



# Apex 5.1 Interactive Grid and Other New features



**Presented by: John Jay King**

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# Session Objectives



- Become familiar with the new features of APEX 5.1
- Learn how the Interactive Grid may be used to improve applications
- Understand how Master-Detail-Detail reports are created
- Create Oracle JET integrated charts

# Who Am I?



- John King – King Training Resources
- Oracle Ace Director 
- Member Oak Table Network 
- I help customers use technology through training and consulting in Oracle and other topics (<http://www.kingtraining.com>)
- “Techie” who knows Development, Java, Oracle, and SQL along with many other topics
- Member of AZORA, ODTUG, IOUG, and RMOUG
- One of those “dog-spoiling” people





- Providing customized training solutions since 1988 in the US and internationally
- Oracle topics include: SQL, PL/SQL, Database, Cloud, APEX, ADF, MAF, Forms, Reports, Pro\*C/Pro\*COBOL
- Non-Oracle topics include: UX, Web Services, IoT, Cloud Foundry, REST, Blockchain, Java, JavaScript, HTML5, CSS, jQuery, COBOL, .NET, SQL Server, DB2, Business Analyst, and more
- Visit us at [www.kingtraining.com](http://www.kingtraining.com) for more information and free downloads of presentations and code
- Contact Peggy at 1.303.798.5727 to schedule training today (email: [peggy@kingtraining.com](mailto:peggy@kingtraining.com) )



# Arizona, USA



# Who Are You?



- Application Developer ?
  - APEX?
    - V4 - V4.2
    - V5.0
    - V5.1 (5.1.1? 5.1.2? 5.1.3?)
- Cloud Developer
- DBA
- Data Scientist
- Solutions Architect or Business Analyst
- Other?

# APEX 5.1 Highlights



- Interactive Grid
- Universal Theme
- Master->Detail->Detail
- Per-user Preferences
- Asynchronous Dynamic Actions
- 32k Row Output Limit eliminated!
- others

# Interactive Grid



- Oracle has updated (replaced actually) tabular forms with the new Interactive Grid Report
- Interactive Grids provide a report in a searchable, customizable report
- Interactive Grids may be read-only or editable
- User-based Customization includes the ability to modify report format and add/update/delete data
- Developers have controls for Interactive Grids including the ability to define multiple data tables in master-detail-detail relationships

# Defining Interactive Grid




- Interactive Grids may be editable or read-only
- Create application wizard offers three options:
  1. Select Report and then Interactive Grid  
(creates read-only, may make editable)
  2. Select Editable Interactive Grid
  3. Select Report with Form with Interactive Grid  
Report type (read-only, may make editable)


# Create Editable I.G.





## Create Application


Select Page Type:


  
Blank


  
Report

  
Report and Form

  
Form

  
Editable Interactive Grid

  
Master Detail

  
Chart

Action: **Add blank page to application**

Page Name  ?

Cancel

Help

Add Page



# Create Read-Only I.G.



Create Application ×

Select Page Type:

Blank

**Report**

Report and Form

Form

Editable Interactive Grid

Master Detail

Chart

Action: **Add a report**

Parent Page  ?

Page Source  ?

Table Name  ?

Report Type    ?

# Create Report with Form



### Create Page

Interactive Report

Interactive Grid

Classic Report

Report with Form on Table

Report on Web Service

<

Cancel

Help

Next >



# Make Interactive Grid Type



Create Report with Form

Page Attributes

Report Type: ☐ Interactive Report ☒ **Interactive Grid** ☐ Classic Report (?)

\* Report Page Number:  (?)

\* Report Page Name:  (?)

\* Form Page Number:  (?)

\* Form Page Name:  (?)

Form Page Mode: ☒ **Normal** ☐ Modal Dialog (?)

Breadcrumb:  (?)

< Cancel **Next >**



- Users have many options for managing I.G.

