

APEX 3.x to 4.0

OGh APEX day

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About Dimitri Gielis

- Director & Co-Founder of APEX Evangelists / Sumneva
- Oracle Consultant for over 4 years
- OBUG APEX SIG Leader
- 'Dimitri.Gielis@AE' in the Application Express forums
- Presenter at IOUG, ODTUG, OOW, UKOUG, OBUG, ...
- OCP 8i/9i/10g
- Oracle ACE Director
- Named "APEX Developer of the Year 2009"
by Oracle Magazine

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2

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Audience Knowledge

- DBA ? Developer ? Business ?
- APEX Experience?
- Seen APEX 4 EA?

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3

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Agenda

APEX Project in 3.x and 4.0

- Start of a project
- Create application(s)
- Change look and feel
- Add other components and extend with javascript
- Integration with other systems
- Testing and Debugging
- Deploy

Start of a project

Start of a project

- Agile development
- Infrastructure
- Developer Tools

7

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“Agile software development refers to a group of [software development methodologies](#) based on [iterative development](#), where requirements and solutions evolve through collaboration between self-organizing [cross-functional teams](#).

Agile methods generally promote a disciplined project management process that encourages frequent inspection and adaptation, a leadership philosophy that encourages teamwork, self-organization and accountability, a set of engineering best practices intended to allow for rapid delivery of high-quality software, and a business approach that aligns development with customer needs and company goals.”

(cfr. Wikipedia)

8

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Agile Software Development

ORACLE Application Express

Welcome DIMITRI@SUMNEVA.COM (Logout) Feedback

Home Application Builder SQL Workshop Team Development Administration

Home > Team Development

Welcome to Oracle Application Express 4.0 Early Adopter Phase II (EA2) hosted on Amazon EC2. Please use the Feedback link in the top right hand corner of each page to provide comments. Go here to review Early Adopter Feedback.

See the New Features Application for working examples of many new features. Review the New Feature Descriptions, including whether released in EA1 or EA2.

Workspace

Features Milestones To Do Bugs Feedback

News

Assignee Release Show All Releases Application All Applications Set Reset

Features

2. Feature 2 8 minutes ago
1. Feature 1 8 minutes ago

Milestones

Report contains no data

To Do

Report contains no data

Bugs

Report contains no data

About

Team development facilitates the management of the application development process. Use the tool to track features, To Do tasks, milestones, and bugs. Use Feedback to capture user feedback and then categorize user comments as features, To Do tasks, and bugs.

Learn more...

Team Actions

Manage Links
Manage News
Team Development Settings
Release Summary
Utilities

9

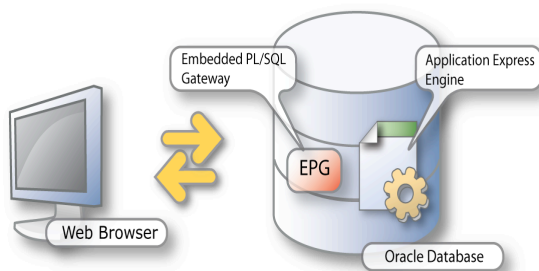
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Infrastructure

