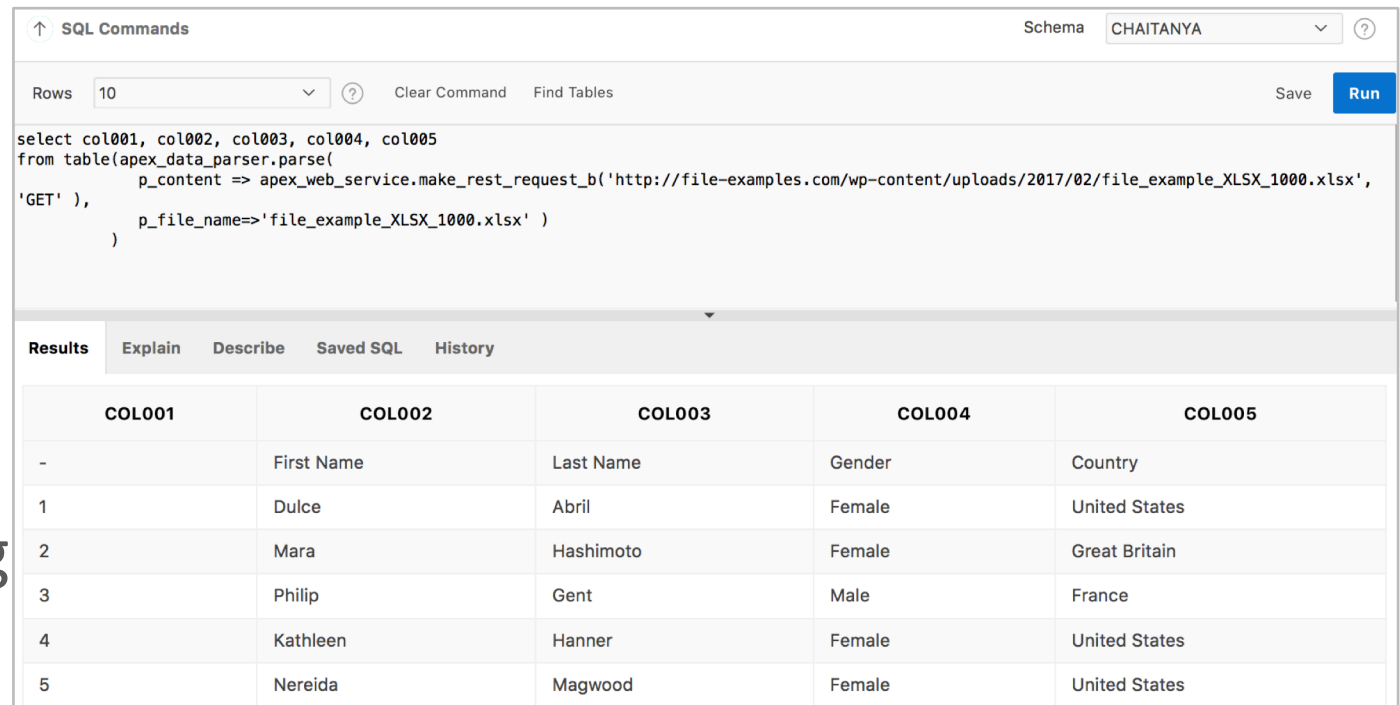
Preview

 Parsed first 101 rows to sample the column types. The preview below only displays the first 6 columns and 5 rows. To view the full preview, configure data load settings, and set which columns to load, please click **Configure** button. [Configure](#) 

	Order Number	Customer Name	Order Date	Order Items	Order Total	Sales Rep
1						
2	10	Bradley, Eugene	2019-02-04	3	870	DEMO
3	9	Hartsfield, William	2019-02-01	3	730	DEMO

APEX_DATA_PARSER PL/SQL Package

- New Public API
- Supports all of the file types as the new data loading wizard
- Access the parser like a table
- Parses the file contents, detects the headers, and displays it as columns within a report
- Updated Sample Data Loading Packaged App



The screenshot shows the SQL Developer interface. At the top, the schema is set to CHAITANYA. The SQL Commands window contains the following query:

```
select col001, col002, col003, col004, col005
from table(apex_data_parser.parse(
  p_content => apex_web_service.make_rest_request_b('http://file-examples.com/wp-content/uploads/2017/02/file_example_XLSX_1000.xlsx',
  'GET' ),
  p_file_name=>'file_example_XLSX_1000.xlsx' )
)
```

The Results window displays the output of the query as a table with 5 rows and 5 columns:

COL001	COL002	COL003	COL004	COL005
-	First Name	Last Name	Gender	Country
1	Dulce	Abril	Female	United States
2	Mara	Hashimoto	Female	Great Britain
3	Philip	Gent	Male	France
4	Kathleen	Hanner	Female	United States
5	Nereida	Magwood	Female	United States

JET Chart Enhancements

JET Chart Enhancements


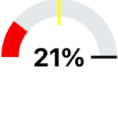

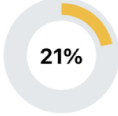


- New Chart Type: Status Meter Gauge (Replaces JET Dial Gauge Chart) supports 3 rendering options: Circular, Horizontal, and Vertical
- Declarative Font Formatting
- Stack Grouping
- Declarative Tooltip options for Gantt Charts

Status Meter Gauge

[Show All](#) [Circular](#) [Horizontal](#) [Vertical](#)

Circular

For more information on the Status Meter Gauge chart settings, refer to the Oracle JET Cookbook [Status Meter Gauge - Circular](#) example.