Home \ Employees

Employees

Search:  Go Primary Report Actions Edit Save Add Row Reset

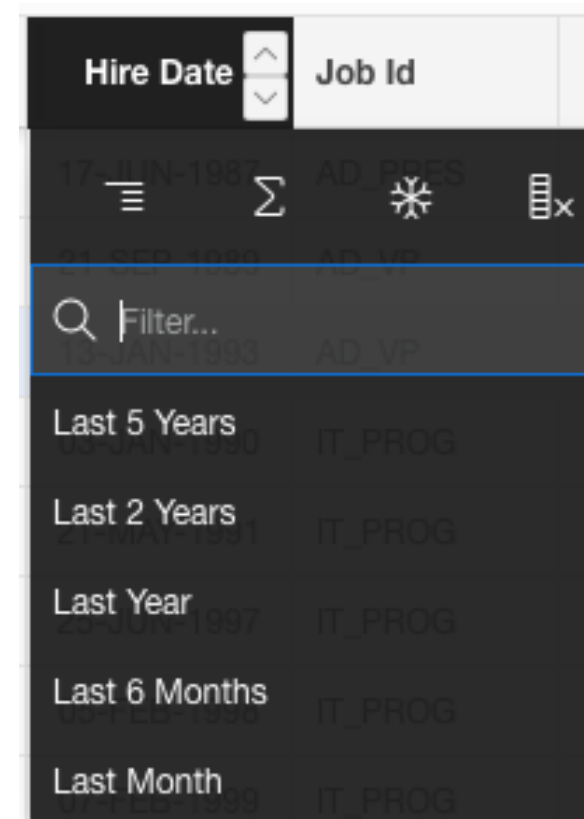
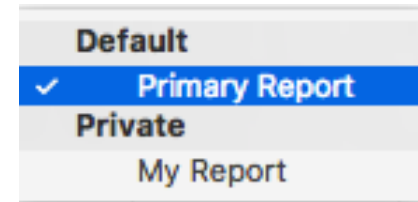
		Employee Id	First Name	Last Name	Email	Phone Nu...	Hire Date	Job Id	Salary	Commissio...	Manager Id	Departmen...
<input checked="" type="checkbox"/>	≡	100	Steven	King	SKING	515.123.4567	17-JUN-1987	AD_PRES	24000	-	-	90
<input type="checkbox"/>	≡	101	Neena	Kochhar	NKOCHHAR	515.123.4568	21-SEP-1989	AD_VP	17000	-	100	90
<input type="checkbox"/>	≡	102	Lex	De Haan	LDEHAAN	515.123.4569	13-JAN-1993	AD_VP	17000	-	90	90
<input checked="" type="checkbox"/>	≡	103	Alexander	Hunold	AHUNOLD	590.423.4567	03-JAN-1990	IT_PROG	9000	-	102	60
<input type="checkbox"/>	≡	104	Bruce	Ernst	BERNST	590.423.4568	21-MAY-1991	IT_PROG	6000	-	103	60

Red arrows point to various interactive elements: the search bar, the 'Save' button, the 'Add Row' button, the 'Reset' button, the 'Hire Date' column header, the 'Job Id' column header, the 'Manager Id' column header, and the checkbox in the first column of the first row.

# User Features, 1



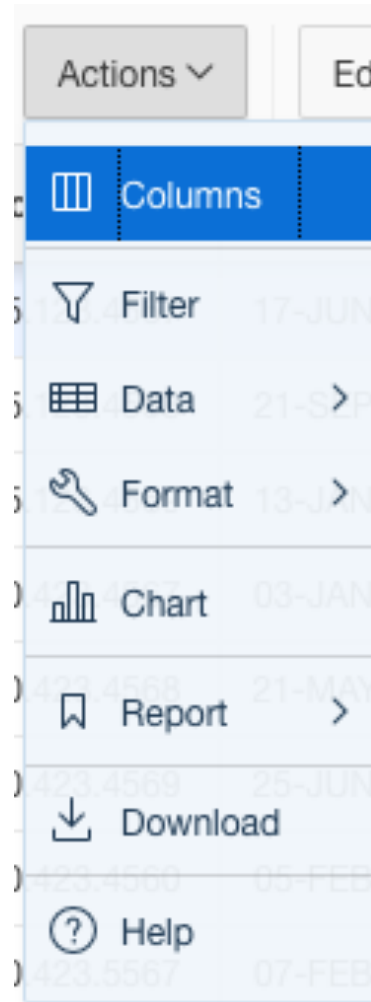
- Filters / Remove
- Report List
- Column resize
- Column reposition
- Column sort
- Column menu
  - Control Break
  - Aggregates
  - Freeze
  - Hide (restore with