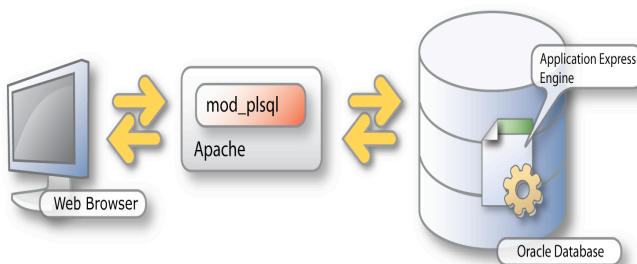
Infrastructure

- Embedded PL/SQL Gateway (EPG) - XE and IIg



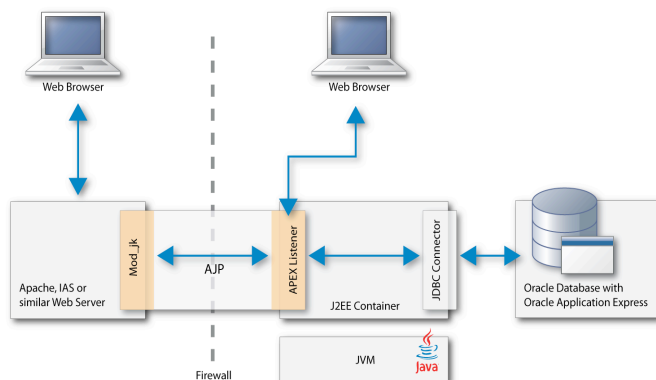
Infrastructure

- Apache with mod_plsql



Infrastructure

- APEX Listener



13

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Infrastructure

- APEX Tablespace



@apexins APEX APEX_FILES TEMP /i/

- APEX Developers



ADMIN

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Infrastructure

- Multiple developers



Comments

Comments

APPLICATION_ID	PAGE_ID	PAGE_NAME	ITEM_NAME	COMPONENT_COMMENT
117	1	Demo Orders	P1_ROWS	Added drop-down list in response to bug report #11784
117	2	Master Detail	P2_ORDER_ID_PREV	This item is needed for Get Next or Previous Primary Key Value process.
117	2	Master Detail	P2_ORDER_ID_COUNT	This item is needed for Get Next or Previous Primary Key Value process.
117	2	Master Detail	P2_ORDER_ID_NEXT	This item is needed for Get Next or Previous Primary Key Value process.

15

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Developer Tools

Developer Tools

- APEX
- Firefox with following Add-ons
 - Firebug
 - Live HTTP Headers
 - YSlow
- SQL Developer and Data Modeler
- VM Ware
- ...

ORACLE® Application Express



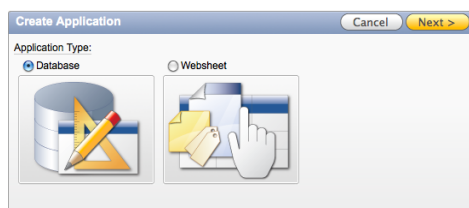
Developer Tools

D E M O N S T R A T I O N

Creating an Application

Creating an Application

- Database
- Websheet



Websheet

Why Websheets

- Designed so “anyone” can build & deploy web based data entry and reporting applications
- Experienced APEX developers can develop even faster
- Broadening the APEX Community
 - No need to create Tables, Triggers, Sequences
 - Simplified declarations
- “Builder” integrated with “Runtime”
- Integrated attachments, tags, notes...

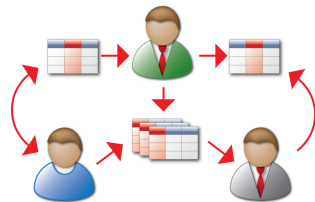
22

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Websheets

- Editable data grid
- Single point of truth
- Multi-user data tracking
- Designed for Business Users
- No programming required
- Multi-tenant and self-service
- Incorporates “sharing” model (ACL)
- Includes validations, LOVs, column typing
- Consolidates data within an Oracle Database



23

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Websheets - wiki

OBUG Calendar

Welcome DIMITRI@SUMNEVA.COM (Logout) Feedback

Page ▾Data ▾Annotations ▾Administration ▾Help ▾

Search

Home

Email | Print

Welcome

Hallo Nederlands

edit

New section

Test Websheet

edit

• Page created 6 days ago by DIMITRI@SUMNEVA.COM

• Content last updated 6 days ago by DIMITRI@SUMNEVA.COM. [View history](#)

• [Return to Oracle Application Express Development](#)

