

ORACLE®



Oracle Application Express 5.1

New Features

Agenda

- 1 Oracle Application Express Overview
- 2 Interactive Grid
- 3 Oracle JET Charts
- 4 Universal Theme
- 5 Productivity Improvements
- 6 Packaged Apps
- 7 Calendar

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Oracle Application Express

Database-centric web application development framework



Develop desktop and mobile web apps



Visualize and maintain database data

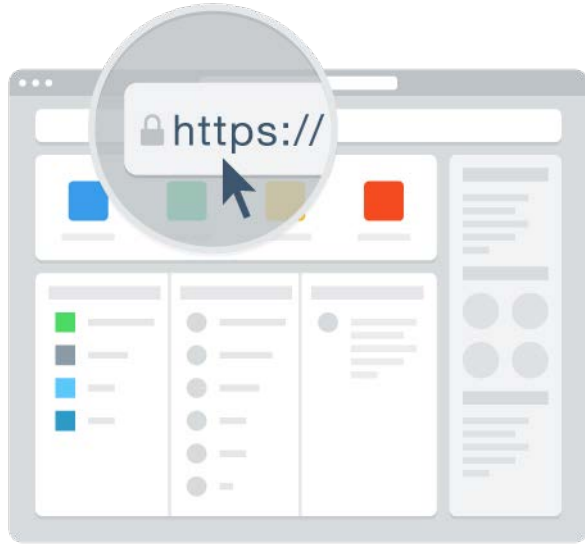


Leverage SQL Skills and database capabilities

Also known as Oracle APEX (ā'pěks)

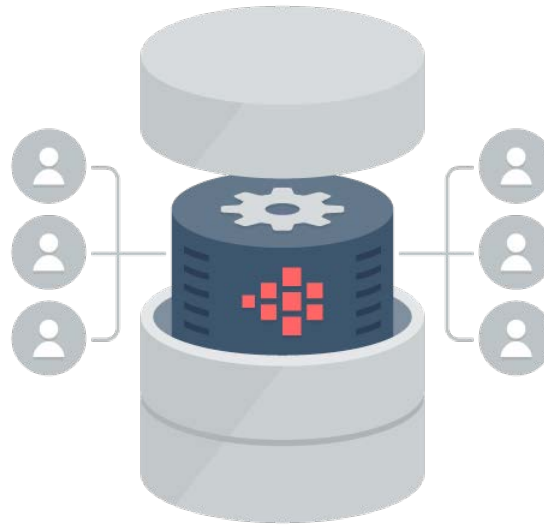
Oracle Application Express

Distinguishing Characteristics



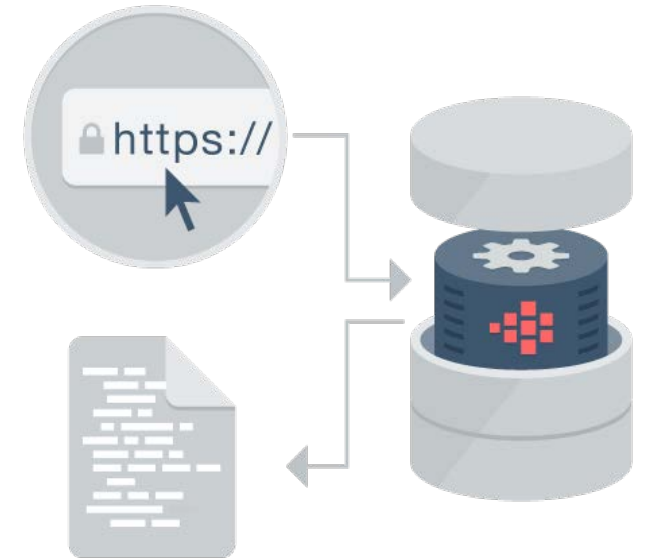
Application Development IDE is a web browser.

No client software needed



Application definitions are stored in the database as meta data.

Declarative – No code generation



Very efficient page generation - single request - single response.

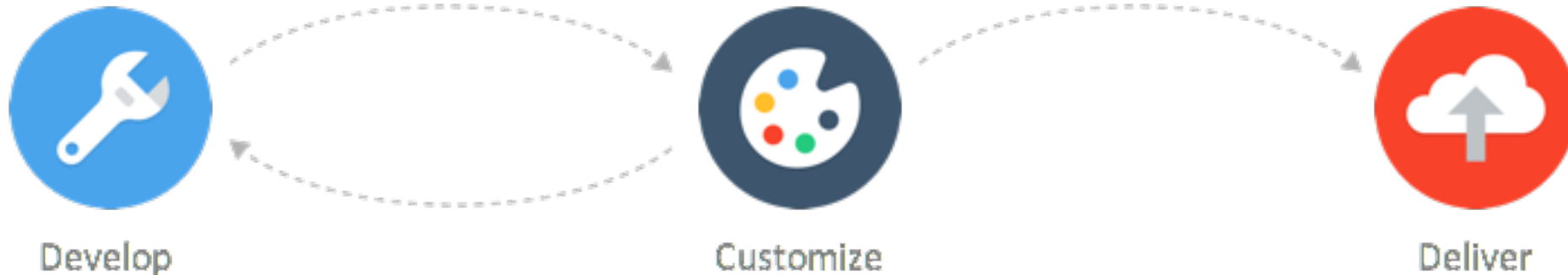
Data processing done in the Database

Oracle Application Express

Develop faster, release more frequently

Pre-built controls for security, authentication,
database interaction, validation, session management
and more...

