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# Oracle JHeadstart 10.1.3

## AMIS Query, 14 september 2006

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**Oracle Consulting**

# Agenda

- What is JHeadstart
- Demo advanced layout styles and runtime behaviors
- Generator architecture
  - Use of custom templates
  - Demo and samples custom templates
- Project Experiences

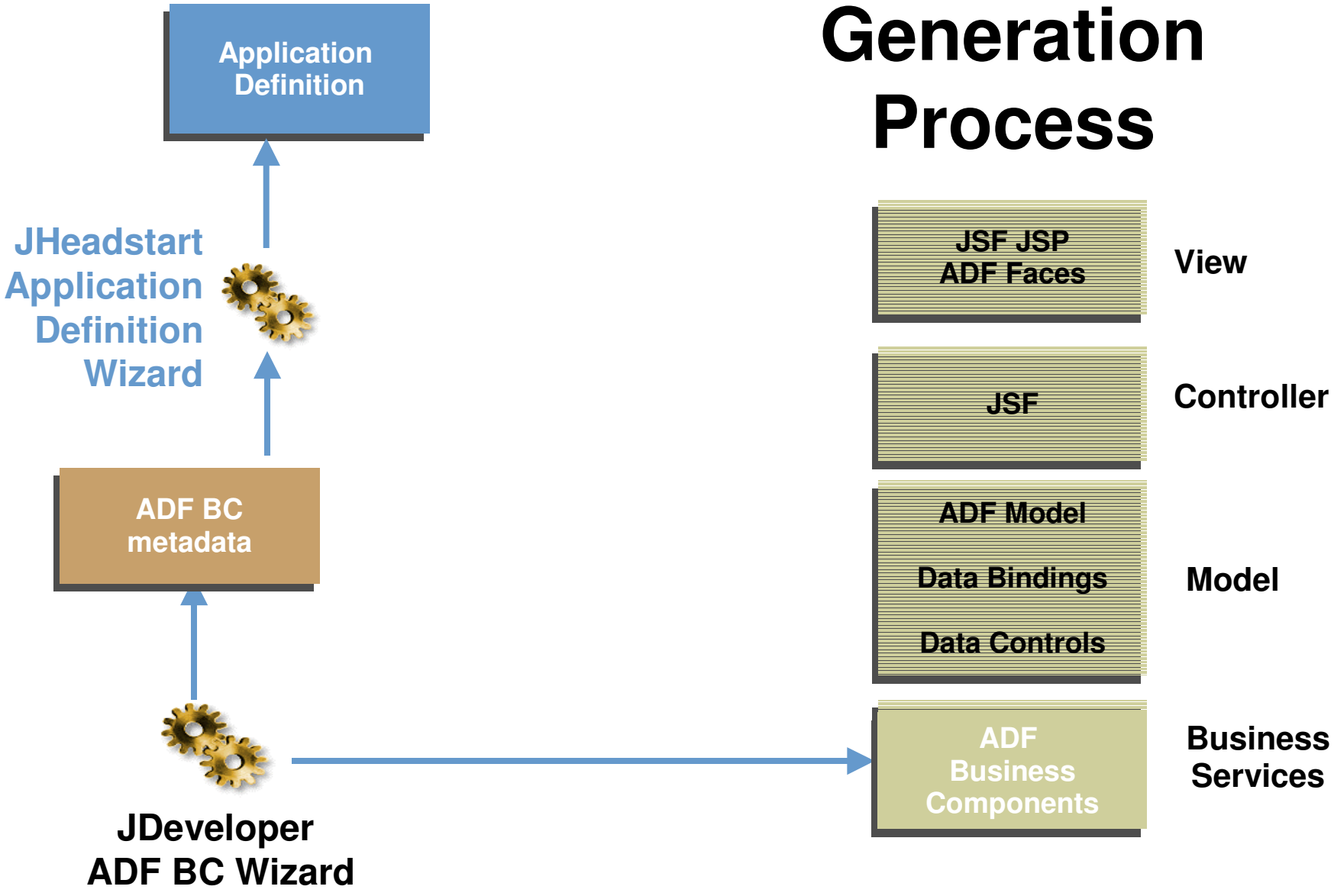
# What is Oracle JHeadstart?

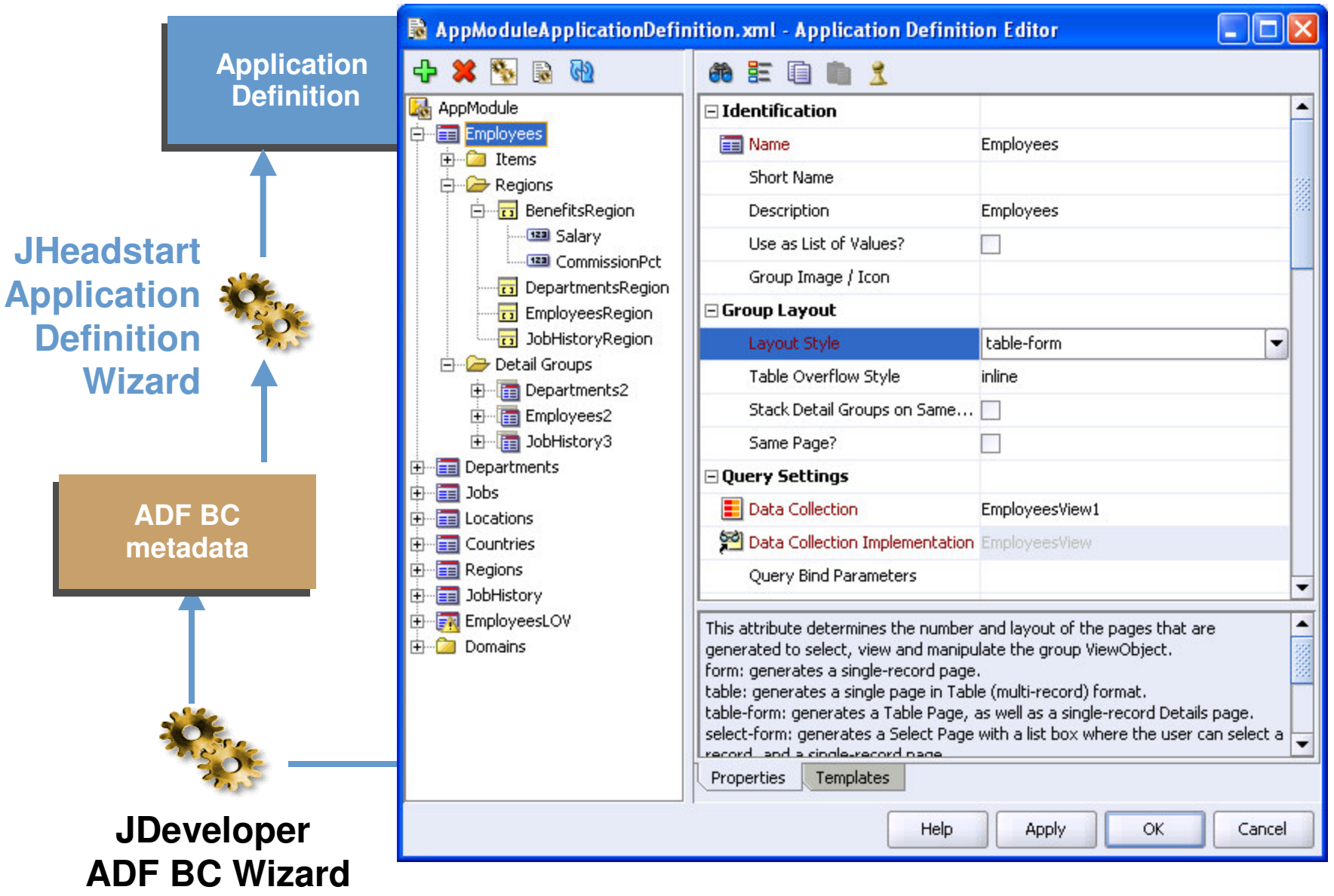
- Proven Development toolkit for rapid J2EE application development.
- Guiding Principles:
  - Declarative Development
  - Rapid, Iterative Prototyping
  - Powerful generator as a plug-in into JDeveloper
  - Assembles reusable components, does NOT generate Java!
  - Generates fully functional ADF-based J2EE apps
- Includes Oracle Designer/Forms to J2EE migration path