Page

New Section

New Page

Copy Page

Edit Page

Page Directory

New Data Grid

New Report

Peer Pages

No peer pages exist

Annotations

Add View

Add View

dimitri@sumneva.com

note goes here

User: DIMITRI@SUMNEVA.COM

Application Express 4.0.0.00.25

Language: en

24

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Websheets - data grids

OBUG Calendar Welcome DIMTRI@SUMNEVA.COM (Logout) Feedback

Page ▾ Data ▾ Annotations ▾ Administration ▾ Help ▾

Home Data Calendar

Theatre	Session	Title	Speaker	Product
Athene B+C	1	Oracle E-Business Suite Roadmap and Updates	Cliff Godwin	eBusiness Suite
Athene B+C	27	Peopletools 8.5 - Upgrading and more	Jan-Willem Zonneveld & Bas Oosterom	PeopleSoft
Athene B+C	44	Procure to Pay: on our way to 100 % automation?	Toon van Damme & Dieter Cools	PeopleSoft
Athene A	3	Oracle BI roadmap & strategy	Wouter van der Bruggen	BI
Athene A	21	Upgrading to Oracle EBS R12 1.1 at Schiphol Group	Arthur Waterham & Martin Gerritsen	eBusiness Suite
Athene A	43	A global implementation in over 40 countries in barely 3 years time	Erik Steenacker	PeopleSoft
Foyer 2	4	The new features of PeopleSoft 9.1	Querlen De Lombaerde & Patricia Waegeman	PeopleSoft
Foyer 2	33	EBS R12 as a step towards Fusion Applications	Dick Bruij	eBusiness Suite
Foyer 2	51	Telenet - the SOA challenge	Stefan Mampaey	Oracle SOA Suite
Theatre 1	2	Today's JD Edwards Product Philosophy to Support your Innovative Future	John Schiff	JD Edwards
Theatre 1	22	Real-time Reconciliations, Data Integrity and Reporting for Oracle JD Edwards	René van Sandijk & Benard Jan Kijnsma	JD Edwards
Theatre 1	41	The electronic ordering, receiving and invoicing process at Rivas	Wendelen van Nes & René Duijn	eBusiness Suite
Theatre 2	5	Athlon's benefits choosing Hyperion Planning for their Budget and Forecast financial process	Tom Van Langenhove	Hyperion
Theatre 2	23	Automated Sales Incentive Calculations Using Custom Build PeopleSoft Solution	Rachel Bignaut & Henrik Ranzau Hansen	PeopleSoft HCM
Theatre 2	42	Implement JD Edwards E1 9.0, fast, reliable and predictable	Christiaan Plakké	JD Edwards

1 - 15 of 42 (2)

User: DIMTRI@SUMNEVA.COM Application Express 4.0.0.0.25 Language: en

25

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APEX Applications vs Websheets

	APEX Applications	Websheets
Database Objects	Created using SQL Workshop	Automatically managed (APEX\$ tables)
Primary Key Management	Triggers and sequences	Automatically managed
Validations	Created using wizards	Defined using runtime UI
Report Layout	Created using SQL	Defined using runtime UI
List of Values	SQL or Static	Defined using runtime UI
Page Flow	Controlled by branches	Limited
Form Layout	Items and regions	Column groups
Look and Feel	Themes and templates	Basic control

26

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Websheet

D E M O N S T R A T I O N

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Database

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Application Builder

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Improved Application Builder in 4.0

- New look and feel
- Improved navigation
- Improved Administration screens
- IR's everywhere
- Integrated 'Application Search' capabilities

30

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App Builder - Component View

The screenshot shows the 'Component View' of the App Builder. The top navigation bar includes 'Home', 'Application Builder', 'SQL Workshop', 'Team Development', and 'Administration'. Below the navigation bar, there's a search bar and a 'Page 1' indicator. The main area is divided into several panels: 'Page Rendering' (containing Page, Regions, Buttons, Items, and Computations), 'Page Processing' (containing Computations, Validations, and Processes), and 'Shared Components' (containing Tabs, Lists of Values, Breadcrumbs, Lists, Templates, Theme, Security, and Navigation Bar). The 'Page Rendering' panel shows a tree view of the page structure, including 'Page Name: Sample Application', 'Page Group: 10 P1_QUOTES', and 'Regions: 10 P1_QUOTES'. The 'Page Processing' panel shows a tree view of the page processing steps, including 'Before Validation', 'Validations', and 'Processes'. The 'Shared Components' panel shows a list of components, including 'Tabs', 'Lists of Values', 'Breadcrumbs', 'Lists', 'Templates', 'Theme', 'Security', and 'Navigation Bar'.

31

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App Builder - Tree View

The screenshot shows the 'Tree View' of the App Builder. The top navigation bar is the same as the previous screenshot. Below the navigation bar, there's a search bar and a 'Page 1' indicator. The main area is divided into three panels: 'Page Rendering' (containing a tree view of the page structure), 'Page Processing' (containing a tree view of the page processing steps), and 'Shared Components' (containing a list of components). The 'Page Rendering' panel shows a tree view of the page structure, including 'Sample Application', 'Before Header', 'Branches', 'Computations', 'P1_QUOTES', 'P1_TOTAL_SALES', 'Processes', 'After Header', 'Before Regions', 'Regions', 'Body (2)', 'My Orders', 'My Quota', 'Series', 'Dial', 'Items', 'P1_QUOTES', 'P1_TOTAL_SALES', and 'P1_QUOTES'. The 'Page Processing' panel shows a tree view of the page processing steps, including 'After Submit', 'Validating', 'Branches', 'Go To Page 1', 'Validations', 'Processing', 'After Processing', and 'AJAX Callbacks'. The 'Shared Components' panel shows a list of components, including 'Parent Tabs', 'List of Values', 'Breadcrumbs', 'Lists', 'Templates', 'Security', and 'Theme'.