# User Features, 2



- Actions menu
  - Columns
  - Filter
  - Data
  - Format
  - Chart
  - Report
  - Download
  - Help



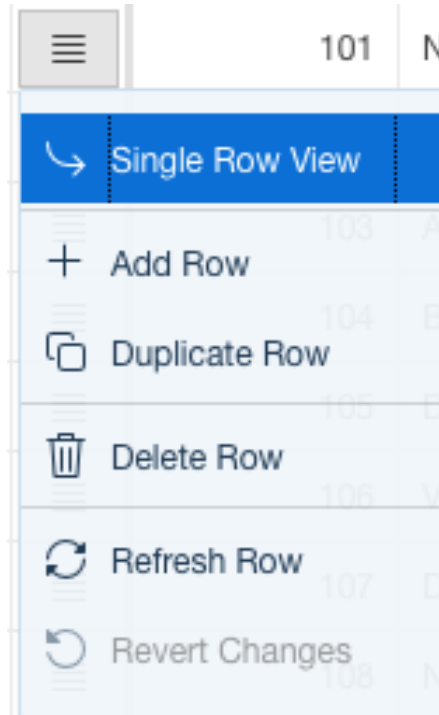


Q ▾		Go	Primary Report ▾	Actions ▾	Edit	Save	Add Row	↶ Reset
-----	--	----	------------------	-----------	------	------	---------	---------

- Edit
- Save
- Add Row
- Reset



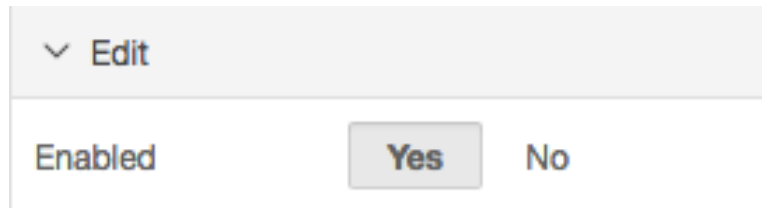
- Edit Line Menu
  - Single Row View
  - Add Row
  - Duplicate Row
  - Delete Row
  - Refresh Row
  - Revert Changes



# Make Read-Only Editable



- Attributes
  - Edit “enabled” makes a Read-Only IG editable

A screenshot of a software interface showing the configuration for the 'Edit' attribute. It includes a dropdown menu labeled 'Edit' and two buttons, 'Yes' and 'No', with the 'Yes' button selected.

- Add Row if Empty creates an empty row so that the “no rows” message never appears

A screenshot of a software interface showing the configuration for the 'Add Row if Empty' attribute. It includes a label 'Add Row if Empty' and two buttons, 'Yes' and 'No', with the 'Yes' button selected.



- When a region is “Editable” other options appear:
  - Allowed Operations: Add Row, Update Row, Delete Row
  - Allowed Row Operations Column - Select a column where the column value indicates if the row can be updated and/or deleted
  - Lost Update Type protects against lost updates using: Row Values (checksum value for each row), Row Version Column using auto-incremented column, Add Row If Empty if no records are returned, Submit Includes Selected Rows includes checked rows using extra code



# Master-Detail-Detail



- APEX 5.1 allows the use of Interactive Grids to create Master-Detail forms that can be multiple levels deep (master-detail-detail)
- Master-detail relationships are common in business applications and were a cornerstone of older Oracle Forms applications
- APEX 5.1 allows creation of editable grids in master-detail (parent-child) relationships or master-detail-detail (parent-child-grandchild)