# What is JHeadstart?

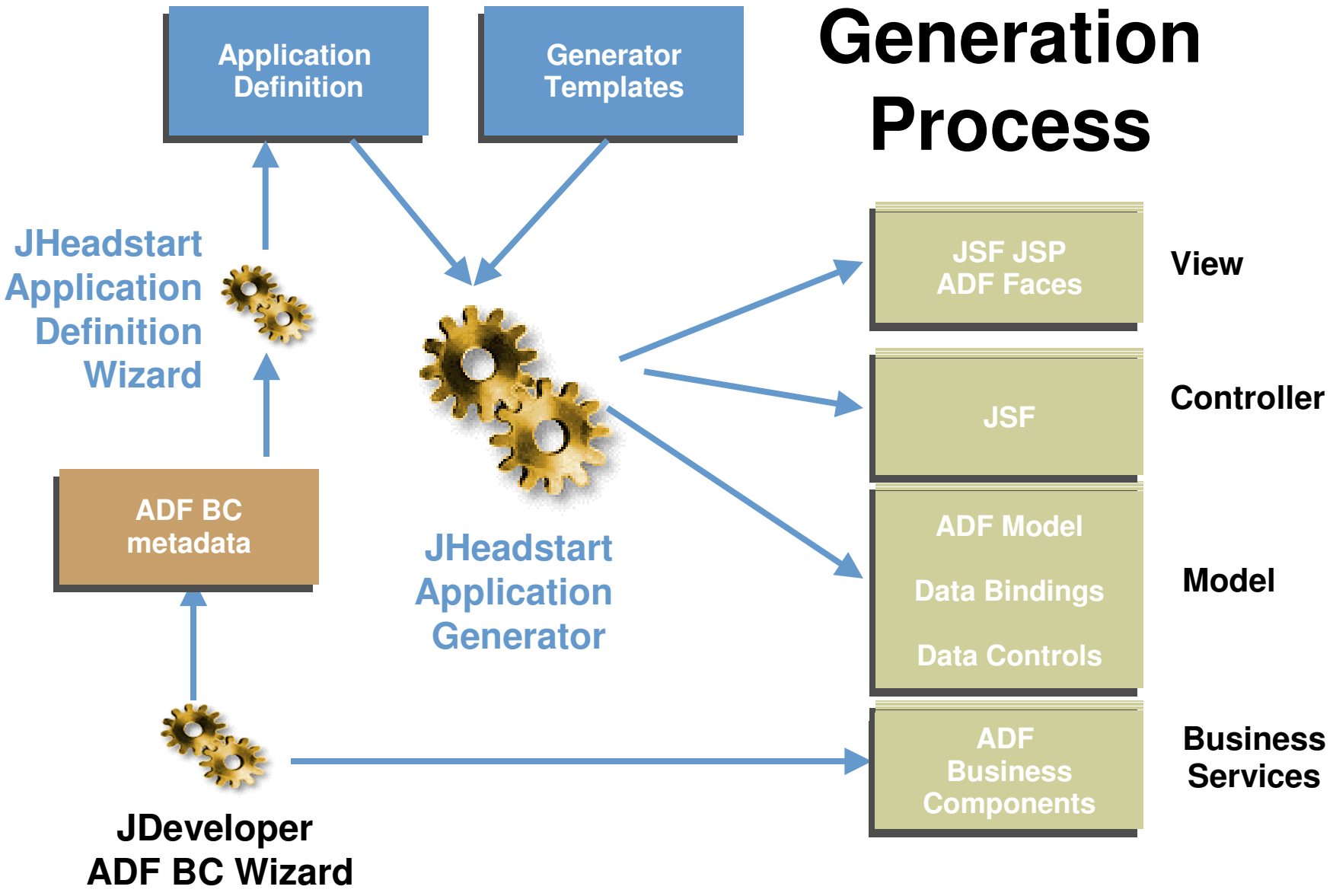
- Current JHeadstart Release 10.1.3
  - Compatible with JDeveloper 10.1.3
  - Builds on ADF Runtime architecture
  - Fully integrates with ADF Design Time
- Adds an extra level of productivity
  - JHeadstart Application Generator generates complete ADF applications
  - Like the Designer Form Generator generates Forms apps, JHeadstart generates ADF apps
- Implements ADF Best Practices