32

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Improved Item Properties

Improved Item Properties

- Additional Attributes

The image shows two panels from the Sumneva application. The top panel is the 'Settings' window, which includes a search bar with a dropdown menu set to 'Contains & Ignore Case'. Below the search bar are several toggle switches: 'Only Values from List' (No), 'Separator for Multi-Selection' (empty), 'Lazy Loading' (No), 'Maximum Values in List' (empty), 'Automatic Fill' (No), 'Select First' (Yes), and 'Highlight Search' (Yes). To the right of the settings is a 'Validation' panel with a 'Required' toggle set to 'Yes'. The bottom panel is the 'Quick Picks' window, which has a 'Show Quick Picks' toggle set to 'No'. It contains a table with 10 rows, each with a 'Label' and a 'Value' column. The labels are numbered 1 through 10, and the values are also numbered 1 through 10.

34

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Improved Item Properties

- Sub Regions

The image shows two panels from the Sumneva application. The left panel is a tree view showing the hierarchy of regions. It starts with 'Regions', which contains 'Body (3)'. 'Body (3)' contains 'Tab', which contains 'Sub Regions'. 'Sub Regions' contains 'Tab 1', 'Tab 3', and 'Tab 4'. 'Tab 1' contains 'Sub Regions', which contains 'Accordion', which contains 'Sub Regions'. 'Sub Regions' contains 'Accordion 1', 'Accordion 2', and 'Accordion 3'. 'Tab 2' is also shown at the bottom of the tree. The right panel is the 'User Interface' window, which has a 'Template' dropdown set to 'No Template' and a 'Sequence' input field set to '40'. Below these is a 'Parent Region' dropdown set to 'Tab (1) 10'. At the bottom of the window is a tabbed interface with four tabs: 'Tab 1', 'Tab 2', 'Tab 3', and 'Tab 4'. The 'Tab 1' tab is selected and contains the text: 'This is some dummy text for the first tab. Each application is comprised of pages, shared components including tab. Run icon to run your application then use the developer tool bar at the bot'.

35

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New Item Types

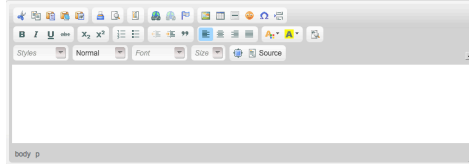
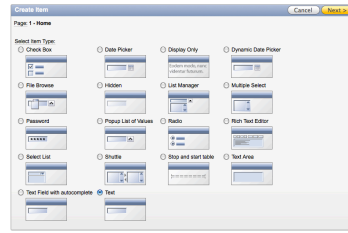
36

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New Item Types

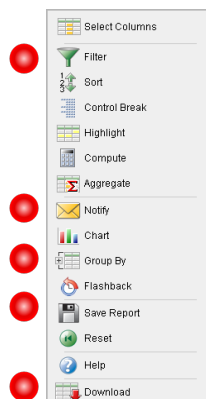
- Resizable Text Area
- Javascript Date picker
- Text Field with autocomplete
- Rich Text Editor: CK Editor



Improved Interactive Reports

Improved Interactive Reports

- Integrated Report, Icon & Detail Views
- Compound filter expressions
- Email notifications
- Group By
- Saved Reports
 - Developer Supplied
 - Personal (Existing)
 - Shared
- Download to searchable HTML