Go from prototype to production in minutes



Oracle Application Express

Use Cases



Developing opportunistic & self service web apps



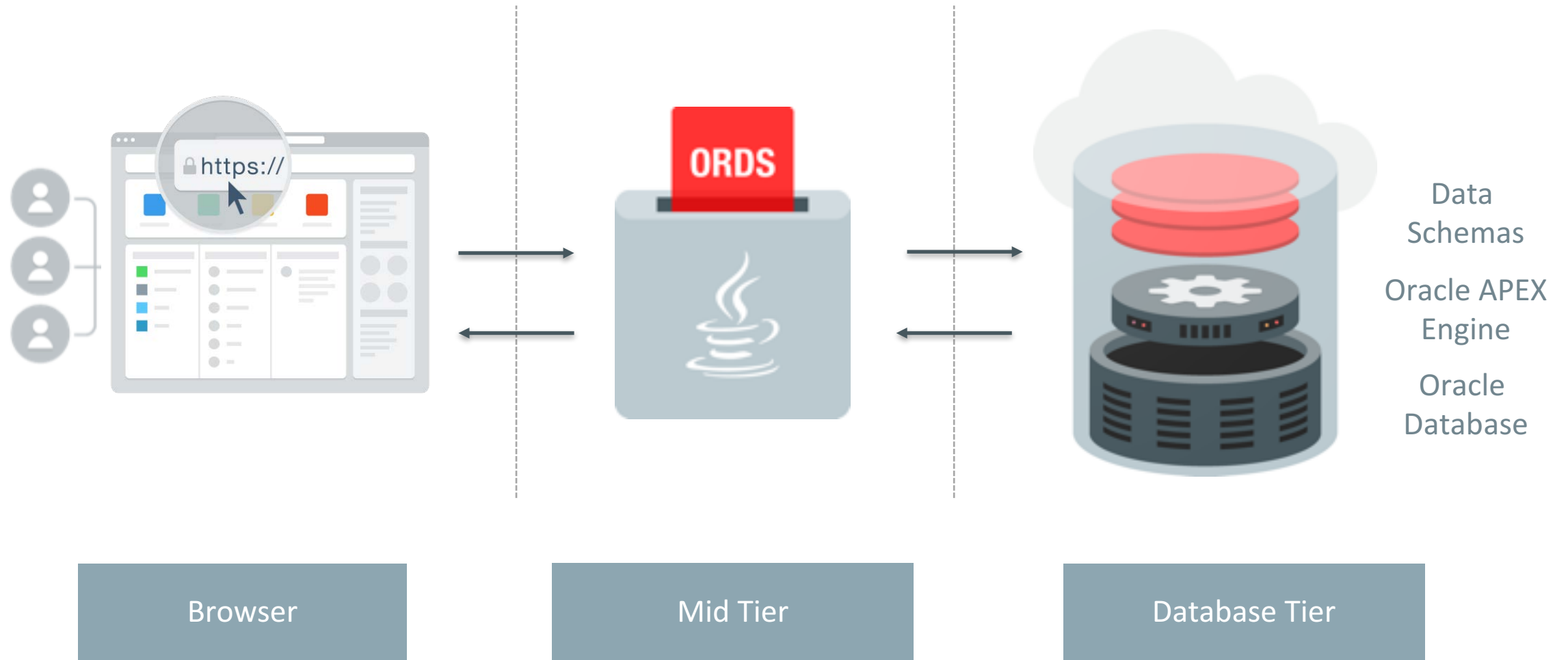
Extending enterprise application solutions



Migrating file based and client server apps to the web

Oracle Application Express

3 Tier Architecture



ORDS = Oracle REST Data Services

Oracle Application Express

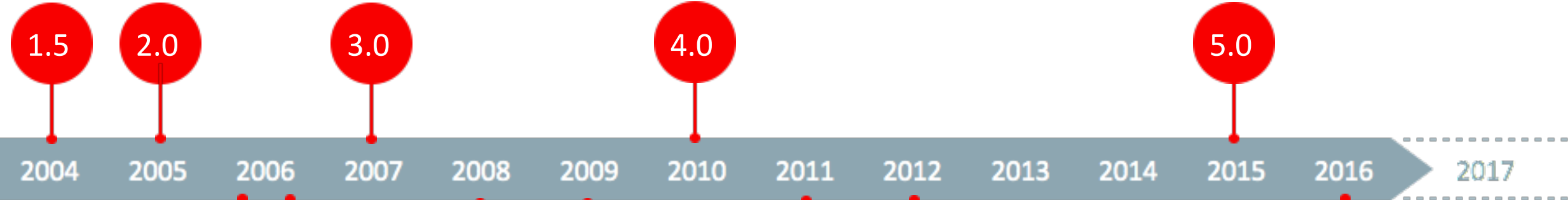
No cost feature of the Oracle Database

- No-cost fully supported feature
 - Any number of developers, apps, & end-users
 - Specialized Oracle Support Team
 - 11gR1, 11gR2, 12c
 - All DB editions: EE, SE, SE1, XE
- Included with Oracle Cloud Services
 - Exadata Express & Schema services 5, 20, 50 GB
 - Dedicated DBaaS services
 - No cost evaluation <http://apex.oracle.com>
- Easy to install
 - Included by default with all editions of Oracle database
 - Download latest release from <http://otn.oracle.com/apex>

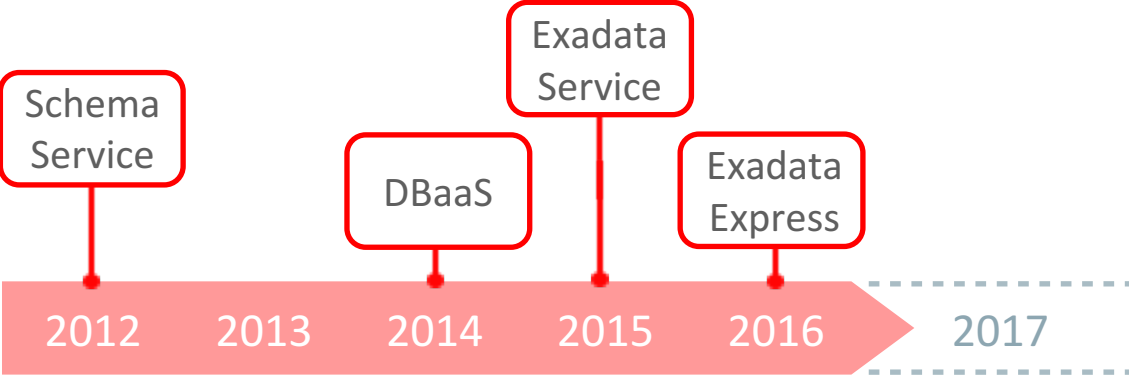


Oracle Application Express

History



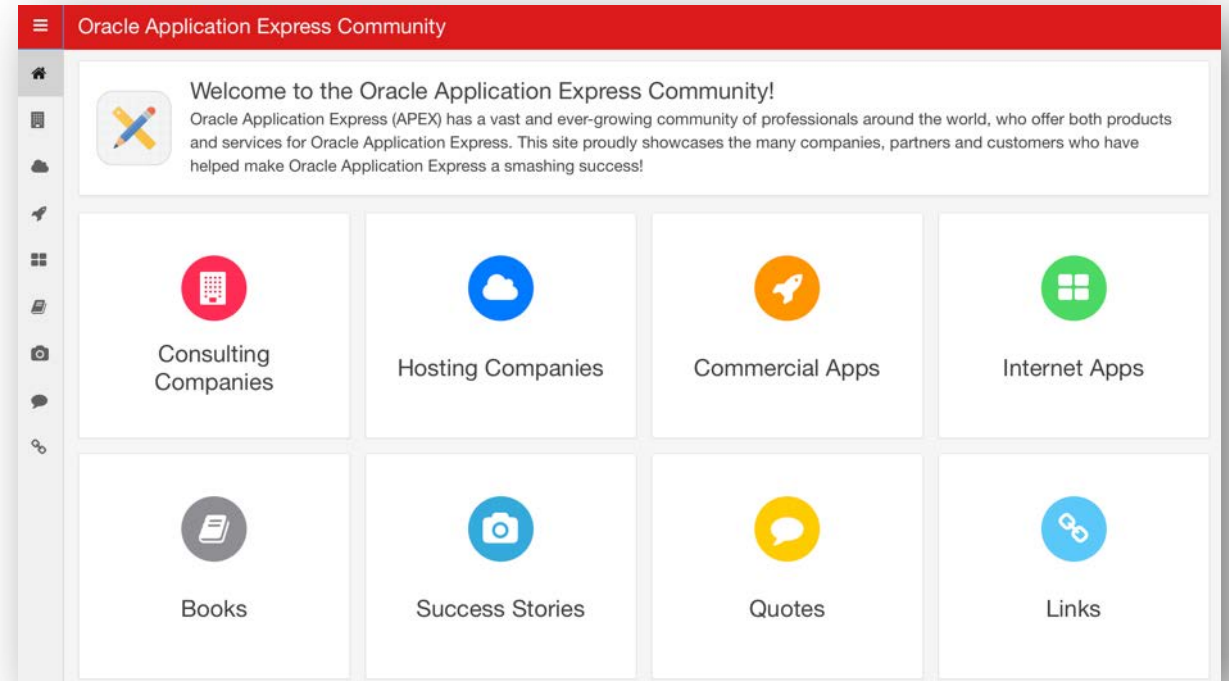
Oracle Database Cloud Services with Application Express