# Generation Process




Application Definition
JHeadstart Application Definition Wizard
ADF BC metadata
JDeveloper ADF BC Wizard
AppModuleApplicationDefinition.xml - Application Definition Editor
AppModule
Employees
Items
Regions
BenefitsRegion
Salary
CommissionPct
DepartmentsRegion
EmployeesRegion
JobHistoryRegion
Detail Groups
Departments2
Employees2
JobHistory3
Departments
Jobs
Locations
Countries
Regions
JobHistory
EmployeesLOV
Domains
Identification
Name
Employees
Short Name
Description
Employees
Use as List of Values?
Group Image / Icon
Group Layout
Layout Style
table-form
Table Overflow Style
inline
Stack Detail Groups on Same...
Same Page?
Query Settings
Data Collection
EmployeesView1
Data Collection Implementation
EmployeesView
Query Bind Parameters
This attribute determines the number and layout of the pages that are generated to select, view and manipulate the group ViewObject.
form: generates a single-record page.
table: generates a single page in Table (multi-record) format.
table-form: generates a Table Page, as well as a single-record Details page.
select-form: generates a Select Page with a list box where the user can select a
Properties
Templates
Help
Apply
OK
Cancel

# Generation Process



# Generator Outputs

- JSF Pages using ADF Faces
  - Component hierarchies and binding EL
- Page Flow
  - faces-config.xml
- ADF Data Binding
  - DataBinding Context & Page Definitions
- ADF Page Lifecycle
  - Generic Enhancements to Support Runtime Features
- Translatable Text
  - In Resource Bundles or Properties Files
- No Java Code is Generated, Just XML

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

# JHeadstart Application Generator

# JHeadstart Main Features

Layout Styles

- Form, Table, Table-Form, Select-Form, Tree, Tree-Form, Shuttle, Wizard, (Stacked) Regions, Overflow styles (inline, right, below)
- Any combination of layout styles for parent and child, either on same page or separate pages
- Quick Search, Advanced Search (same page or separate page, choice of query operators)
- List Of Values (LOV) windows
  - Use LOV for Validation
  - Multi-Select LOV

# JHeadstart Main Features

Runtime Behaviors

- Multi-row insert, update, multi-select delete
- Sorting and scrolling of table data
- Notification of outstanding changes
- Complex Defaulting
- Deep Linking
- Conditionally Dependent Items
- Range searches, case-insensitive searches, maximum number of search hits
- Dynamic queries using query bind params
- Breadcrumbs

## Employees

New Employees

Result matches all conditions
Result matches any condition
Case Sensitive?

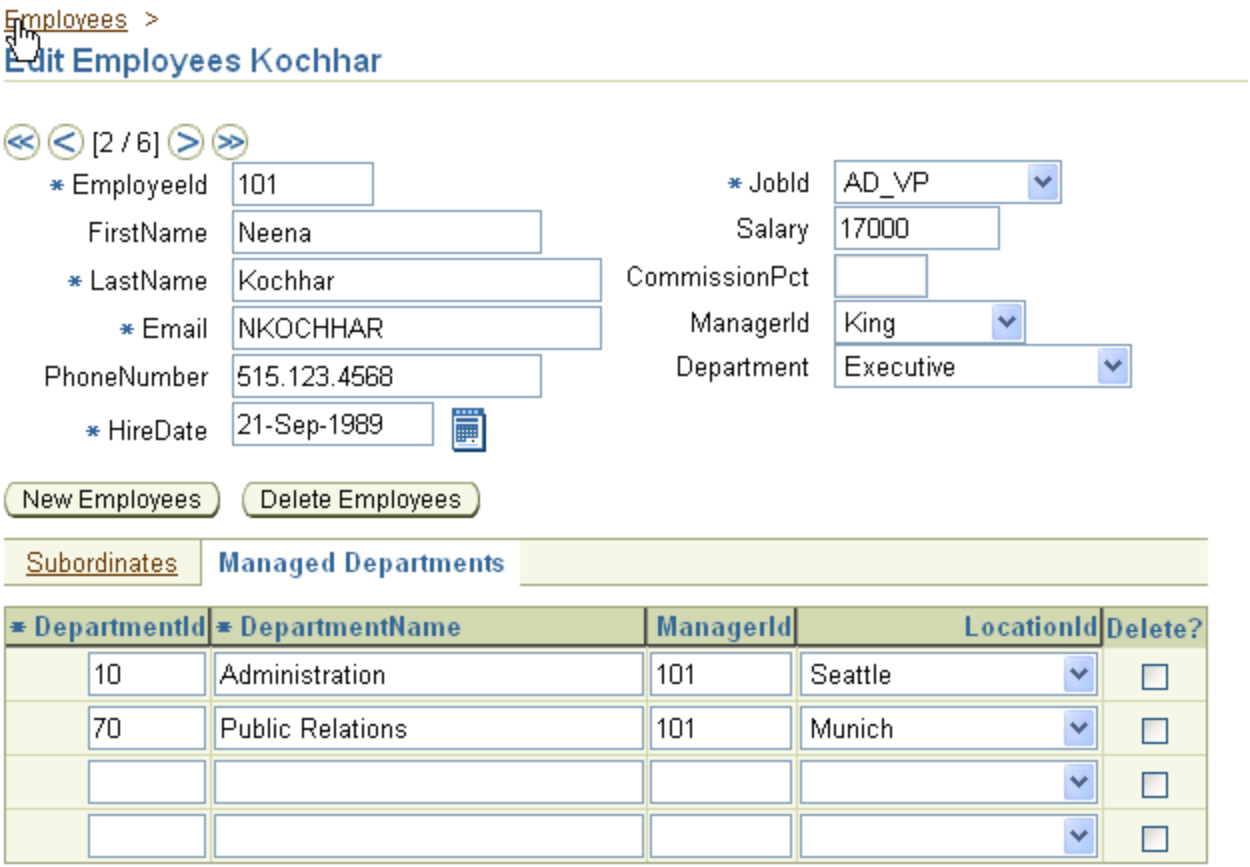
EmployeeId
FirstName
LastName starts with k
Email
PhoneNumber