Improved Interactive Reports

Rows: 15 Go

View Group By

Empno	Ename	Job	Mgr	Hiredate	Sal	Comm
7369	SMITH	CLERK	7902	17-DEC-80	960	-
7499	ALLEN	SALESMAN	7698	20-FEB-81	1600	300
7521	WARD	SALESMAN	7698	22-FEB-81	1250	500
7566	JONES	MANAGER	7839	02-APR-81	3272.5	-
7654	MARTIN	SALESMAN	7698	28-SEP-81	1250	1400
7698	BLAKE	MANAGER	7839	01-MAY-81	2850	-
7782	CLARK	MANAGER	7839	09-JUN-81	2817.5	-
7788	SCOTT	ANALYST	7566	09-DEC-82	3000	-
7839	dd	PRESIDENT	-	17-NOV-81	5000	-
7844	TURNER	SALESMAN	7698	08-SEP-81	1500	0
7876	ADAMS	CLERK	7788	12-JAN-83	1100	-
7900	JAMES	CLERK	7698	03-DEC-81	950	-
7902	FORD	ANALYST	7566	03-DEC-81	3000	-
7934	MILLER	CLERK	7782	23-JAN-82	1300	-

Select Columns

- Filter
- Sort
- Control Break
- Highlight
- Compute
- Aggregate
- Notify
- Chart
- Group By
- Flashback
- Save Report
- Reset
- Help
- Download

Improved Charting

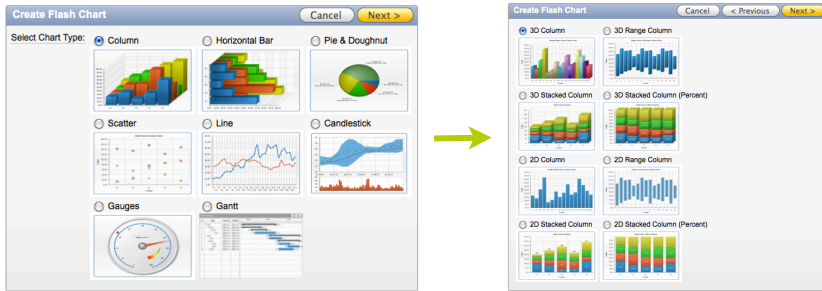
Improved Charting

- New charting engine (AnyChart 5.1) = faster, better graphics and decreased rendering time
- Support for Maps & Gantt
- New Features:
 - Scrolling support
 - Interactive labels
 - Markers in legends
 - Multiple data markers
- All chart types can be combined within an interactive dashboard: Charts, gauges, maps, Gantt, etc.



Improved Charting

- Improved Wizard



43

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Create Database App

D E M O N S T R A T I O N

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Best Practices

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Best Practices Database App

- Develop to Perform
- Develop to Maintain
- Develop to be Secure
- Develop Fast

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Best Practices Database App

- Develop to Perform / Maintain - PL/SQL

Source

```
■ Process [Download Source]
declare
  l_password varchar2(4000);
  l_stored_password varchar2(4000);
  l_expires_on date;
  l_count number;
begin
  select count(*) into l_count from demo_users where user_name = p_username;
  if l_count > 0 then
    select password, expires_on into l_stored_password, l_expires_on
    from demo_users where user_name = p_username;

    if l_expires_on > sysdate or l_expires_on is null then
      l_password := custom_hash(p_username, p_password);

      if l_password = l_stored_password then
        return true;
      else
        return false;
      end if;
    else
      .
    end if;
  end if;
end;
```

☐ Do not validate PL/SQL code (parse PL/SQL code at runtime only).

47

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Best Practices Database App

- PL/SQL

Source

```
■ Process [Download Source]
pkg_auth.authenticate;
```

☐ Do not validate PL/SQL code (parse PL/SQL code at runtime only).

48

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Best Practices Database App

- Develop to Perform and be Secure
 - :APP_USER
 - &APP_USER.
 - v('APP_USER')

49

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Best Practices Database App

- Develop to be Security
 - Authentication
 - Authorization
 - Session State Protection

50

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Best Practices Database App

- Develop Fast
 - Shared Components
 - PL/SQL Packages
 - Javascript Libraries / Plug-ins

51

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Best Practices Database App

- Develop to Maintain
 - SELECT | CSS

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Change Look and Feel

53

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Change Look and Feel

- Table vs Div

Sample Application

Welcome DEMO Logout Print

Home Customers Products Orders Charts

Home

My Quota

Go Rows: 15 Actions

Order #	Customer Name	Order Month	Order Total	Sales Rep
7	LaGuardia, Fiorello	January 2010	\$3,800.00	DEMO
3	Hartsfield, William	February 2010	\$1,999.00	DEMO
1	Dulles, John	February 2010	\$1,200.00	DEMO
4	Logan, Edward	February 2010	\$750.00	DEMO
2	Hartsfield, William	February 2010	\$599.00	DEMO
10	Bradley, Eugene	January 2010	\$500.00	DEMO
9	Lambert, Albert	January 2010	\$450.00	DEMO
6	Orlans, Edward "Butch"	January 2010	\$250.00	DEMO
5	Logan, Edward	February 2010	\$40.00	DEMO
8	Lambert, Albert	January 2010	\$40.00	DEMO

1 - 10

Sample Application

Welcome to the Sample Application. This application is designed to highlight the features of this product.