Oracle Application Express

Community

- Over 400,00 developers worldwide
 - Estimated from support requests, downloads, conferences, discussion forum activity
- More than 100 active bloggers
<http://odtug.com/apex>
- <http://apex.oracle.com/community>
Consulting companies, books, success stories, quotes, commercial apps

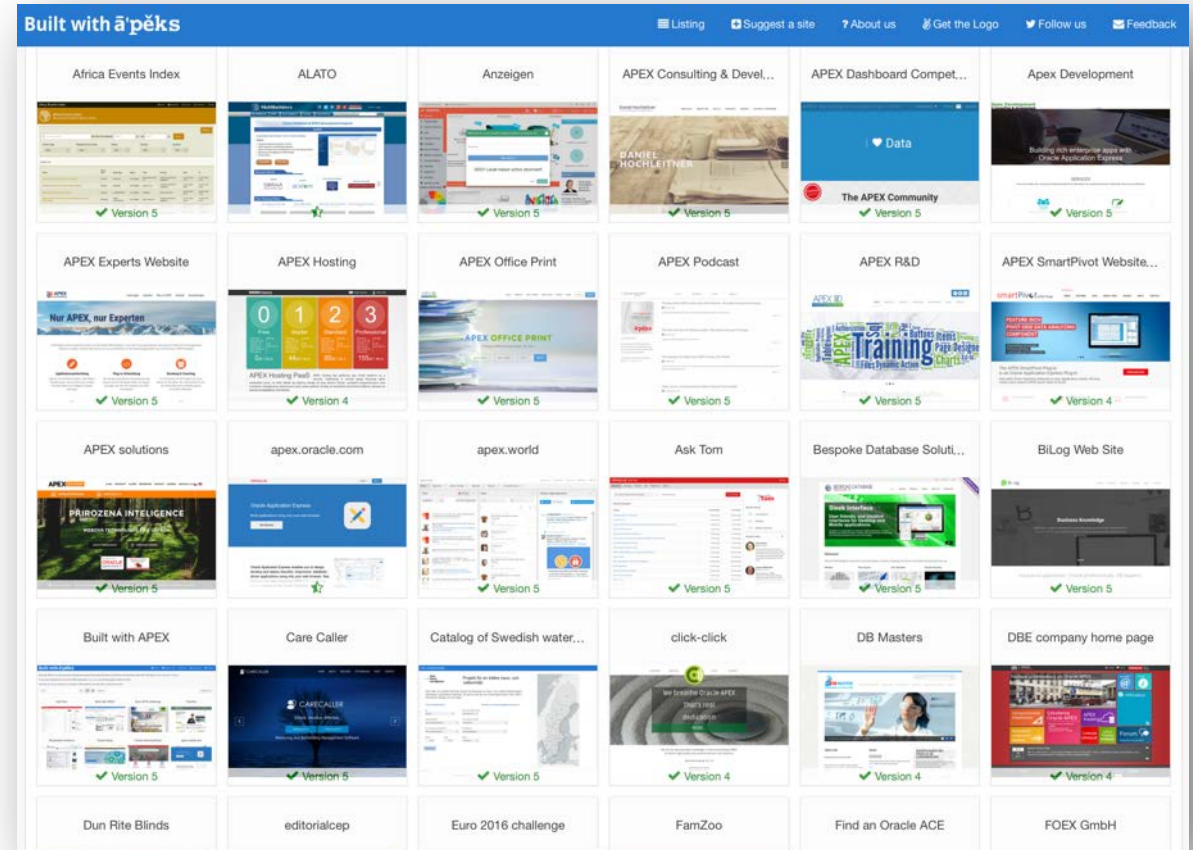


Oracle Application Express

Internet Sites built with Oracle APEX

<http://builtwithapex.com>

- Showcases large diversity of types of applications and different themes
- Launched October, 2016
- > 100 sites published, more being added daily



Oracle Application Express

Community site built by the community for the community

<http://apex.world>

- Community-authored site providing:
 - Plug-ins
 - Slack discussion channels
 - Twitter feeds
 - News
 - Jobs
 - Conferences
 - Meetups

The screenshot displays the apex.world website interface. At the top, there is a navigation menu with links for Home, Beginners, Jobs & Trainings, Meetings, Plug-ins, and Community (new). The main content area is divided into three columns:

- Slack:** A feed of messages from the #_general channel, including discussions about jQuery versions, Apex 4.2 installation, CKEditor conversion, and database configuration.
- News:** A list of recent articles and announcements, such as "New On Air Show, Oct 25th, 12 EST, News from OOW", "Interesting Logger idea for SQL-Developer", "New APEX Quiz is out", and "New APEX Live Webclasses Trainings".
- Tweets by @orclapexworld:** A stream of tweets from the community, including retweets and announcements like "Oracle APEX Blogs @orclapexblogs Material APEX bit.ly/2ezmgld #orclapex #odtug" and "Announcing the ODTUG GeekATHon 2016 Winners! @odtug bit.ly/2ezlwg3 #orclapex #odtug".

Useful Links

Collateral, Resources and Hosted Services



- Oracle Technology Network
- APEX Community
- Oracle Learning Library
- Hosted evaluation site
- APEX Cloud Service

<http://otn.oracle.com/apex>

<http://apex.oracle.com/community>

<http://www.oracle.com/oll>

<http://apex.oracle.com>

<http://cloud.oracle.com>

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Interactive Grid

Motivation

- Long-standing customer requests to enhance Tabular Forms:
 - Support multiple tabular forms on a single page
 - Cascading LOVs
 - Dynamic Action Support
 - Lift 32k limitation on report rows

The screenshot shows an Oracle APEX Interactive Grid for an 'Employees' table. The grid has the following columns: Ename, Job, Mgr, Hiredate, Sal, Comm, and Deptno. The data is as follows:

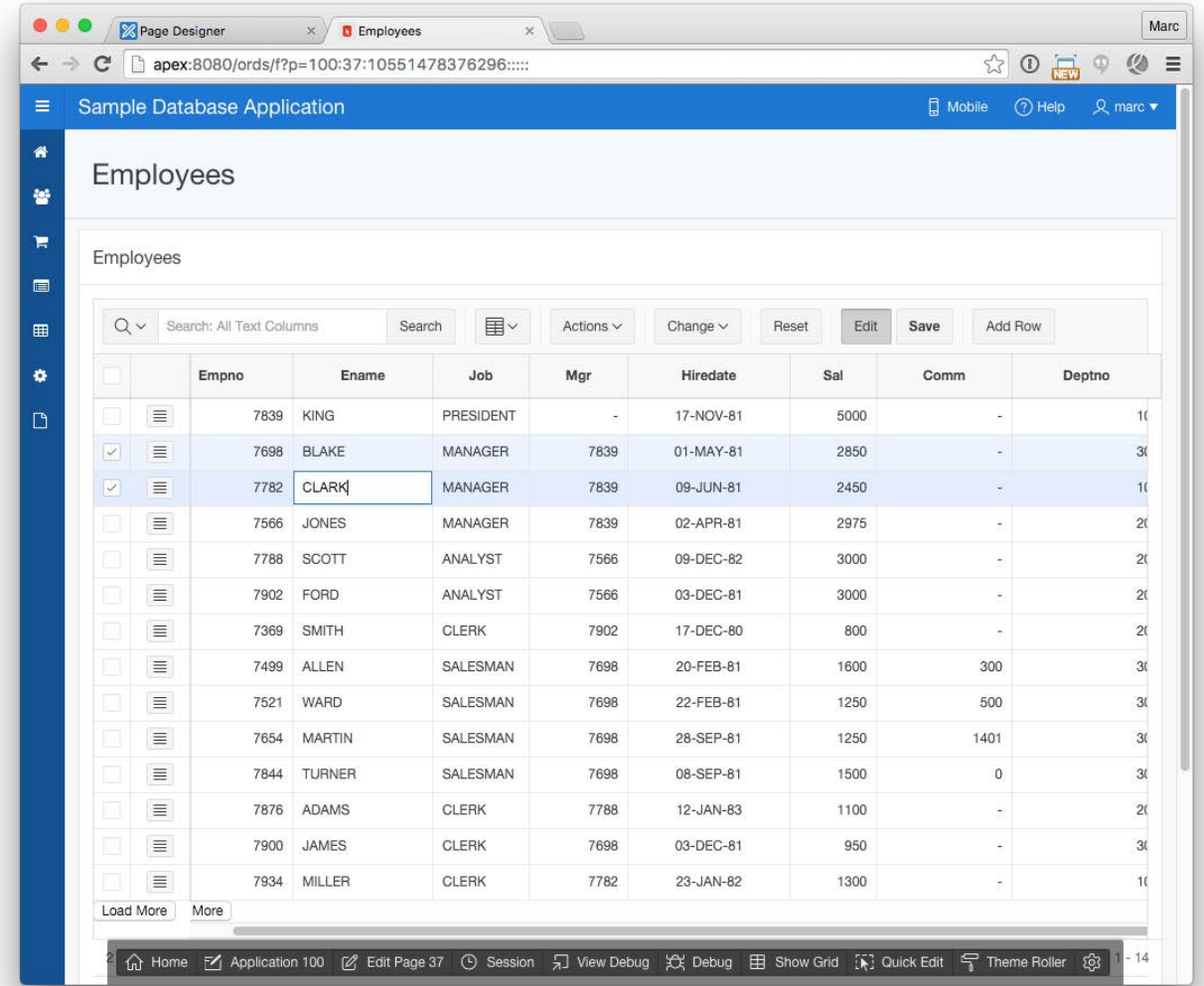
	Ename	Job	Mgr	Hiredate	Sal	Comm	Deptno
<input type="checkbox"/>	KING	PRESIDENT		17-NOV-81	5000		10
<input type="checkbox"/>	BLAKE	MANAGER	7839	01-MAY-81	2850		30
<input type="checkbox"/>	CLARK	MANAGER	7839	09-JUN-81	2450		10
<input type="checkbox"/>	JONES	MANAGER	7839	02-APR-81	2975		20
<input type="checkbox"/>	SCOTT	ANALYST	7566	09-DEC-82	3000		20
<input type="checkbox"/>	FORD	ANALYST	7566	03-DEC-81	3000		20
<input type="checkbox"/>	SMITH	CLERK	7902	17-DEC-80	800		20
<input type="checkbox"/>	ALLEN	SALESMAN	7698	20-FEB-81	1600	300	30
<input type="checkbox"/>	WARD	SALESMAN	7698	22-FEB-81	1250	500	30
<input type="checkbox"/>	MARTIN	SALESMAN	7698	28-SEP-81	1250	1401	30

The interface includes a navigation bar with 'Sample Database Application', 'Mobile', 'Help', and 'marc'. A sidebar on the left contains navigation icons. The footer contains utility buttons: Home, Application 100, Edit Page 36, Session, View Debug, Debug, Show Grid, Quick Edit, Theme Roller, and a settings icon. The grid has a 'row(s) 1 - 10 of 14' dropdown and a 'Next' button. Action buttons 'Cancel', 'Delete', and 'Submit' are located at the bottom of the grid.

Interactive Grid

Major Features

- Modern, rich & interactive multi-row editing component
- Use of existing Item types
- Declarative support for Cascading LOVs and Dynamic Actions
- Upgrade utility for Tabular Forms
- Master Detail / Detail



Interactive Grid

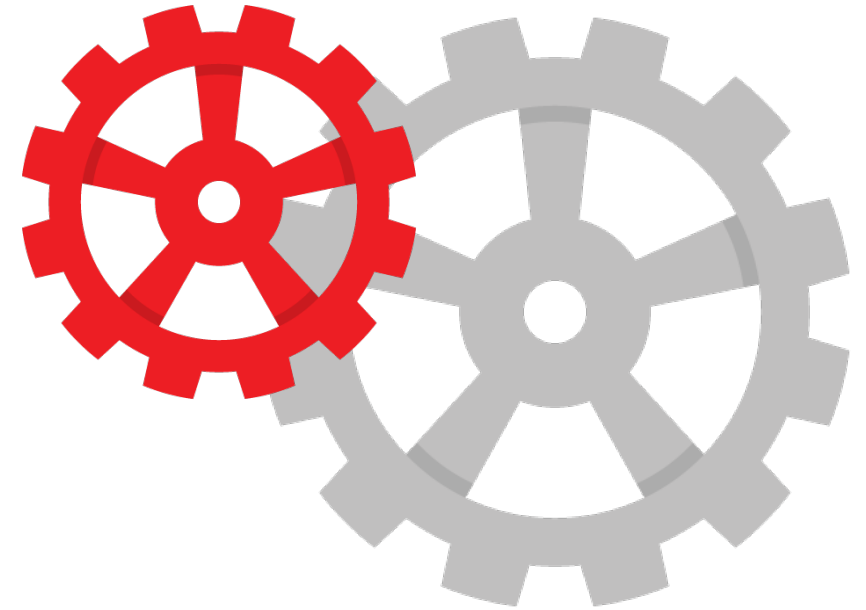
Features

- JSON-based, lightweight Ajax communications
- Client-side and server-side validation
- Declarative validations and processes
 - Support for bind variables to reference columns
 - Execution scope: all rows or only rows modified and added
- Column groups, fixed headers and frozen columns
- Infinite scrolling and lazy loading
- Accessible, excellent keyboard support, right-to-left support