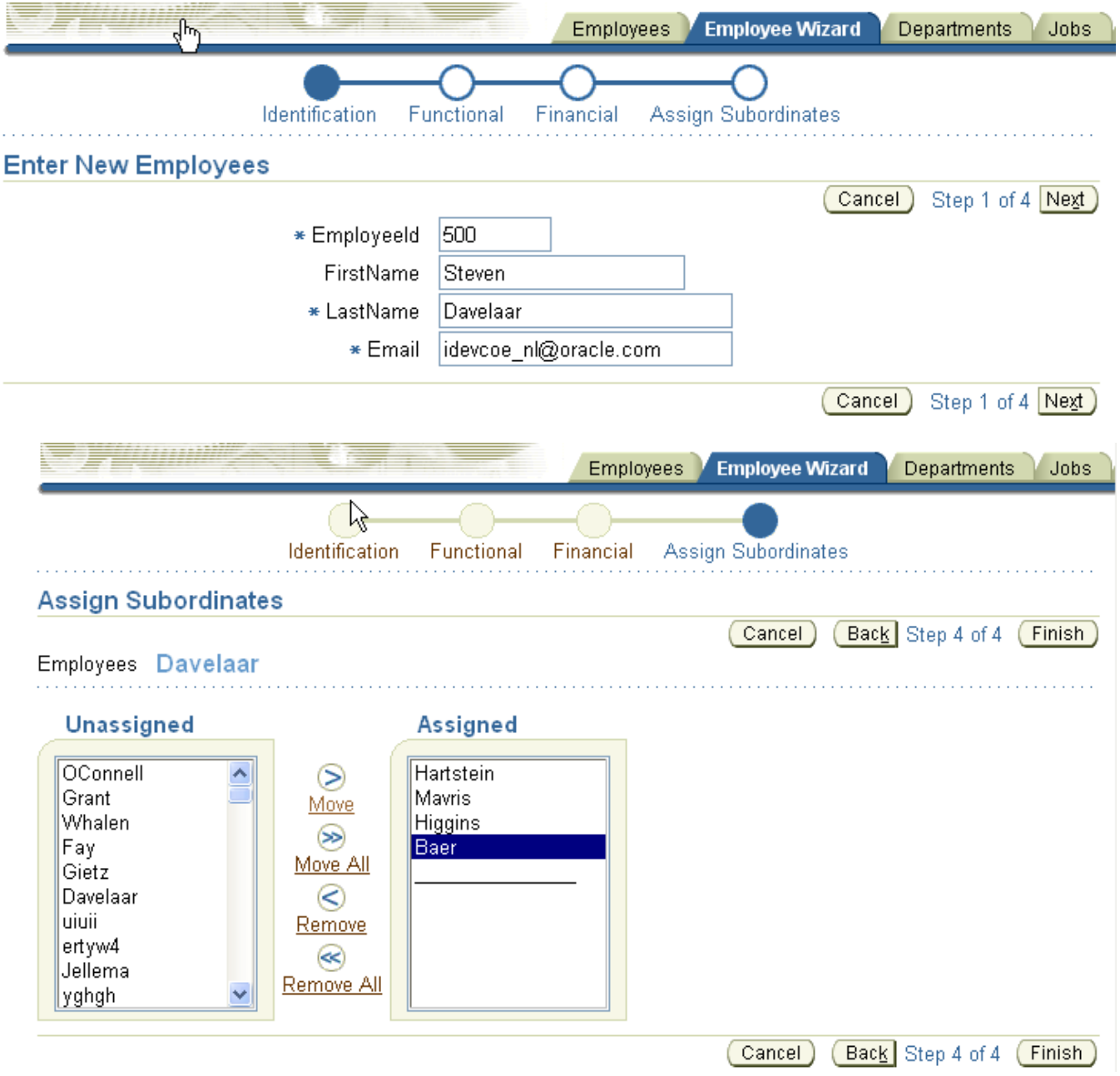
HireDate
JobId
Salary From
Salary To
CommissionPct
ManagerId
Department

Find Clear Quick Search

Details

| Select | Details | EmployeeId | FirstName | LastName | Email | JobId | Salary |
|---|---|---|---|---|---|---|---|
| ◉ | Show | 100 | Steven | King | SKING | AC_MGR | 24000 |
| ○ | Hide | 101 | Neena | Kochhar | NKOCHHAR | AD_VP | 17000 |
| | PhoneNumber 515.123.4568 ManagerId King<br>HireDate 21-Sep-1989 Department Executive<br>CommissionPct | | | | | | |
| ○ | Show | 115 | Alexander | Khoo | AKHOO | PU_CLERK | 3100 |
| ○ | Show | 122 | Payam | Kaufling | PKAUFLIN | ST_MAN | 7900 |
| ○ | Show | 156 | Janette | King | JKING | SA_REP | 10000 |
| ○ | Show | 173 | Sundita | Kumar | SKUMAR | SA_REP | 6100 |


Employees >
Edit Employees Kochhar
[2 / 6]
* EmployeeId 101
FirstName Neena
* LastName Kochhar
* Email NKOCHHAR
PhoneNumber 515.123.4568
* HireDate 21-Sep-1989
* JobId AD_VP
Salary 17000
CommissionPct
ManagerId King
Department Executive
New Employees
Delete Employees
Subordinates
Managed Departments
* DepartmentId
* DepartmentName
ManagerId
LocationId
Delete?
10 Administration 101 Seattle
70 Public Relations 101 Munich


Employees
Employee Wizard
Departments
Jobs
Identification
Functional
Financial
Assign Subordinates
Enter New Employees
Cancel
Step 1 of 4
Next
* EmployeeId
500
FirstName
Steven
* LastName
Davelaar
* Email
idevcoe_nl@oracle.com
Cancel
Step 1 of 4
Next
Employees
Employee Wizard
Departments
Jobs
Identification
Functional
Financial
Assign Subordinates
Assign Subordinates
Cancel
Back
Step 4 of 4
Finish
Employees
Davelaar
Unassigned
OConnell
Grant
Whalen
Fay
Gietz
Davelaar
uiuii
ertyw4
Jellema
yghgh
Move
Move All
Remove
Remove All
Assigned
Hartstein
Mavris
Higgins
Baer
Cancel
Back
Step 4 of 4
Finish

Departments >

## Edit Departments IT

Save

[4 / 29]

* DepartmentId 60

* DepartmentName IT

ManagerName Hunold

ManagerEmail AHUNOLD

LocationId Southlake

New Departments | Delete Departments

### Employees

| Select | * EmployeeId | FirstName | * LastName | Delete? |
|---|---|---|---|---|
| ○ | 103 | Alexander | Hunold | ☐ |
| ○ | 104 | Bruce | Ernst | ☐ |
| ◉ | 105 | David | Austin | ☐ |
| ○ | 106 | Valli | Pataballa | ☐ |
| ○ | 107 | Diana | Lorentz | ☐ |