# Master-Detail “Plumbing”



- The “plumbing” that make the Master-Detail relations work is simple
  - Region attributes now include “Master Region”
  - Column properties now include “Master Column”
  - Together Master Region and Master Column establish a “detail/child” region's relationship with its “master/parent” region

# Making Master-Detail



- Initial Master-Detail relationship is created using the Master-Detail report
- Additional relationships are made using the “Master Region” and “Master Column” attributes
- Region “Master Region” attribute



▼ Master Detail

Master Region    - Select -    ▼    >

- Column “Master Column” attribute

▼ Master Detail

Master Column    COUNTRY\_    ▼    >


# Initial Master-Detail





## Create Application


×


Select Page Type:


  
Blank


  
Report

  
Report and Form

  
Form

  
Editable Interactive  
Grid

  
Master Detail

  
Chart

Action: **Add a single page master detail**

Master Table Name  ?

Detail Table Name  ?

Cancel Help

Add Page

# Example: Master-Detail-Detail



## Master Detail

Save

<input type="checkbox"/>	<input type="checkbox"/>	Region Name
<input type="checkbox"/>	<input type="checkbox"/>	Europe
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Americas
<input type="checkbox"/>	<input type="checkbox"/>	Asia
<input type="checkbox"/>	<input type="checkbox"/>	Middle East and Africa

1 rows selected
Total

<input type="checkbox"/>	<input type="checkbox"/>	Country Code	Country Name
<input checked="" type="checkbox"/>	<input type="checkbox"/>	US	United States of America
<input type="checkbox"/>	<input type="checkbox"/>	CA	Canada
<input type="checkbox"/>	<input type="checkbox"/>	BR	Brazil
<input type="checkbox"/>	<input type="checkbox"/>	MX	Mexico
<input type="checkbox"/>	<input type="checkbox"/>	AR	Argentina

<input type="checkbox"/>	<input type="checkbox"/>	Street address	Postal code	City	State province
<input type="checkbox"/>	<input type="checkbox"/>	2014 Jabberwocky Rd	26192	Southlake	Texas
<input type="checkbox"/>	<input type="checkbox"/>	2011 Interiors Blvd	99236	South San Francisco	California
<input type="checkbox"/>	<input type="checkbox"/>	2007 Zagora St	50090	South Brunswick	New Jersey
<input type="checkbox"/>	<input type="checkbox"/>	2004 Charade Rd	98199	Seattle	Washington

Total 4



- Many changes have been made to improve the Universal Theme including:
  - Font APEX is a 1000+ icon library designed for APEX Universal Theme
  - Live Template Options enable developers to alter a component's template options without refreshing the page
  - Theme Styles allow users to select a different theme style while an application is running



- Oracle JET charts are fully integrated into APEX 5.1 using Plug-In Architecture  
(yes, another charting infrastructure, does not work with all chart types; for instance, Gantt and Map charts still use Anychart)
- Charts are created declaratively using Wizards
- New Create Chart Page wizard
- Chart Source Definition Simplified
- New Chart Types: Funnel, Area, Polar, Line with Area, and Radar
- Color palette integrated with Universal Theme



- Charts are based upon Oracle JET Data Visualization Components
- Today JET charts are part of APEX 5.1 but the entire framework is available for custom coding
- Oracle Jet (JavaScript Extension Toolkit) is an open source, JavaScript-based solution
- Oracle JET data is provided in JSON format
- JET allows custom JavaScript functions to be called when a chart is initialized
- Dynamic Actions provide interactive behavior
- Built-in accessibility support & responsive design



# Per-User Preferences



- Preference values for a specific Application Express user may be stored across sessions
- Once set, preferences may be removed programmatically or manually
- Set user preferences in different ways:
  - Creating a page process
  - Calculating a preference Item Source Value
  - Or via the PL/SQL API