Tasks

- About this Application
- Enter a New Order
- Add a New Customer
- Add a New Product

54

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Web 2.0

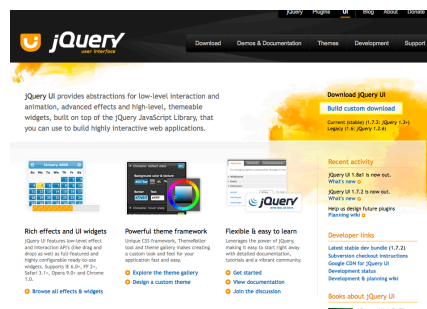
Extend with JavaScript

JQuery

Javascript Framework

Integration of JQuery and JQuery UI

- Popular light-weight Javascript Framework



New Dynamic Actions

58

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Dynamic Actions

- Provides a way to define client-side behavior declaratively within Application Express, without the need to know JavaScript
- Simple Wizard to create
 - Select Page Item
 - Select Condition (e.g. equal to, greater than, is null, etc.)
 - Enter value
 - Select Action (Show, Hide, Enable, Show Item Row)
 - Enter list of items
 - Add Condition (Optional)

59

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Dynamic Actions

- Sample application by Anthony Rayner

Welcome: DIMITRI.GIELIS@APEX-EVANGELISTS.COM

Examples
Disable / Enable
Hide / Show
Set Value (SQL)
Set Value (PL/SQL)
Stripe Report
Set CSS
Slider Sliding
Drag and Drop

Information
This page contains 1 dynamic action called 'JOB EQUALS SALESMAN'. This fires whenever a different 'Job' is selected from the radio buttons and checks if the value is equal to 'SALESMAN'. If it is equal to 'SALESMAN' the 'Commission' page item is enabled, otherwise it is disabled.
It uses 2 native actions ('Enable' and 'Disable').

Disable / Enable Cancel Delete Apply Changes
Name:
☐ ANALYST
☐ CLERK
Job: ☒ MANAGER
☐ PRESIDENT
☐ SALESMAN
Manager:
Hiredate:
Salary:
Commission:
Department:

60

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Dynamic Actions

D E M O N S T R A T I O N

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New Plug-ins

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Plug-Ins

- Easy way to enhance the existing built-in functionality of Oracle APEX with new item types, region types, dynamic actions, etc.
- Developers use in similar fashion to native widgets
- Wizard support and declarative setting of attributes
- Included in APEX application export
- By providing this plug-in system in APEX, we want to engage the APEX community to create a rich ecosystem around Oracle APEX

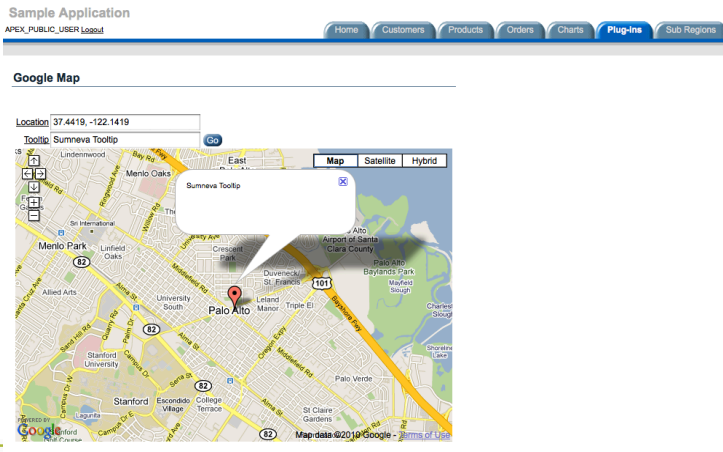
63

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Plug-ins

- Sample application by Patrick Wolf



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64

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Plug-ins

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Integrate with other systems

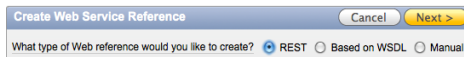
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New REST Web Services