Functional | Financial

* Email DAUSTIN

PhoneNumber 590.423.4569

* HireDate 25-Jun-1997

* JobId IT_PROG

ManagerId

DepartmentId 60

Save

## Countries

Save

Filter By CountryId Go Advanced Search

Previous 1-10 of 25 Next 10

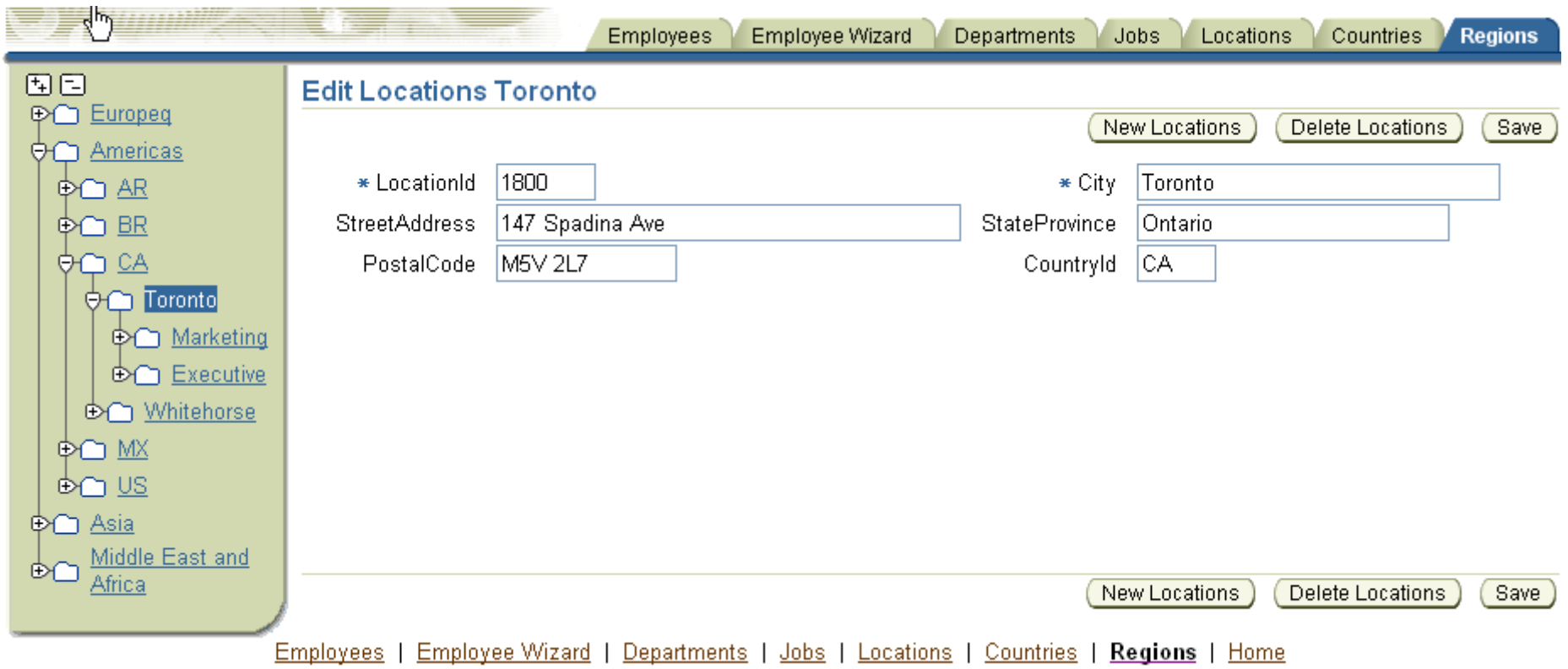
| Details | * CountryId | CountryName | RegionId | Delete? |
|---|---|---|---|---|
| Show | AR | Argentinaq | Americas | |
| Show | AU | Australia | Asia | |
| Show | BE | Belgium | Europeq | |
| Show | BR | Brazil | Americas | |
| Hide | CA | Canada | Americas | |

Locations

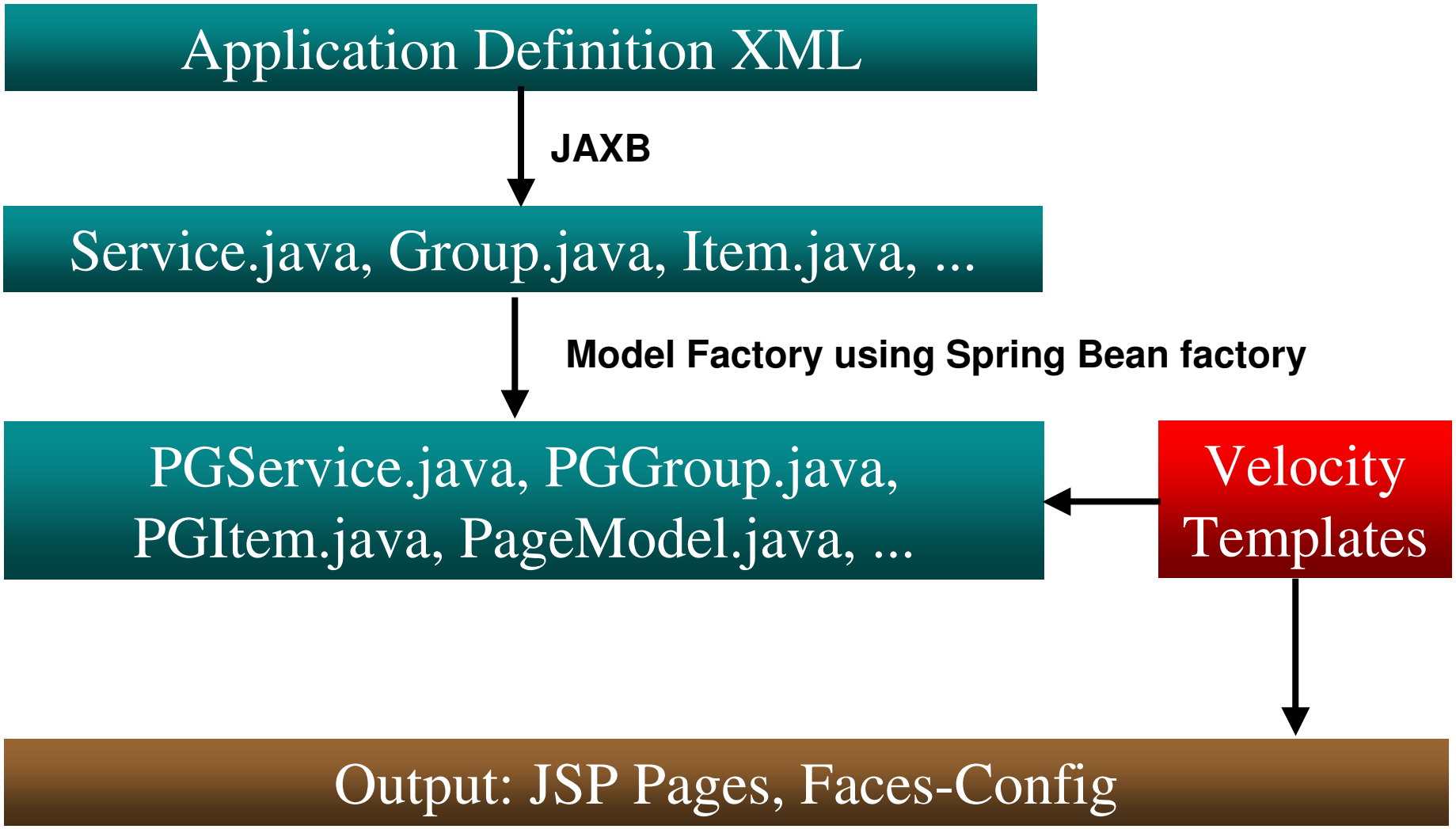
| * LocationId | StreetAddress | PostalCode | * City | StateProvince | CountryId | Delete? |
|---|---|---|---|---|---|---|
| 1800 | 147 Spadina Ave | M5V 2L7 | Toronto | Ontario | CA | |
| 1900 | 6092 Boxwood St | YSW 9T2 | Whitehorse | Yukon | CA | |
| | | | | | | |
| | | | | | | |