Interactive Grid

Architecture Changes

- Removal of limitations like 32k bytes per row
- Warn on unsaved changes
- JSON-based page submission
 - Form not mapped to p_t001-200 and p_v001-200
 - All item values now stored in JSON document
 - Allows for > 200 page items



Interactive Grid

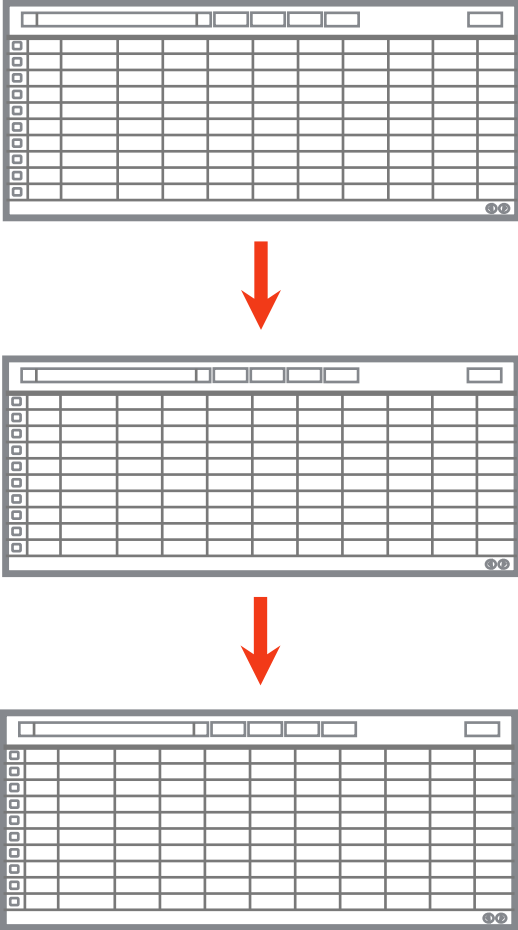
Page Layout – Single Grid

The diagram illustrates the page layout for a single grid. It consists of three main sections:

- Header Bar:** Located at the top, it contains a long rectangular input field on the left, followed by five smaller square buttons, and a single larger rectangular button on the right.
- Grid:** A central table with 10 rows and 11 columns. Each row begins with a small square checkbox in the first column.
- Footer Bar:** A horizontal bar at the bottom right corner containing two circular navigation arrows (left and right).

Interactive Grid

Master Detail Layout – N-levels wide or deep



Interactive Grid

Master Detail Layout – Any combination



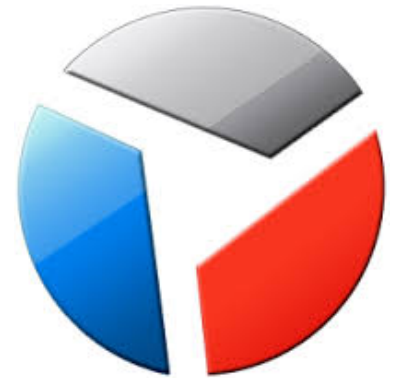
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Oracle JET Charts

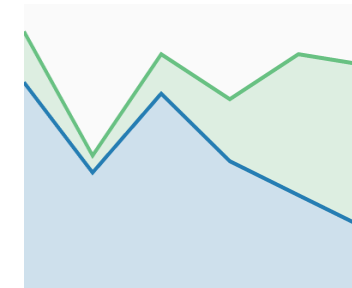
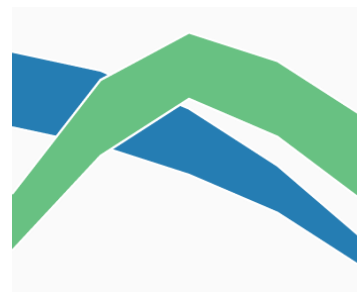
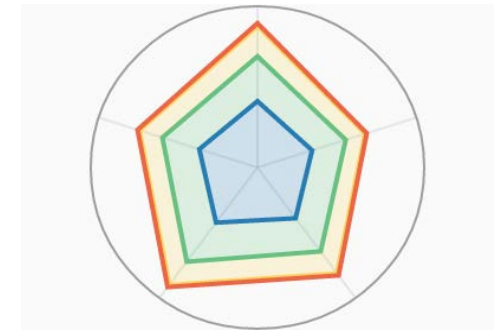
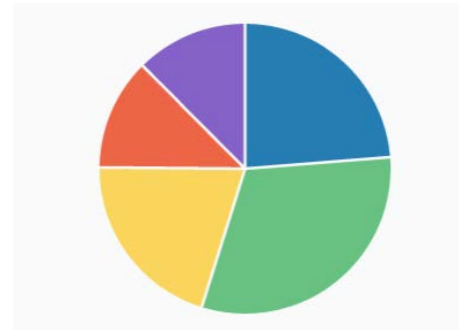
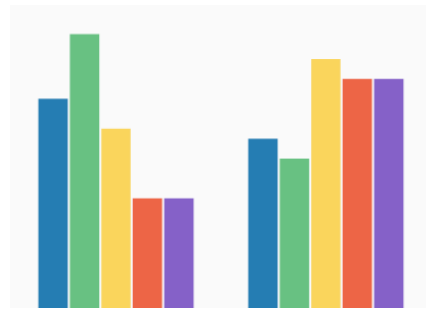
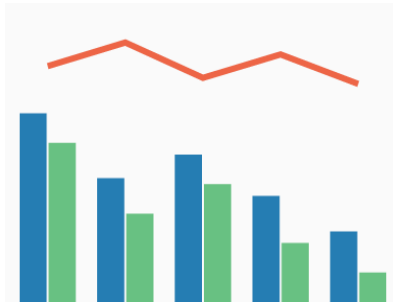
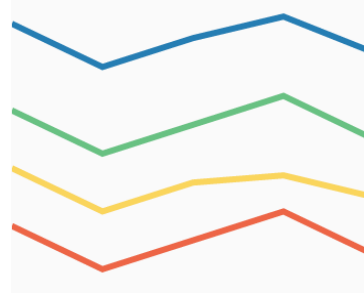
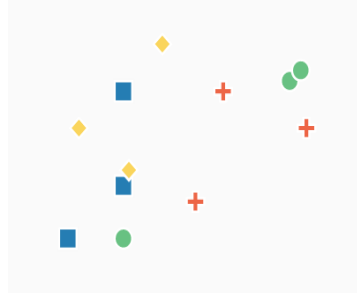
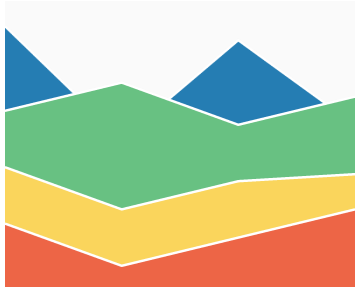
Declarative support for Oracle JET Data Visualization Components

- Based on Oracle JET Data Visualization Components
- Oracle Jet (JavaScript Extension Toolkit) is open source
- JavaScript-based solution, data being provided in JSON format
- Highly Customizable
 - Using 'JavaScript code' to provide function to be called when chart is initialized
 - Using Dynamic Actions to add interactive behavior
- Built-in Accessibility Support
- Built-in Responsive Design Support