- Incorporating new declarative APEX component
- Utilise a simpler architecture than SOAP
- Typically parameters are passed to a REST Web service as part of the URL and an XML is returned
- Many popular public Web services provided by Google, Yahoo, Amazon and PayPal use REST
- Some Web Service providers use the REST architecture exclusively



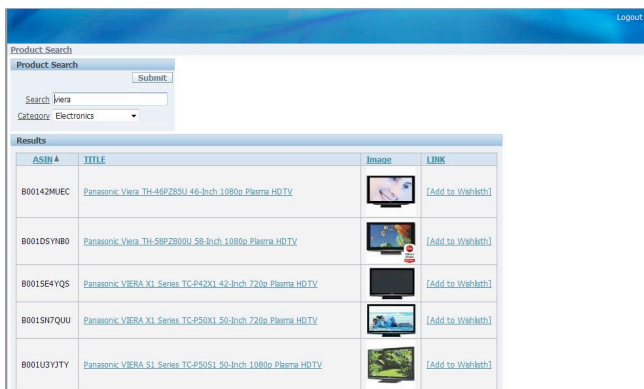
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New REST Web Services

- Samples by Jason Straub



ASIN #	TITLE	Image	LINK
B00142MUEC	Panasonic Viera TH-46PZ85U 46-Inch 1080p Plasma HDTV		[Add to Wishlist]
B001DSYH80	Panasonic Viera TH-58PZ800U 58-Inch 1080p Plasma HDTV		[Add to Wishlist]
B0015E4YQS	Panasonic VIERA X1 Series TC-P42X1 42-Inch 720p Plasma HDTV		[Add to Wishlist]
B001SH7QUU	Panasonic VIERA X1 Series TC-P50X1 50-Inch 720p Plasma HDTV		[Add to Wishlist]
B001U3VJTY	Panasonic VIERA S1 Series TC-P50S1 50-Inch 1080p Plasma HDTV		[Add to Wishlist]

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REST Webservice

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Testing and Debugging

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New APEX Advisor

- Performs checks on your application
 - Programming Errors
 - Security Issues
 - QA and BP

ORACLE® Application Express

Welcome DIMITRI GIELIS@APEX-EV

Home Application Builder SQL Workshop Team Development Administration

Home > Application Builder > Application 12807 > Utilities > Advisor

Perform Check

Checks to Perform

☒ References with Substitution Syntax	☒ References with Column Syntax	☒ References with Bind Variable Syntax
☒ Referenced item is on current page	☒ Referenced item is page item of target page	☒ Declarative references of Application/Page Items/IR Filter
☒ References of Page Item in a String	☒ Referenced Page Number Exists	☒ Clear Cache Page Number equals Target- or Current Page
☒ Is Valid SQL/PLSQL Code	☒ Target Page Authorization equals current Component authorization	☒ Target Page Authorization is also set for current Component
☒ Fetch/DML/RR Processes are valid	☒ Inappropriate use of Substitution Syntax	☒ V Function used in SQL Statement
☒ Hardcoded Application Id	☒ Unconditional Branch before other branches	☒ Associated Item of Validations
☒ Length of item name	☒ Referenced Button in When Button Pressed exists	☒ Report has default order
☒ Page item has Help Text		

71

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New Debugger

Debug Message Data

http://tryapexnow.com/apex/f?p=4000:939:2716558328048258::NO:939:P939_PAGE_VIEW_ID:1887

Items Pages Queries Tables PL/SQL Images Debug Session

Page View Identifier: 1887
Application: 323
Page: 7
Elapsed Time: .72418
Maximum Difference: .06303