| | | | | |
|---|---|---|---|---|
| Show | CH | Switzerland | Europeq | |
| Show | CN | China | Asia | |
| Show | DE | Germany | Europeq | |
| Show | DK | Denmark | Europeq | |
| Show | EG | Egypt | Middle East and Africa | |

Previous 1-10 of 25 Next 10

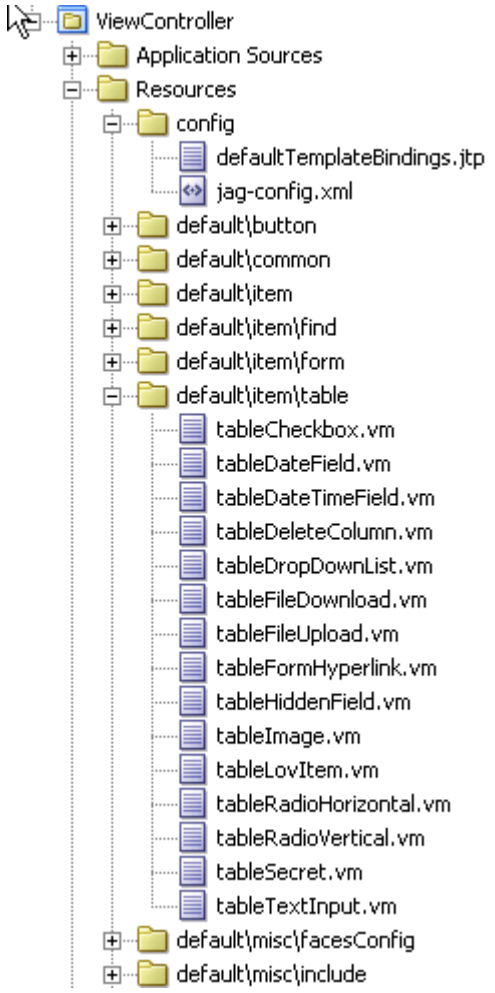

Employees
Employee Wizard
Departments
Jobs
Locations
Countries
Regions
Europeg
Americas
AR
BR
CA
Toronto
Marketing
Executive
Whitehorse
MX
US
Asia
Middle East and Africa
Edit Locations Toronto
New Locations
Delete Locations
Save
* LocationId
1800
* City
Toronto
StreetAddress
147 Spadina Ave
StateProvince
Ontario
PostalCode
M5V 2L7
CountryId
CA
New Locations
Delete Locations
Save
Employees | Employee Wizard | Departments | Jobs | Locations | Countries | Regions | Home

# JHeadstart Generator Architecture



# JHeadstart Generator Templates

- The content of generated pages is completely driven by generator templates
- The templates are categorized in groups
  - Page, pageComponent, button, item (table/form/search), search, misc, etc.
- Which template is used for which page "snippet" is handled by defaultTemplateBindings.jtp file.




```
# --------------------
# TABLE ITEM TEMPLATES
# --------------------
TABLE_TEXT_INPUT=default/item/table/tableTextInput.vm
TABLE_CHECK_BOX=default/item/table/tableCheckbox.vm
TABLE_DROP_DOWN_LIST=default/item/table/tableDropDownList.vm
TABLE_RADIO_VERTICAL=default/item/table/tableRadioVertical.vm
TABLE_RADIO_HORIZONTAL=default/item/table/tableRadioHorizontal.vm
TABLE_LIST=default/item/table/tableList.vm
```

# Velocity Template Language (VTL)

- The Generator Templates use VTL
- Velocity is Open Source Product from Apache Foundation
- Velocity Developers Guide
  - http://jakarta.apache.org/velocity/docs/developer-guide.html
- VTL Reference Guide
  - http://jakarta.apache.org/velocity/docs/vtl-reference-guide.html

# VTL Usage in Generator Templates

- All “page markup” (adf faces tags) is in the templates itself
- Complex expressions (“macros”) are defined in seperate velocity “library” files
  - Keeps templates easy to read and understand
  - Allows for reuse in multiple templates
  - Macro library files also have extension .vm, they are located in default/common dir.
  - Macro references start with # and are in uppercase

```
<af:panelHorizontal id="qsArea${JHS.current.group.name}"
                    rendered="#{#SEARCH_BEAN().quickSearchMode}">
  <af:outputText value="#FILTER_BY_LABEL()" styleClass="AFFieldText"/>
  <af:objectSpacer width="10"/>
  #JHS_PARSE(${JHS.current.group.singleSearchItem.quickSearchTemplateIdentifier}
              ${JHS.current.group.singleSearchItem})
  #JHS_PARSE("QUICK_SEARCH_BUTTONS" ${JHS.current.model})
</af:panelHorizontal>
```