# Setting User Preferences



- To manage user preferences for the current user:
  1. Navigate to the Workspace home page
  2. Click Manage Services on Administration list
  3. On Manage Services page click Manage Preferences under Session State
  4. On Manage Preferences page click Report Current User for current user info; click Purge/View/Reset Preferences to eliminate, view or reset current user preferences



- Dynamic Actions in APEX 5.0 execute synchronously unless "Wait for Result" set to NO
- APEX 5.1 Dynamic Actions will normally execute asynchronously and will not block the server; so, further dynamic actions may start immediately
- This might be a problem if a subsequent Dynamic Action depends on an earlier action's completion
- One solution is to set the Shared Components "compatibility mode" to 5.0 or synchronous
- "Wait for Result" works within one dynamic action
- Be careful when multiple dynamic actions are firing that processing is behaving as desired

# Other Changes



- Calendar now uses jQuery calendar widget
- Traditional “Component View” deprecated in 5.1 scheduled to be removed in 5.2
- Many existing Packaged Apps improved
- Many new Packaged Apps including:
  - Quick SQL                      Easy SQL modeling
  - Competitive Analysis        Side-by-side compare
  - REST Client Assistant       Access REST services



- New Create Application Wizard with advanced page types (Dashboards, Filter Reports, etc.)
- Application JSON Blueprints (easy editing)
- ORDS remote SQL access without DB links
- Consume REST services as data sources
- REST Workshop to enable REST services
- Interactive Grid enhancements: URL filtering, dynamic actions, auto-completion types, others
- Oracle JET and jQuery updates to JET 4.0
- Universal Theme enhancements for mobile
- Improved OAuth2 authentication

# Conclusions



- Oracle's APEX 5.1 has many new features making it well-worth your while to upgrade; the APEX 5.1.1 patch adds new features and cleans up some bugs
- Interactive Grid is something Oracle Forms and ADF users have missed in APEX; it's here and it works well
- Master-Detail-Detail provides the ability to synch multiple grids (when it makes sense)
- Oracle JET charts reflect yet another charting tool albeit an excellent one; let's hope it stays awhile

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## Tracks

- Application Development
- Business Intelligence
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- Hyperion
- Middleware
- Professional Empowerment

PHOTO CREDIT: Mike Landrum, SQL Developer and the "Data Tsunami" from i-Behavior

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## *Apex 5.1 Interactive Grid and Other New features*

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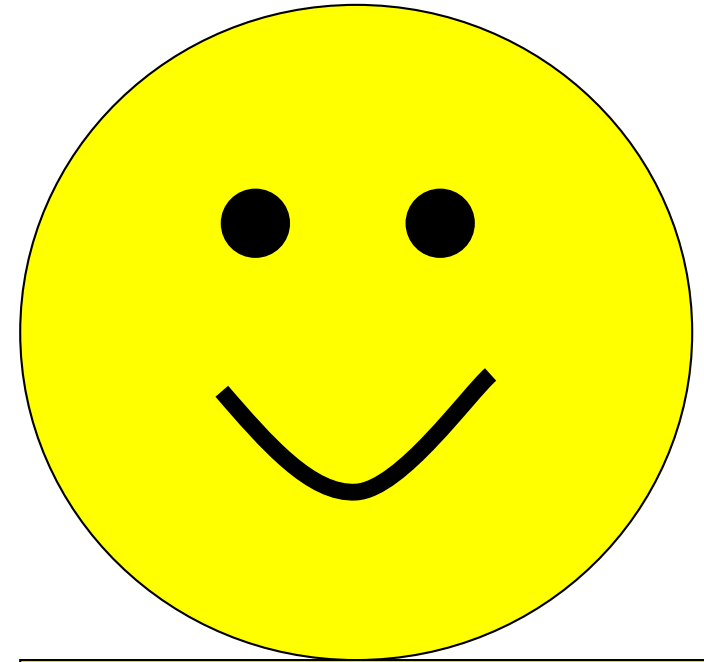
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**Thanks for your attention!**

Today's slides and examples are on the web:

**<http://www.kingtraining.com>**



- End