Oracle JET Charts

Declarative support for Oracle JET Data Visualization Components



Oracle JET Charts

Declarative support for Oracle JET Data Visualization Components

- Oracle JET charts fully integrated into APEX 5.1 using Plug-In Architecture
- Declarative Chart creation using Page Designer and Wizards
 - Updated Create Application wizard
 - New Create Chart Page wizard
 - Chart Source Definition Simplified
- New Chart Types - Funnel, Area, Polar, Line with Area, Radar
- Color palette integrated with Universal Theme

Oracle JET Charts

Declarative support for Oracle JET Data Visualization Components

- No more 32k restriction
- Built-in Document Direction Support – RTL
- Upgrade path from AnyChart to Oracle JET Charts
- Support for Oracle JET Charts in Interactive Grids
- Enhanced Sample Charts application

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Developer Productivity

Page Designer

- Modern, intuitive and powerful browser-based IDE
- Introduced in Application Express 5.0
- Cohesive User Experience
 - No context-switching when modifying multiple components
 - Undo and redo changes
- Better Visual Representation
 - Immediate visual representation of region and item layout
 - Changes immediately reflected across the Tree, Grid Layout and Property Editor

Page Designer

Application Express | App Builder | SQL Workshop | Team Development | Packaged Apps

Application 135 \ Page Designer

Layout | Component View | Messages | Page Search | Help

Page

Rendering

Page 7: Customer Details

- Pre-Rendering
- Regions
 - Dialog Header
 - Content Body
 - Customer
 - Attributes
 - Items
 - P7_CUSTOMER_ID
 - P7_CUST_FIRST_NAME
 - P7_CUST_LAST_NAME
 - P7_CUST_STREET_ADDRESS1
 - P7_CUST_STREET_ADDRESS2
 - P7_CUST_CITY
 - P7_CUST_STATE
 - P7_CUST_POSTAL_CODE
 - P7_CREDIT_LIMIT
 - P7_PHONE_NUMBER1
 - P7_PHONE_NUMBER2

Customer Details

DIALOG HEADER

CONTENT BODY

Customer

PREVIOUS

ITEMS

- P7_CUST_FIRST_NAME
- P7_CUST_LAST_NAME
- P7_CUST_STREET_ADDRESS1
- P7_CUST_STREET_ADDRESS2
- P7_CUST_CITY
- P7_CUST_STATE

Regions | Items | Buttons

Badge List [Plug-In] | Breadcrumb | Calendar | Chart | Classic Report

Identification

- Name: Customer Details
- Page Alias:
- Title: &APP_NAME. - Customer Details
- Page Group: Desktop

Appearance

- User Interface: Desktop
- Page Mode: Modal Dialog
- Dialog Template: Theme Default
- Template Options: Use Template Defaults
- CSS Classes:
- Media Type:

Dialog

Developer Productivity

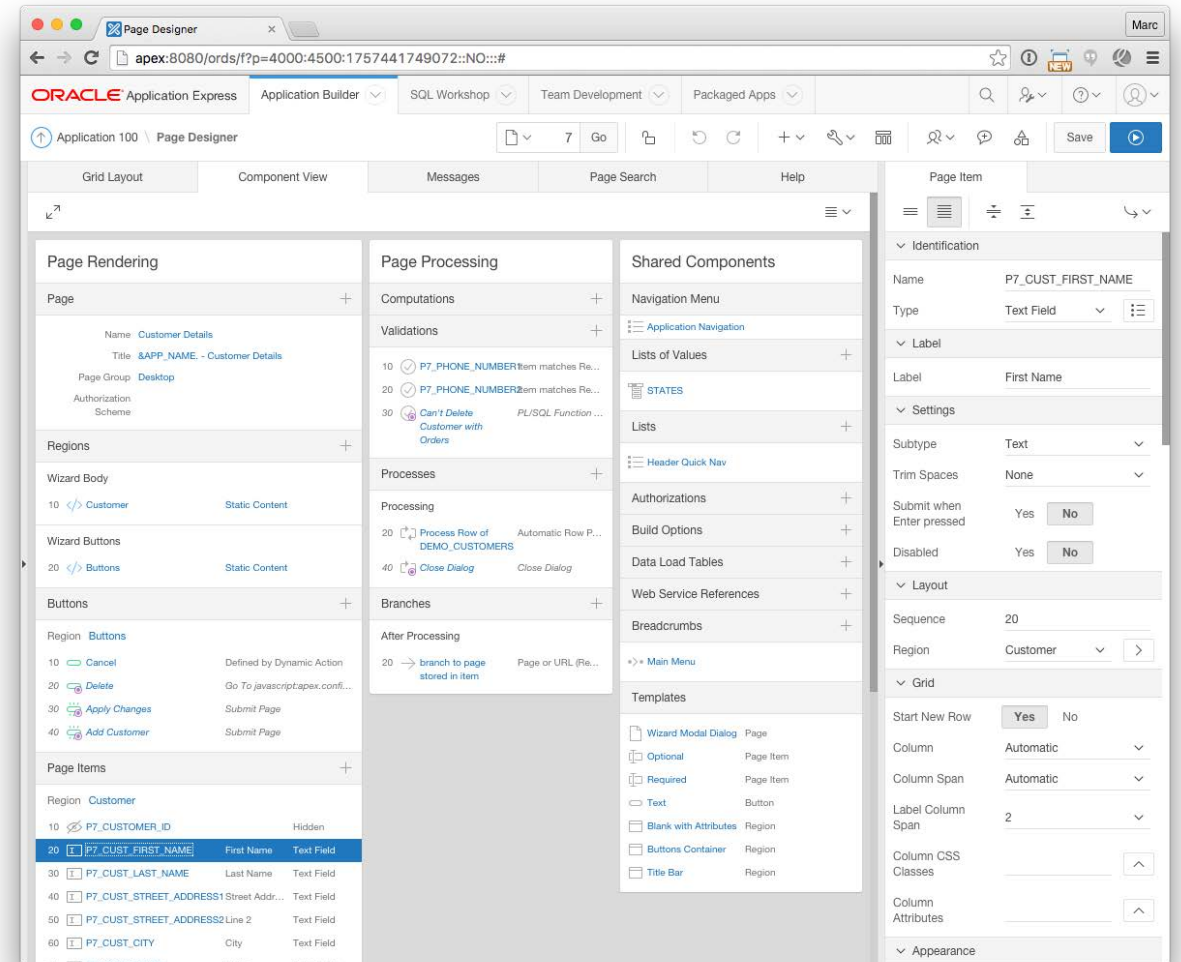
Page Designer

- Intuitive Drag and Drop
 - Drag new components from the Component Gallery
 - Move and copy existing components around
 - Drag to move and copy multiple components at a time using Tree View
- Enhanced Code Editor
 - SQL and PL/SQL validation with inline errors
 - Auto completion, syntax highlighting, search and replace with regex support
 - Preferences for tabs, indentation, and color scheme.