# VTL Construct Examples

```
#if (!($subRegion.title==""))
 <af:panelHeader text="#REGION_TITLE($subRegion)">
 #JHS_PARSE($subRegion.templateIdentifier $subRegion)
 </af:panelHeader>
#else
 <af:panelGroup #JHS_PROP("rendered" $subRegion.rendered)>
 #JHS_PARSE($subRegion.templateIdentifier $subRegion)
 </af:panelGroup>
#end
```

**If-then-else**

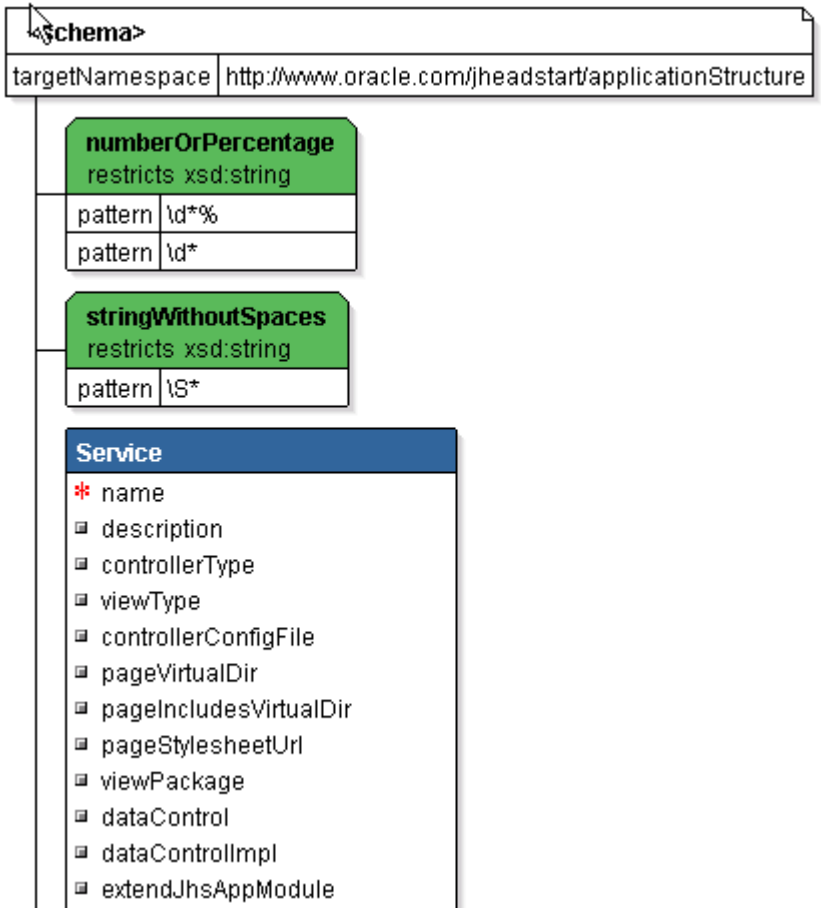
```
#foreach($item in ${JHS.current.itemContainer.items})
  #if ($item.displayInForm)
     #JHS_PARSE($item.formTemplateIdentifier $item)
  #end
#end
```

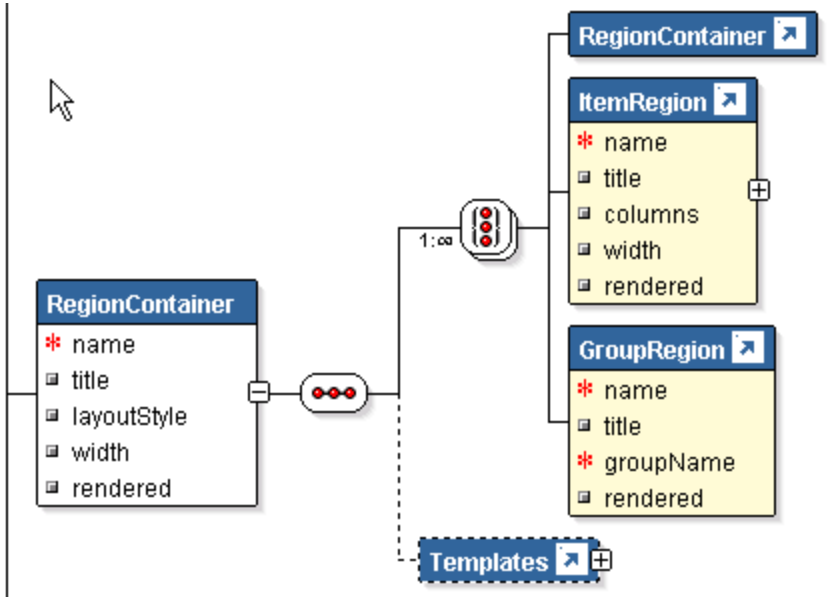
**Loop**

# Referencing JHeadstart Model in VTL

- You can access all metadata elements you enter through the Application Definition Editor
  - ${JHS.service}
  - ${JHS.current.group}
  - ${JHS.current.item}
  - ${JHS.current.regionContainer}
  - ${JHS.current.itemRegion}
  - ${JHS.current.groupRegion}
  - ...
- You can use all the attributes of these elements,
  - ${JHS.current.group.name}
  - see the XML Schema of the Application Definition for the proper attribute names

# Application Definition XSD




**Located in <jdev_hom>/jdev/extensions/jheadstart10.1.3/doc**

# PG Model Classes

- In addition to the XSD attributes, you can access aditional “convenience” methods in so called PG Model Classes (PG = Page Generator)
- Each Element Type in Application Definition has corresponding PG Model class
  - PGGroupModel, PGItemModel, etc.
- Example: PGGroupModel has convenience method getParentGroup, so you can use:
  - ${JHS.current.group.parentGroup.name}
- There are additional model classes to make your life even easier
  - PGPageModel, PGPageComponentModel, etc.