<p>Inner Radius</p>  <p>21%</p> <p>▶ Inner Radius Information</p>	<p>Start Angle and Angle Extent</p>  <p>21%</p> <p>▶ Start Angle and Angle Extent Information</p>	<p>Label and Value</p>  <p>3 Sales</p> <p>▶ Label and Value Information</p>
<p>Indicator Size</p>  <p>21%</p> <p>▶ Indicator Size Information</p>	<p>Number Formatting</p>  <p>\$3.00</p> <p>▶ Number Formatting Information</p>	<p>Thresholds - Using Custom Tooltip</p>  <p>3</p> <p>▶ Thresholds Information</p>

Oracle JET and jQuery Library Upgrades

Oracle JET and jQuery Library Upgrades

- Oracle JET 6.1.0
- jQuery 3.3.1
- jQuery UI 1.12.1

Interactive Grid Enhancements

New Declarative Options for Interactive Grids

- Select First Row: Yes / No
- Show / Hide Toolbar Controls
- Turn on / off Actions menu options
- Turn on / off Column options

Column

Filter

Enable Users To

Sort Yes No

Control Break/Aggregate Yes No

Hide Yes No

Attributes

Filter

Appearance

Show Null Values as -

Select First Row Yes No

Pagination

Type Page

Show Total Row Count Yes No

Messages

When No Data Found

Toolbar

Show Yes No

Controls

- Search Column Selection
- Search Field
- Actions Menu
- Reset Button
- Save Button

Attributes

Filter

Enable Users To

Save Public Report Yes No

Flashback Yes No

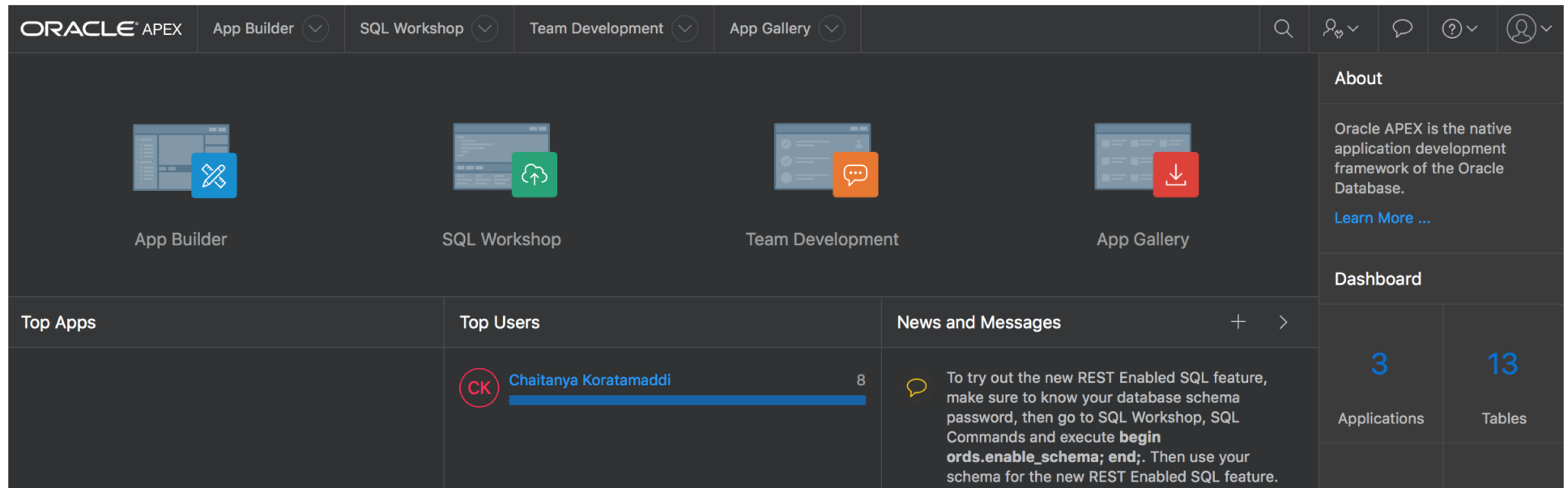
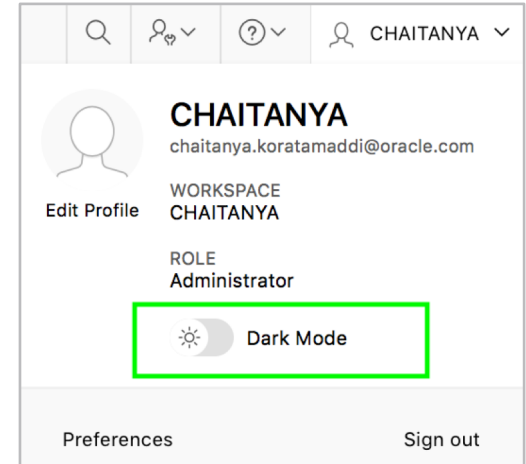
Define Chart View Yes No

Download Yes No

Dark Mode and Universal Theme Enhancements

App Builder Dark Mode

- Provides a dark, inverted color scheme
- Reduces eye strain
- Designed for developers working at night
- Growing trend in the industry



Universal Theme Enhancements

- Accessibility Improvements
 - ✓ New Tab stops
 - ✓ Additional Theme Roller attributes
- Mobile Improvements
 - ✓ Breadcrumbs only show previous page
- Collapsible Region and Navigation Bar Improvements
- Lists now label User Defined Attributes
- Updated Sample App: <https://apex.oracle.com/ut>

Miscellaneous Enhancements

Miscellaneous Enhancements

- New Inline Popup region template
- New Dynamic Actions Close Region, and Open Region that work with inline dialogs, inline popups, and collapsible regions



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