Developer Productivity

Page Designer

- Integrated 'Component View'
- New Two Pane Mode
- Movable Tabs
- Property Editor Filter
- Style and contrast enhancements



Developer Productivity

Legacy Component View

- Legacy Component View deprecated in APEX 5.1
- Will be de-supported and removed in APEX 5.2
- Does not support new 5.1 components like JET charts and Interactive Grid
- Does not support certain new attributes like new dynamic actions attributes specific to Interactive Grids
- Disabled by default, can be re-enabled via user preferences

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Search Apps

- All
- Productivity**
- Sample
- Installed

Administration



APEX Application Archive
Software Development



Application Standards Tracker
Tracking, Knowledge Management



Bug Tracking
Software Development, Tracking




Checklist Manager
Tracking, Team Productivity




Community Requests
Software Development, Community



Competitive Analysis
Marketing




Customer Tracker
Tracking, Marketing




Data Reporter
Knowledge Management, Tracking, Project Management



Decision Manager
Team Productivity, Tracking



Expertise Tracker
Tracking, Knowledge Management



Feedback
Software Development



Group Calendar
Team Productivity



Incident Tracking
Software Development, IT Management




Live Poll
Marketing, Tracking



Meeting Minutes
Tracking, Team Productivity




Opportunity Tracker
Tracking, Team Productivity



P-Track
Project Management, Team Productivity, Tracking



Quick SQL
Software Development



REST Client Assistant
IT Management, Software Development



Script Planner
Tracking



Survey Builder
Knowledge Management, Marketing, Tracking

Search Apps

- All
- Productivity
- Sample**
- Installed

Administration



Brookstrut Sample Application
Sample Application



Sample Calendar
Sample Application



Sample Charts
Sample Application




Sample Collections
Sample Application



Sample Data Loading
Sample Application




Sample Database Application
Sample Application



Sample Dialog
Sample Application



Sample Dynamic Actions
Sample Application



Sample File Upload and Download
Sample Application




Sample Geolocation Showcase
Sample Application



Sample Interactive Grids
Sample Application




Sample Master Detail
Sample Application




Sample Projects
Sample Application



Sample REST Services
Sample Application




Sample Reporting
Sample Application




Sample Trees
Sample Application



Sample Websheet - AnyCo IT Department
Sample Websheet



Sample Websheet Application - Big Cats
Sample Websheet



Universal Theme Sample Application
Sample Application

Packaged Apps

New Productivity Apps

- Quick SQL –
Quick and intuitive way to generate a relational SQL data model
- Competitive Analysis –
Create side-by-side comparisons which can be scored and charted
- REST Client Assistant –
Access RESTful services in Database or public services and map to SQL result set columns

Packaged Apps

Significantly Improved Productivity Apps

- P-Track
- Customer Tracker
- Group Calendar
- Live Poll
- Opportunity Tracker

Improvements based on feedback from real-life use cases

Packaged Apps

New / Improved Sample Apps

- Sample Interactive Grid –
Demonstrates read-only, pagination, editing and advanced techniques
- Sample Charts –
Completely revamped to showcase Oracle JET charts
- Sample Master-Detail –
Highlights different ways to display related tables, including Interactive Grids
- Sample Projects
- Sample REST Services

Productivity Apps - Getting Started Page



Welcome to Customer Tracker

Please take a moment to complete this first time setup.

Access Control

Access Control enables you to control the level of access users have to the application. Your user account is automatically configured as an Administrator.

1

Access Control Level

- Reader access for any authenticated user
- Contributor access for any authenticated user**
- Restricted to users defined in access control list

Users

2

mike
Administrator

+ Add User

Sample Data

3

Loading Sample Data will enable you to explore the functionality of the app with pre-populated sample data.

- Yes - Load Sample Data**
- No - Do Not Load Sample Data

Application Options

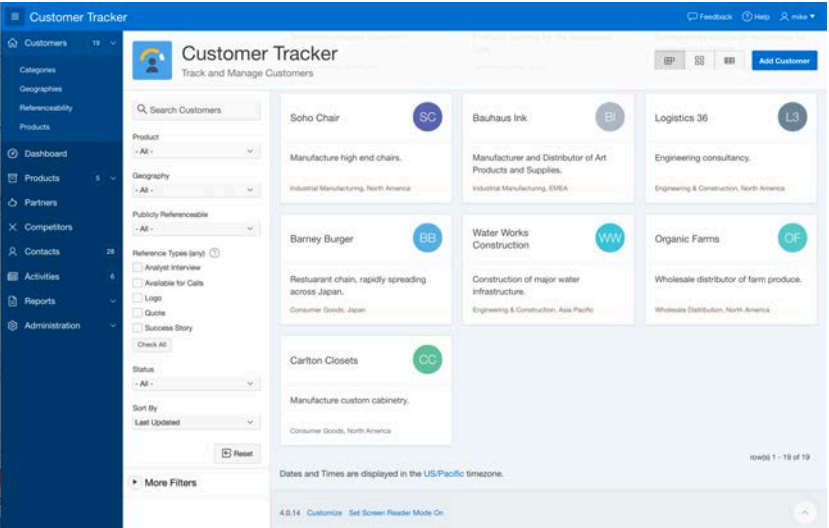
Additional options are available, to view and set these navigate to the build option console under administration.

4

Feature	Enabled
Competitors This feature allows the tracking of competitors, and which customers they are competing against you on.	<input type="checkbox"/> Yes <input type="checkbox"/> No
Contacts Use this build option to enable or disable tracking of customer contacts.	<input type="checkbox"/> Yes <input type="checkbox"/> No
Feedback This feature allows end-users to submit feedback about the application that can be emailed and viewed by application administrators.	<input type="checkbox"/> Yes <input type="checkbox"/> No
Geography Including will allow reporting and management of geography by customer. Excluding will not show the geography attribute for customers.	<input type="checkbox"/> Yes <input type="checkbox"/> No
Partners This feature allows the tracking of partners, and which customers they are working with you on.	<input type="checkbox"/> Yes <input type="checkbox"/> No