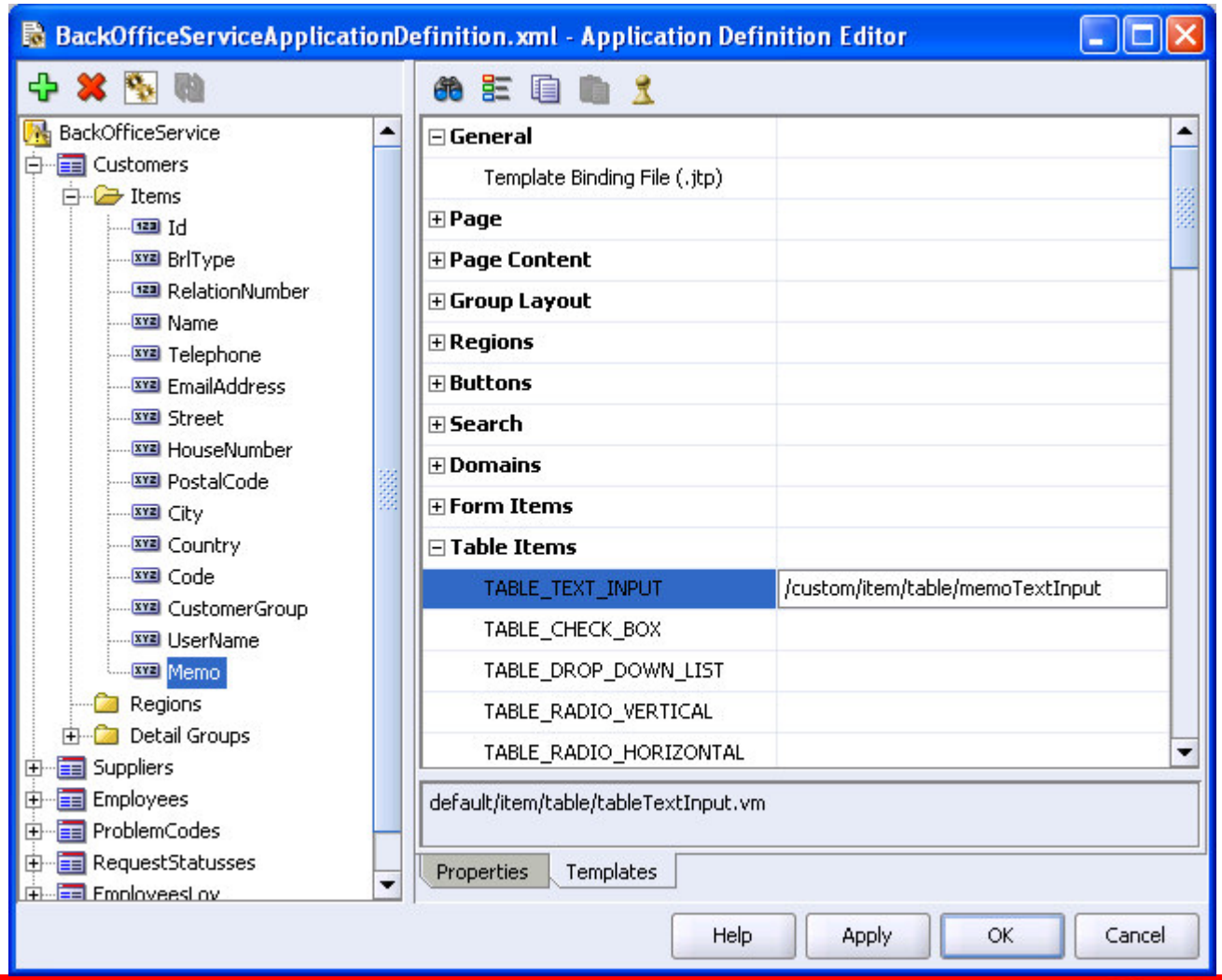
# PG Model Classes

- Check out the javadoc for all available classes and properties
  - Ctrl- on ViewController
  - Select “Javadoc”, enter “PGGroupModel”
- Property missing?
  - Extend the PGModel classes
  - Add your own convenience methods
  - Register your custom subclass in jag-config.xml (uses Spring Beanfactory)

# Using Custom Templates

- You can replace any default template with a custom template
- Do NOT modify the default templates shipped with JHeadstart
  - Upgrade to new version wipes out your changes
  - Makes debugging harder
- Steps:
  - Copy standard template and save into custom directory tree
  - Go to Application Definition Editor, select the appropriate element, click the templates tab
  - Specify your own custom template or a custom template bindings .jtp property file

# Using Custom Templates



# Debugging Custom Templates

- Check “Debug Jhs Application Generator” checkbox in JHeadstart Settings
  - Prints out all used template names in generated page!
- Check out velocity log messages that might appear when running the JAG.
- Temporarily add macro #MODEL_POINTER() to your template
  - Prints all “current” elements you can refer to.

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

# Using Custom Templates

# Project Experiences with JHS 10.1.3

- 100% Generation is back!
- JSF allows you to build complex screens in a much more transparent, elegant way
- JSF / ADF Faces is much better than Struts/UIX, although some things are tricky
  - Conditionally dep items
  - Immediate property
- New fine-grained security options very powerful

# JHeadstart Future Directions

- JHeadstart Web Services Generator
  - Generate web services based on application definition to use in Service Oriented Architecture
- Integration with BPEL Human Workflow
  - Task lists, deeplinking
- Integration with XML Publisher
  - Report launch form
- Alignment with JDeveloper release 11
  - ADF Faces Rich Client components
- Support for other Business Services
  - TopLink, EJB 3.0

# Why use JHeadstart?

- Makes J2EE development very easy
  - To get started no Java knowledge required
  - Enables J2EE Development for the masses
- Developer productivity similar to Designer/Forms, *without compromizing flexibility*
- Generated application easy to extend and customize
- Delivers an appealing and consistent user interface
- Protects investment in current Designer/Forms applications

# How to Obtain JHeadstart

- Consulting Offering
  - License is USD 1750 per named developer
  - Support through OTN Discussion Forum or Oracle Consulting
  - Patches through Supplement Option - 15% yearly subscription
  - Free evaluation download from OTN
- Google for “JHeadstart Product Center”

# More Info

- JDeveloper/ADF
  - http://www.oracle.com/technology/products/jdev
  - OTN JDeveloper Discussion Forum
- JHeadstart
  - http://otn.oracle.com/consulting/9iServices/JHeadstart.html
  - OTN JHeadstart Discussion Forum
  - WebLog: http://www.orablogs.com/jheadstart
- idevcoe_nl@oracle.com

# ADF-JHeadstart Workshop

- 3 days ADF, JSF, ADF Faces and ADF BC
- 2 days JHeadstart
- Students build real-life application, while applying lots of best practices
- Excellent student ratings, recommended by Steve Muench
- Scheduled workshops announced on JHeadstart Weblog and Discussion Forum

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