Select Page View Identifier Reset

Go Actions

Elapsed	Difference	Message	User	Level	Graph	Message Timestamp	Message Timestamp Since
0.05015	-	S H O W: application="323" page="7" workspace="" request="" session="1085624841229362"	-	3	-	29-MAR-10 04.04.05.132343 PM	29-MAR-10 04.04.05.132343 PM
0.08132	0.03120	Language derived from: FLOW_PRIMARY_LANGUAGE, current browser language: en	-	3		29-MAR-10 04.04.05.163543 PM	29-MAR-10 04.04.05.163543 PM
0.09263	0.01132	alter session set nls_language="AMERICAN"	-	3		04.04.05.174863 PM	04.04.05.174863 PM
0.09318	0.00068	alter session set nls_territory="AMERICA"	-	3		29-MAR-10 04.04.05.175542 PM	29-MAR-10 04.04.05.175542 PM
0.09343	0.00025	NLS: CSV charset=WE8MSWIN1252	-	3		29-MAR-10 04.04.05.175795 PM	29-MAR-10 04.04.05.175795 PM
0.11886	0.02531	...NLS: Set Decimal separator=","	-	3		29-MAR-10 04.04.05.201106 PM	29-MAR-10 04.04.05.201106 PM
0.11927	0.00053	...NLS: Set NLS Group separator=","	-	3		29-MAR-10 04.04.05.201634 PM	29-MAR-10 04.04.05.201634 PM
0.11959	0.00032	...NLS: Set g_nls_date_format="DD-MON-RR"	-	3		29-MAR-10 04.04.05.201950 PM	29-MAR-10 04.04.05.201950 PM
0.12478	0.00508	...NLS: Set g_nls_timestamp_format="DD-MON-RR HH.MI.SSXXF AM"	-	3		29-MAR-10 04.04.05.207025 PM	29-MAR-10 04.04.05.207025 PM
0.12995	0.00518	...NLS: Set g_nls_timestamp_1z_format="DD-MON-RR HH.MI.SSXXF AM TZR"	-	3		29-MAR-10 04.04.05.212205 PM	29-MAR-10 04.04.05.212205 PM
0.13764	0.00762	Setting session time zone to: 04.00	-	3		29-MAR-10	29-MAR-10

Remote Debugging with SQL Developer

The screenshot shows the Oracle SQL Developer interface. The main window displays a PL/SQL function named `isAdmin` with the following code:

```
1 create or replace
2 function isAdmin(p_username in varchar2) return boolean is
3   v_result boolean;
4   v_admin_flag varchar2(1);
5 begin
6   v_result :=
7     select
8       v
9     into
10      v_admin_flag
11     from
12      dual
13     where
14       (v APP_USER) = 'ADMIN';
15   if (v_admin_flag = 'Y') then
16     return True;
17   else
18     return False;
19   end if;
20 exception
21 when no_data_found then
22   return False;
23 when too_many_rows then
24   return False;
25 end;
```

The left pane shows the 'Functions' tree with 'TRAINING.ISADMIN' selected. The bottom pane shows the 'Messages' window with the following text:

```
Debugging: IdcConnections%23VM+O11GR2+-+training.jpr - Log x
Debugger accepted connection from database on port 4000.
Source breakpoint occurred at line 6 of ISADMIN.pls.
```

The bottom status bar indicates 'PL/SQL compiled/saved' and 'Line 6 Column 1'.

Debugging

D E M O N S T R A T I O N

Deployment

Supporting Objects

Supporting Objects
Use this utility to define the database object definitions, images, and seed data to be included in your application export.

Application: 323: Sample Application
Check for Objects: No Substitutions: 0 Installation Scripts: 0
Verify System Privileges: No Build Options: 0 Upgrade Scripts: 0
Required Free KB: 0 Validations: 0 Deinstallation Script: No
Prompt for License: No Include in Export: No

Installation


- ☒ Prerequisites
- ☒ Application substitution strings
- ☐ Build options
- ☒ Pre-Installation validations
- ☒ Installation scripts
-  Messages

Upgrade


-  Upgrade scripts
-  Upgrade Message

Deinstallation


-  Deinstallation script
-  Deinstallation Message

Tasks

- View Install Summary
- Remove Supporting Object
- Installation
- Export Application
- Install Supporting Objects
- Upgrade Supporting Objects

Application Express 4.0.0.00.25

Supporting Objects

D E M O N S T R A T I O N

Summary

- Continues the APEX Vision
- Express-ier
- Declarative Web 2.0 Magic
- Greater Extensibility

APEX Training in Utrecht

- **3-5 May 2010** - 3 days
 - Introduction to Oracle APEX I
- **6-7 May 2010** - 2 days
 - Introduction to Oracle APEX II
- **10-12 May 2010** - 3 days
 - Advanced Oracle APEX

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More Information

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 - <http://sumneva.com>
- Email
 - dimitri@sumneva.com
- OBUG APEX SIG - register for free
 - <http://www.obug.be/sig.aspx>
 - <http://www.obug.nl/sig.aspx>

80

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