Complete Set Up ✓

Productivity Apps – Display Customization



4.0.14 Customize Set Screen Reader Mode On

Productivity Apps – Display Customization

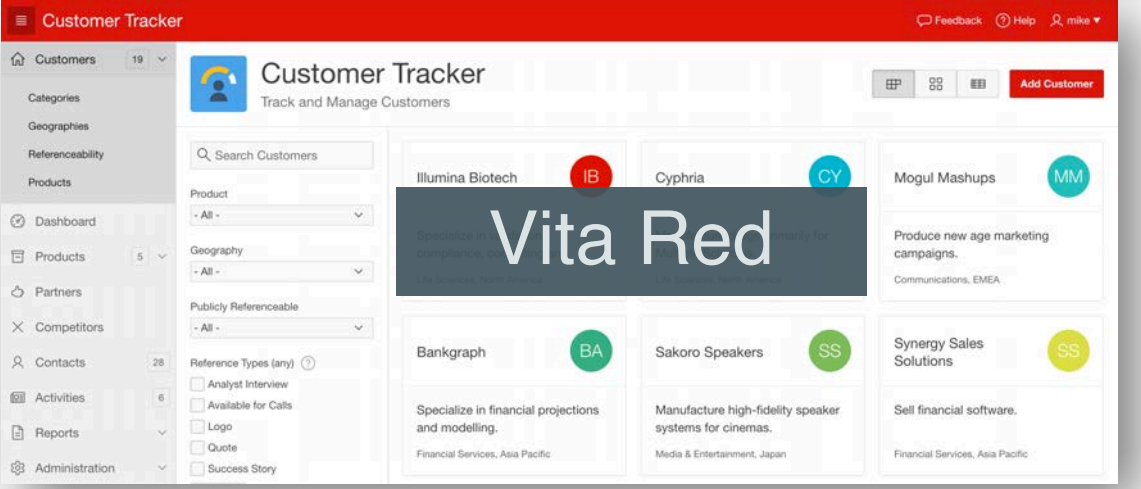
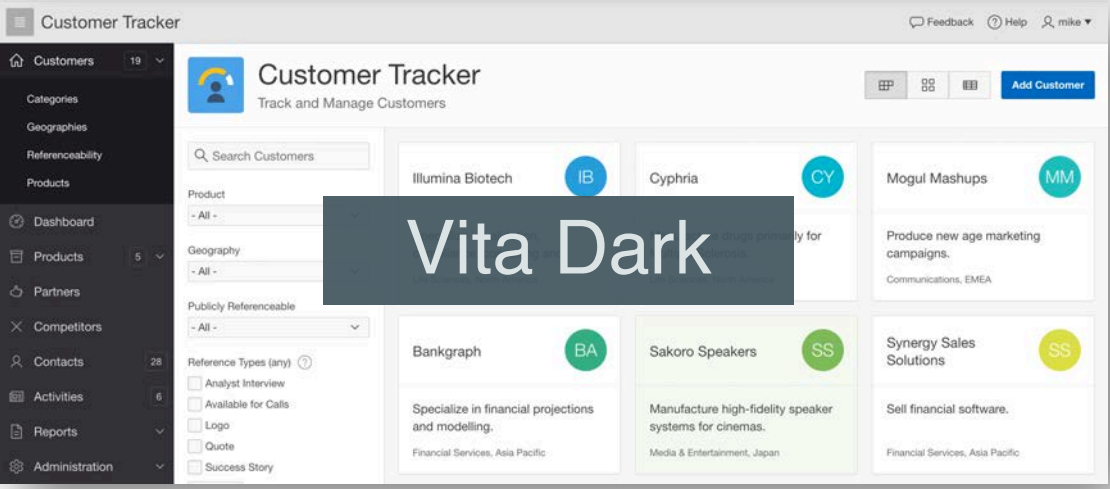
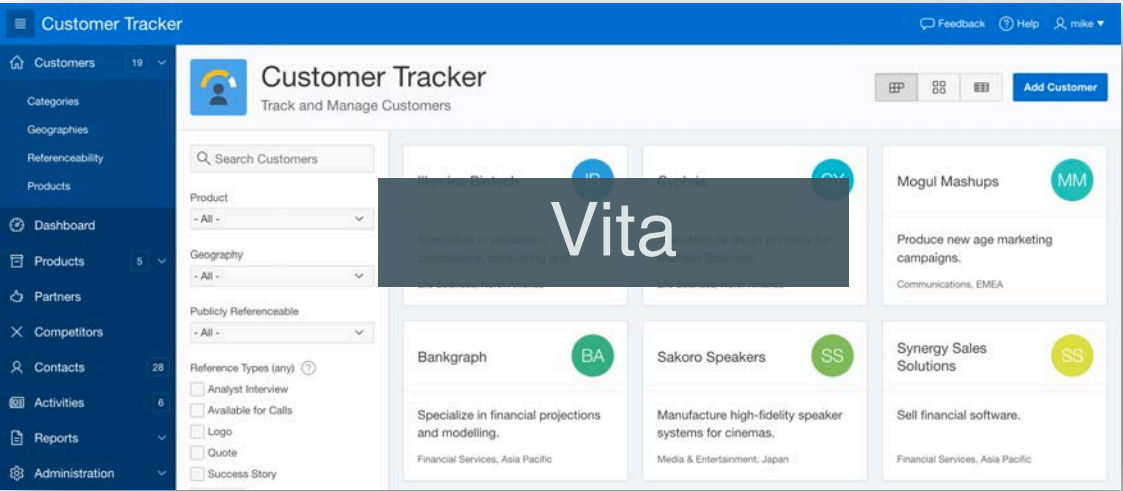
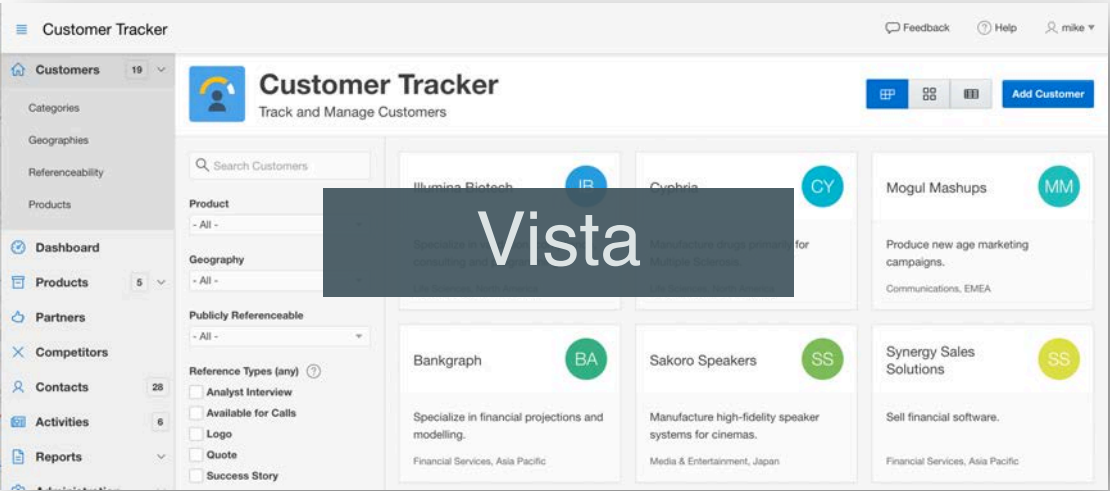
The screenshot shows the Oracle Customer Tracker application interface. A 'Customize' dialog box is open, titled 'Customize' with a close button (X). The dialog is for 'Appearance' and contains the following text: 'You can personalize the appearance of this application by changing the Theme Style. Please select a Theme Style from the list below and click on Apply Changes.'

The dialog lists the following theme styles:

- Use Application Default Style**
- Vista
- Vita (with 'Default' and 'Accessibility Tested' buttons)
- Vita - Dark
- Vita - Red

An 'Apply Changes' button is located at the bottom right of the dialog. The background shows the application's navigation menu with filters for Product, Geography, Publicly Referenced, Reference Types, and Status.

Productivity Apps – Display Customization



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Calendar

New Functionality

- Inclusive End Date –
In release 5.0 was exclusive, but now inclusive like other components
- JavaScript Customization –
Support JS code customization of initialization attributes
- Dynamic Action Events –
Capture calendar events and define actions against these events
- Keyboard Support –
Use arrow keys to navigate within the calendar when it has focus



Hardware and Software Engineered to Work Together

ORACLE®